

# NASA'S UNIVERSITY PROGRAM

## ACTIVE PROJECTS

N80-18979

Unclas  
G3/80 13075

(NASA-TM-81777) NASA'S UNIVERSITY PROGRAM:  
ACTIVE PROJECTS, FISCAL YEAR 1979 (National  
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# NASA

National Aeronautics and  
Space Administration

University Affairs Office  
Washington, D.C. 20546



FISCAL YEAR 1979

## **IMPORTANT NOTICE**

**This report is compiled primarily from information obtained from two internal NASA sources:**

- 1. "CASE Report on Support of Colleges and Universities" (NASA Form 1356).**
- 2. "Individual Procurement Action Report" (NASA Form 507).**

**Therefore, other sources should be used for completing Forms 507 or 1356.**

**NASA'S UNIVERSITY PROGRAM**

**ACTIVE PROJECTS**

**FISCAL YEAR 1979**

**National Aeronautics and Space Administration  
University Affairs Office  
Washington, D.C. 20546**

*Acknowledgements*

This report was developed in Policy Coordination in the University Affairs Office under the guidance of W. A. Greene, Chief. Preparation of the input data for processing was accomplished by Doris J. Goodwin, Management Information Systems Officer. The Scientific and Technical Information Branch produced the reproduction masters on the Photon Computer.

*Additional Copies*

This publication is available from the National Technical Information Service (NTIS), 5285 Port Royal Rd., Springfield, Virginia 22161

## FOREWORD

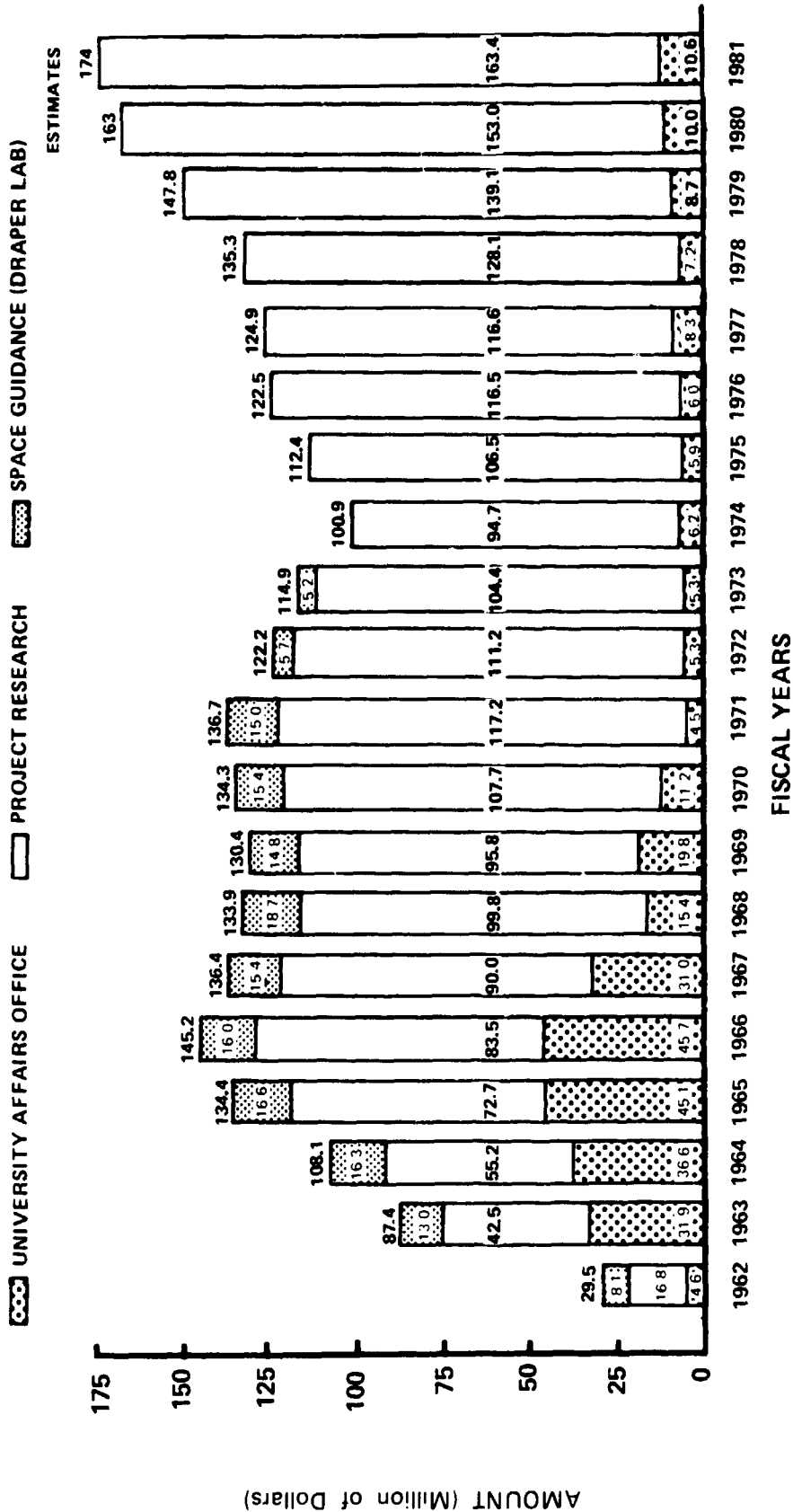
As basic policy NASA believes that colleges and universities should be encouraged to participate in the nation's space and aeronautics program to the maximum extent practicable. Indeed, universities are considered as partners with government and industry in the nation's aerospace program. NASA's objective is to have them bring their scientific, engineering, and social research competence to bear on aerospace problems and on the broader social, economic, and international implications of NASA's technical and scientific programs. It is expected that, in so doing, universities will strengthen both their research and their educational capabilities to contribute more effectively to the national well-being.

NASA Field Centers and certain Headquarters Program Offices provide funds for those R&D activities in universities which contribute to the mission needs of that particular NASA element. Although NASA has no predetermined amount of money to devote to university activities, the effort funded each year is substantial. (See the bar chart on the next page). This annual report is one means of documenting the NASA-university relationship, frequently denoted, collectively, as NASA's University Program.

The University Affairs Office (UAO) serves as a focal point for NASA's relationships with colleges and universities. One of its roles is to provide information on the NASA University Program. The present document is designed to serve several purposes and a wide range of audiences from private individuals to NASA employees. The emphasis is on the technical content of the program, rather than on fiscal data, which is available separately from UAO. As some terminology will not be familiar to all readers, a "User's Guide" is included to facilitate the fullest use of the material related to the interests of any particular reader.

Information on obtaining reports resulting from these projects may be obtained from: NASA, Scientific and Technical Information Branch, Code NST, Washington, DC 20546.

# NASA OBLIGATIONS TO UNIVERSITIES



- NOTES:
1. Excludes obligations to or through Federally Funded Research and Development Centers (e.g. JPL)
  2. Change in status from "university" to "non-profit" for three organizations accounts for \$10.1M of the difference between FY 73 and FY 74. (Draper Lab, ERIM, Dudley Observatory).
  3. University Affairs Office includes 1962-1971 Sustaining University Program.
  4. Omitted Obligations: Transition Period (July-Sept 1976). \$27.7M; FY 59, \$3.6M; FY 60, \$5.0M; FY 61, \$14.5M.

Source: NASA University Affairs Office

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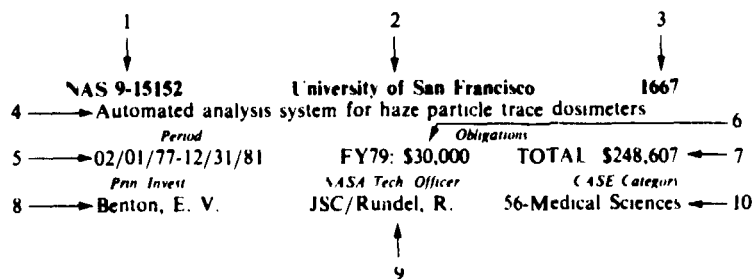
This report includes data on projects active during Fiscal Year 1979.

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## USER'S GUIDE

The University Program Report provides current information and related statistics for each grant/contract/cooperative agreement active during the report period. The following guidance is provided as an aid to the reader in readily locating material of interest and in optimizing the use of this document.

### I. Typical Citation



1. Agreement Number.
2. Institution Name.
3. Accession Number.
4. Brief work description.
5. Approximate period of performance.
6. Amount (if any) actually provided during the indicated fiscal year.
7. Total amount actually provided during the indicated period of performance.
8. Principal Investigator(s) at the educational institution.
9. NASA Technical Officer(s) and organizational location.
10. CASE Field of Science and Engineering code and name.



## II. NASA Installations

NASA installations are included in the citation as abbreviations (item 9). The following listing of installations will be useful to those desiring further information on specific projects.

<b>Abbrev.</b>	<b>Installation Name and Address</b>	<b>Telephone Number for Information</b>
ARC	Ames Research Center NASA Moffett Field, CA 94035	415/965-5000
DFRC	Dryden Flight Research Center NASA P.O. Box 273 Edwards, CA 93523	805/258-3311
GSFC	Goddard Space Flight Center NASA Greenbelt, MD 20771	301/344-5042
JPL	Jet Propulsion Laboratory 4800 Oak Grove Drive Pasadena, CA 91103	213/354-4321
JSC	Johnson Space Center NASA Houston, TX 77058	713/483-3111
KSC	Kennedy Space Center NASA Kennedy Space Center, FL 32899	305/867-7113
LARC	Langley Research Center NASA Langley Station Hampton, VA 23665	804/827-1110
LERC	Lewis Research Center NASA 21000 Brookpark Road Cleveland, OH 44135	216/433-4000
MSFC	Marshall Space Flight Center NASA Marshall Space Flight Center, AL 35812	205/453-2121
NSTL	National Space Technology Laboratories NASA NSTL Station, MS 39529	601/688-2211

WFC	Wallops Flight Center NASA Wallops Island, VA 23337	804/824-3411
HQ	NASA Headquarters Washington, DC 20546	202/755-2320

The abbreviation for NASA Headquarters, HQ, usually carries a suffix, for example HQ-LU, which denotes a particular office and general area of responsibility. (LU is the University Affairs Office.) A full listing of the suffix letters and information on NASA's organizational structure may be found in the NASA Headquarters Telephone Directory. (The Directory is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.)

### III. CASE Fields of Science and Engineering

The National Science Foundation (NSF) operates a government-wide system (CASE) for collecting and analyzing data on support to colleges and universities. Participating agencies report annually to NSF which in turn issues *Support to Universities, Colleges and Selected Nonprofit Institutions*. The CASE Fields, listed in the extensive tabulations contained in that document, form the only consistent classification system for government sponsored research. The fields are listed in full in Appendix B.

### IV. Cross-Indexes

The cross-indexed Appendices are related to the citations (descriptions) by the accession number (item 3). The accession number has meaning only in this report; it is in no way permanently associated with nor does it uniquely identify a specific grant/contract/cooperative agreement anywhere except in the present report. Accession numbers are assigned sequentially to the citations, beginning with 1000. Thus, when an entry of interest is identified in any one of the Appendices, the associated accession number allows ready location of the full description in the body of the report.

Appendix A - Given only the grant/contract/cooperative agreement number this index enables the reader to locate the citation. The first page tells how to distinguish among agreement types.

Appendix B - This index provides rapid access to all projects in a particular area of endeavor, as defined by the CASE Fields. This listing is also easily used to determine the institutions and principal investigators conducting NASA projects in a field.

Appendix C - The types of effort sponsored by each NASA installation may be determined from this index.

# NASA'S UNIVERSITY PROGRAM

## ALABAMA

<b>NAS 8 32945</b>	Alabama A&M University	1000
Solution growth of crystals in zero gravity experiment for materials processing in space		
<i>Period</i>	<i>Obligations</i>	
03/05/78-03/05/83	FY79: \$30,000	TOTAL: \$165,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lal, R. B.	MSFC/Williams, J. R.	47-Materials Engr
Kroes, R. L.	MSFC/Ruff, R. C.	
<b>NAS 9-14770</b>	Alabama A&M University	1001
Communication system performance evaluation based upon pseudonoise testing		
<i>Period</i>	<i>Obligations</i>	
10/20/75-10/31/79	FY79:	TOTAL: \$59,425
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ingels, F. M.	JSC/Teasdale, W. E.	45-Elec Engr
<b>NGR 01-001-023</b>	Alabama A&M University	1002
Development of remote sensing applications for natural resource study and management		
<i>Period</i>	<i>Obligations</i>	
06/13/73-02/28/78	FY79:	TOTAL: \$116,124
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Montgomery, O. L.	MSFC/Downs, S. W., Jr.	55-Agriculture Sci
	MSFC/Cagle, F. A.	
<b>NSG 8033</b>	Alabama A&M University	1003
The study of crystals for space processing and the effects of 0-gravity		
<i>Period</i>	<i>Obligations</i>	
01/15/76-12/31/78	FY79:	TOTAL: \$52,046
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lal, R. B.	MSFC/Schafer, C. F.	13-Physics
	MSFC/Thomas, P. E.	
<b>NSG 8037</b>	Alabama A&M University	1004
Atmospheric effects on coherent laser systems		
<i>Period</i>	<i>Obligations</i>	
06/01/76-05/31/80	FY79: \$23,501	TOTAL: \$95,491
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Huth, G. C.	MSFC/Bilbro, J. W.	45-Elec Engr
	MSFC/Kent, M. I.	
<b>NSG 8041</b>	Alabama A&M University	1005
Parametric study of rock pile thermal storage for solar heating		
<i>Period</i>	<i>Obligations</i>	
06/01/76-03/31/80	FY79:	TOTAL: \$62,677
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Saha, H.	MSFC/Humphries, W. R.	46-Mech Engr
	MSFC/ZurBurg, F. R.	
<b>NSG 8042</b>	Alabama A&M University	1006
Preparation of guinea pig macrophages for electrophoretic experiments in space		
<i>Period</i>	<i>Obligations</i>	
06/01/76-05/31/78	FY79:	TOTAL: \$31,235
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Savage, J.	MSFC/Allen, R. E.	59-Life Sci, NEC
Grayson, G.	MSFC/Kent, M. I.	
<b>NSG 8051</b>	Alabama A&M University	1007
Space processing of biological materials		
<i>Period</i>	<i>Obligations</i>	
06/01/77-08/31/78	FY79:	TOTAL: \$25,693
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gibson, W. L.	MSFC/Snyder, R. S.	59-Life Sci, NEC
	MSFC/Kent, M. I.	
<b>NSG 8057</b>	Alabama A&M University	1008
Evaluation of digital system design languages		
<i>Period</i>	<i>Obligations</i>	
10/01/77-10/15/78	FY79:	TOTAL: \$21,990
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shiva, S. G.	MSFC/Gould, J. M.	45-Elec Engr
	MSFC/Kent, M. I.	
<b>NSG 8062</b>	Alabama A&M University	1009
The application of remote sensing technology to soil mapping and land use problems of Alabama and southeastern United States		
<i>Period</i>	<i>Obligations</i>	
05/15/78-05/14/79	FY79:	TOTAL: \$43,750
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Montgomery, O. L.	MSFC/Downs, S. W., Jr.	39-Env Sci, NEC
	MSFC/Kent, M. I.	
<b>NSG 8064</b>	Alabama A&M University	1010
Guinea pig macrophages for electrophoretic experiment		
<i>Period</i>	<i>Obligations</i>	
09/29/78-04/28/79	FY79:	TOTAL: \$3,960
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Savage, J.	MSFC/Snyder, R. S.	59-Life Sci, NEC
<b>NSG 8065</b>	Alabama A&M University	1011
Statistical classification techniques for engineering and climatic data samples		
<i>Period</i>	<i>Obligations</i>	
11/01/78-12/31/79	FY79: \$27,274	TOTAL: \$27,274
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Temple, E. C.	MSFC/Smith, O. E.	21-Mathematics
Shipman, J. R.	MSFC/Kent, M. I.	

**NASA'S UNIVERSITY PROGRAM  
ALABAMA (Continued)**

**NSG 8066** Alabama A&M University 1012  
Research in computer processing of remotely sensed data  
*Period* *Obligations*  
11/15/78-11/14/79 FY79: \$70,000 TOTAL: \$70,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Montgomery, O. L. MSFC/Smith, A. D. 39-Env Sci, NEC  
MSFC/Atwell, B. H.

**NAS 8-32215** Auburn University 1019  
Development of Alabama resources information management system  
*Period* *Obligations*  
12/20/76-07/09/79 FY79: TOTAL: \$20,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Vachon, R. I. MSFC/Huffman, J. D. 39-Env Sci, NEC  
Herring, B. E. MSFC/Paludan, C. T.

**NSG 8067** Alabama A&M University 1013  
Characterization of space environment using plant cells and tissues  
*Period* *Obligations*  
02/01/79-01/31/80 FY79: \$25,896 TOTAL: \$25,896  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sharma, G. C. MSFC/Nerren, B. H. 51-Biological Sci  
MSFC/Kent, M. I.

**NAS 8-32633** Auburn University 1020  
The large scale integrated circuits cost optimizing  
*Period* *Obligations*  
09/06/77-04/30/79 FY79: TOTAL: \$29,400  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cook, K. B. MSFC/Routh, D. E. 49-Engr, NEC  
Kerns, D. V. MSFC/Hollis, B. R., Jr.

**NSG 8068** Alabama A&M University 1014  
The motion of particles in interstellar space released from a nuclear waste payload container  
*Period* *Obligations*  
07/01/79-06/30/80 FY79: \$22,000 TOTAL: \$22,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Williams, A. C. MSFC/Burns, R. E. 13-Physics  
MSFC/Kent, M. I.

**NAS 8-32634** Auburn University 1021  
The large scale integrated circuits process technology  
*Period* *Obligations*  
09/06/77-12/05/78 FY79: TOTAL: \$29,400  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kerns, D. V. MSFC/Routh, D. E. 49-Engr, NEC  
Cook, K. B. MSFC/Feltner, W. R.

**NAS 8-32220** Athens State College 1015  
Speckle holography  
*Period* *Obligations*  
01/24/77-01/23/78 FY79: TOTAL: \$5,999  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Martin, A. M. MSFC/Finnell, S. E. 13-Physics  
MSFC/Moore, W. W., Jr.

**NAS 8-33092** Auburn University 1022  
Developing and characterizing improved radiation hard technology for space applications (CMOS)  
*Period* *Obligations*  
11/06/78-11/05/79 FY79: TOTAL: \$30,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kerns, D. V. MSFC/Routh, D. E. 45-Elec Engr  
Cook, K. B. MSFC/Gould, J. M.

**NAS 8-32834** Athens State College 1016  
Study of microprocessors in ultrasonic control functions  
*Period* *Obligations*  
02/14/78-01/13/79 FY79: TOTAL: \$9,900  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Workman, G. L. MSFC/Woodis, K. W. 45-Elec Engr  
MSFC/Knadler, J. M.

**NCA 8-130** Auburn University 1023  
Solid propellant rocket motor internal ballistic performance variation analysis  
*Period* *Obligations*  
12/14/77-01/13/79 FY79: TOTAL: \$24,709  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sforzini, R. H. MSFC/Shackelford, B. W., Jr.  
Foster, W. A., Jr. MSFC/Miller, J. Q. 41-Aero Engr

**NAS 8-32920** Athens State College 1017  
Vapor transport mechanisms  
*Period* *Obligations*  
02/01/78-02/29/80 FY79: TOTAL: \$77,975  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Workman, G. L. MSFC/Zwiener, J. M. 19-Phys Sci, NEC  
MSFC/Thomas, P. E.

**NCA 8-132** Auburn University 1024  
Solid propellant rocket motor internal ballistic performance variation analysis  
*Period* *Obligations*  
01/12/79-01/11/80 FY79: \$36,000 TOTAL: \$36,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sforzini, R. H. MSFC/Shackelford, B. W., Jr.  
MSFC/Miller, J. Q. 46-Mech Engr

**NAS 8-31572** Auburn University 1018  
Design, processing and test of large scale integrated circuit arrays  
*Period* *Obligations*  
12/01/75-08/14/79 FY79: TOTAL: \$70,790  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tung, C. MSFC/Matheney, J. L. 45-Elec Engr  
MSFC/Cagle, F. A.

**NASA'S UNIVERSITY PROGRAM  
ALABAMA (Continued)**

**NCA 8-133** Auburn University 1025  
Evaluating the feasibility of detecting and measuring lightning discharges from a space station

<i>Period</i>	<i>Obligations</i>	
01/26/79-11/25/79	FY79: \$4,000	TOTAL: \$4,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Irwin, J. D.	MSFC/Wagnon, F. W.	45-Elec Engr
	MSFC/Harper, W.	

**NGT 01-005-750** Tuskegee Institute 1031  
Training of undergraduate students in sciences and engineering

<i>Period</i>	<i>Obligations</i>	
06/01/75-05/31/80	FY79: \$14,000	TOTAL: \$56,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dybczak, Z. W.	HQ-LU/Pohly, J. G.	49-Engr, NEC
	HQ-U/Jenkins, H. G.	

**NSG 3233** Auburn University 1026  
Development of basic theories and techniques for determining stresses in rotating turbine or compressor blades

<i>Period</i>	<i>Obligations</i>	
12/01/78-04/01/80	FY79: \$50,000	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Swinson, W. F.	LERC/Decker, A. J.	49-Engr, NEC
Turner, J. L.		
Ranson, W. F.		

**NC 01-005-780** Tuskegee Institute 1032  
Pre-cooperative engineering education program

<i>Period</i>	<i>Obligations</i>	
10/01/78-07/31/80	FY79: \$2,750	TOTAL: \$8,950
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dybczak, Z. W.	HQ-LU/Pohly, J. G.	49-Engr, NEC
	LERC/Allen, R. P.	

**NSG 8047** Auburn University 1027  
Grain quality inspection system. Phase I Feasibility evaluation

<i>Period</i>	<i>Obligations</i>	
01/24/77-09/30/79	FY79	TOTAL: \$74,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Flood, C. A., Jr.	MSFC/Daniel, C. C.	49-Engr, NEC
	MSFC/Kent, M. I.	

**NSG 3154** Tuskegee Institute 1033  
Evaporation behavior of superalloys

<i>Period</i>	<i>Obligations</i>	
08/01/77-08/07/80	FY79: \$37,556	TOTAL: \$102,556
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ramirez, R. P.	LERC/Titran, R. H.	47-Materials Engr
	LERC/Klopp, W. D.	

**NSG 2217** Trilladega College 1028  
Experimental research on the thermodynamic properties of sulfuric acid

<i>Period</i>	<i>Obligations</i>	
05/01/77-04/30/80	FY79: \$40,600	TOTAL: \$100,573
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Morrison, R. A.	ARC/Whitten, R. C.	13-Physics
	ARC/Farlow, N. A.	

**NSG 3295** Tuskegee Institute 1034  
An improved computer model for prediction of axial gas turbine performance losses

<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/80	FY79: \$33,728	TOTAL: \$33,728
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jenkins, R. M.	LERC/Glassman, A. J.	41-Aero Engr

**NAS 9-13844** Tuskegee Institute 1029  
Analytical investigation of the heat-pipe radiator as a spacecraft heat rejection system

<i>Period</i>	<i>Obligations</i>	
01/01/74-12/31/79	FY79:	TOTAL: \$85,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sellers, J. P., Jr.	JSC/French, B. O.	46-Mech Engr

**NSG 8038** Tuskegee Institute 1035  
Investigation of electrical breakdown characteristics and stability of insulating materials used on solar cells (photovoltaic converters)

<i>Period</i>	<i>Obligations</i>	
06/01/76-12/31/79	FY79:	TOTAL: \$49,042
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Doreswamy, C. V.	MSFC/Yourt, L. E.	45-Elec Engr
	MSFC/Kent, M. I.	

**NCC 2 12** Tuskegee Institute 1030  
Morphometrics of cellular damage in mice receiving whole body irradiation

<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/80	FY79: \$45,000	TOTAL: \$45,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sapp, W. J.	ARC/Philpott, D. E.	54-Env Biology

**NSG 8054** Tuskegee Institute 1036  
An investigation of absorber and radiators for solar power systems

<i>Period</i>	<i>Obligations</i>	
09/01/77-06/30/80	FY79: \$27,489	TOTAL: \$52,489
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sellers, J. P., Jr.	MSFC/Brontley, L. W.	46-Mech Engr
	MSFC/Kent, M. I.	

**NASA'S UNIVERSITY PROGRAM  
ALABAMA (Continued)**

**NAS 8-32923** University of Alabama - Birmingham 1037  
Conducting experiments to determine the operating limitations of the Hannig continuous flow electrophoretic separator

<i>Period</i>	<i>Obligations</i>	
06/07/78-12/06/78	FY79: TOTAL: \$20,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sachs, G.	MSFC/Rhodes, P. H.	59-Life Sci, NEC
Jackson, R. D.	MSFC/Snyder, R. S.	
Stewart, H. B.		

**NAS 8-33014** University of Alabama - Birmingham 1038  
Materials processing in space experiment: Whole cell electrophoresis aboard Spacelab

<i>Period</i>	<i>Obligations</i>	
05/17/78-12/31/79	FY79: TOTAL: \$40,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chiovetti, R., Jr.	MSFC/Bannister, T.	59-Life Sci, NEC
	MSFC/Snyder, R. S.	

**NGR 01-010-001** University of Alabama - Birmingham 1039  
Model for origin and coevolution of genetic code and the process of protein synthesis

<i>Period</i>	<i>Obligations</i>	
05/09/73-05/31/80	FY79: \$58,720 TOTAL: \$269,500	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lacey, J. C., Jr.	HQ-SB/Young, R. S.	12-Chemistry

**NAS 8-28097** University of Alabama - Huntsville 1040  
Triggering mechanisms for solar flares

<i>Period</i>	<i>Obligations</i>	
12/06/71-08/31/80	FY79: \$78,000 TOTAL: \$577,198	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wu, S. T.	MSFC/Tandberghanssen, E.	13-Physics
	MSFC/Thomas, P. E.	

**NAS 8-29316** University of Alabama - Huntsville 1041  
Working model of the London moment readout system

<i>Period</i>	<i>Obligations</i>	
10/06/72-04/04/80	FY79: \$106,497 TOTAL: \$623,196	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hendricks, J. B.	MSFC/Decher, R.	46-Mech Engr
	MSFC/Urban, E. W.	

**NAS 8-30563** University of Alabama - Huntsville 1042  
Study of magnetospheric and laboratory plasma physics experiments

<i>Period</i>	<i>Obligations</i>	
09/01/74-04/30/80	FY79: \$110,000 TOTAL: \$344,669	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Comfort, R. H.	MSFC/Chappell, C. R.	13-Physics
Horwitz, J. L.	MSFC/Fields, S. A.	

**NAS 8-31170** University of Alabama - Huntsville 1043  
Study of efficient low power diffractometer designs

<i>Period</i>	<i>Obligations</i>	
01/15/75-05/31/80	FY79: \$35,000 TOTAL: \$138,391	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gregory, J. C.	MSFC/Parnell, T. A.	13-Physics
	MSFC/Eby, P. B.	

**NAS 8-31171** University of Alabama - Huntsville 1044  
Study of internal wave motions on the neutral atmosphere

<i>Period</i>	<i>Obligations</i>	
02/14/75-01/31/80	FY79: \$48,000 TOTAL: \$136,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hung, R. J.	MSFC/West, G. S., Jr.	39-Env Sci, NEC
	MSFC/Thomas, P. E.	

**NAS 8-31293** University of Alabama - Huntsville 1045  
Solar heating and cooling technical data and systems analysis

<i>Period</i>	<i>Obligations</i>	
11/07/74-08/31/80	FY79: \$493,483 TOTAL: \$1,025,004	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Christensen, D.	MSFC/Price, J. M.	13-Physics
	MSFC/Hoover, W. L.	

**NAS 8-31729** University of Alabama - Huntsville 1046  
Numerical simulation of warm fogs

<i>Period</i>	<i>Obligations</i>	
11/05/75-03/31/80	FY79: \$25,000 TOTAL: \$74,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hung, R. J.	MSFC/Vaughan, O. H.	13-Physics
	MSFC/Thomas, P. E.	

**NAS 8-31895** University of Alabama - Huntsville 1047  
Investigations in cosmic ray and gamma ray astronomy and nuclear instruments

<i>Period</i>	<i>Obligations</i>	
03/19/76-03/31/80	FY79: \$75,500 TOTAL: \$208,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gregory, J. C.	MSFC/Parnell, T. A.	13-Physics
	MSFC/Thomas, P. E.	

**NAS 8-32816** University of Alabama - Huntsville 1048  
Infrared telescope cryogenic system design and development

<i>Period</i>	<i>Obligations</i>	
03/31/78-02/06/80	FY79: \$89,997 TOTAL: \$154,819	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Karr, G. R.	MSFC/Urban, E. W.	13-Physics

**NAS 8-33096** University of Alabama - Huntsville 1049  
Design automation of digital systems

<i>Period</i>	<i>Obligations</i>	
08/09/78-06/30/80	FY79: \$33,618 TOTAL: \$59,905	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shiva, S. G.	MSFC/Jones, R. E.	22-Computer Science
	MSFC/Cagle, F. A.	

**NASA'S UNIVERSITY PROGRAM  
ALABAMA (Continued)**

**NAS 8-33132** University of Alabama - Huntsville **1050**  
Orbiting space science platform

<i>Period</i>	<i>Obligations</i>	
06/01/78-12/01/79	FY79: \$32,725	TOTAL: \$52,725
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wu, S. T.	MSFC/Morgan, S. H.	19-Phys Sci, NEC
	MSFC/Snoddy, W. C.	

**NGT 01-008-021** University of Alabama - Huntsville **1057**  
Summer faculty fellowship program

<i>Period</i>	<i>Obligations</i>	
01/01/76-03/31/80	FY79: \$168,371	TOTAL: \$370,961
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Karr, G. R.	HQ-LU/Carter, C. H.	49-Engr, NEC

**NAS 8-33216** University of Alabama - Huntsville **1051**  
Dynamic simulation of coronal mass ejections

<i>Period</i>	<i>Obligations</i>	
10/27/78-12/31/79	FY79: \$35,800	TOTAL: \$35,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Steinolfson, R. S.	MSFC/DeLoach, A. C.	13-Physics
Wu, S. T.	MSFC/Snoddy, W. C.	

**NAS 8-32386** University of Alabama - University **1058**  
Composite mobile holographic non-destructive test system analysis

<i>Period</i>	<i>Obligations</i>	
01/10/77-08/09/78	FY79:	TOTAL: \$25,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lin, H. K.	MSFC/Owen, R. B.	13-Physics
	MSFC/Moore, W. W., Jr.	

**NAS 8-33377** University of Alabama - Huntsville **1052**  
Analysis and modeling of materials space environmental effects data

<i>Period</i>	<i>Obligations</i>	
06/22/79-06/21/80	FY79: \$27,000	TOTAL: \$27,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Castle, J. G.	MSFC/Gause, R. L.	47-Materials Engr
	MSFC/Whitaker, A. F.	

**NAS 8-33430** University of Alabama - University **1059**  
Solid state switch design for large space structure technology

<i>Period</i>	<i>Obligations</i>	
04/05/79-12/31/79	FY79: \$26,122	TOTAL: \$26,122
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Raburn, W. D.	MSFC/Williams, D. E.	45-Flec Engr
	MSFC/Loggins, R. W.	

**NAS 8-33384** University of Alabama - Huntsville **1053**  
Test facility for helium-3 refrigerator research

<i>Period</i>	<i>Obligations</i>	
05/31/79-05/30/80	FY79: \$17,329	TOTAL: \$17,329
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hendricks, J. B.	MSFC/Urban, E. W.	12-Chemistry
	MSFC/Thomas, P. E.	

**NAS 8-33507** University of Alabama - University **1060**  
Space shuttle Induced Environment Contamination Monitor (IECM) air sampler experiment

<i>Period</i>	<i>Obligations</i>	
05/21/79-05/20/80	FY79: \$24,000	TOTAL: \$24,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bertsch, W.	MSFC/Peters, P. N.	31-Atmos Sci
Zatko, D. A.	MSFC/Thomas, P. E.	

**NAS 8-33443** University of Alabama - Huntsville **1054**  
Solar-terrestrial relationships

<i>Period</i>	<i>Obligations</i>	
04/18/79-11/03/79	FY79: \$45,000	TOTAL: \$45,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wu, S. T.	MSFC/Morgan, S. H. 19-Phys Sci, NEC	

**NGT 01-002-099** University of Alabama - University **1061**  
Summer faculty fellowship program in research

<i>Period</i>	<i>Obligations</i>	
01/01/78-04/30/80	FY79:	TOTAL: \$148,574
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Barfield, B. F.	HQ-LU/Carter, C. H.	49-Engr, NEC

**NAS 8-33542** University of Alabama - Huntsville **1055**  
Advanced furnace development and scientific coordination activity

<i>Period</i>	<i>Obligations</i>	
06/29/79-06/28/80	FY79: \$48,955	TOTAL: \$48,955
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hendricks, J. B.	MSFC/Aldrich, B. R.	47-Materials Engr
	MSFC/Naumann, R. J.	

**NAS 8-33548** University of Alabama - Huntsville **1056**  
An X-ray diffraction analysis of Ne3Ge

<i>Period</i>	<i>Obligations</i>	
07/11/79-07/10/80	FY79: \$10,104	TOTAL: \$10,104
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Davis, J. H.	MSFC/Lacy, L. L.	47-Materials Engr
	MSFC/Rathz, T. J.	

**NCA 2-20901** University of Alaska - Fairbanks **1062**  
Joint development of Alaska demonstration project

<i>Period</i>	<i>Obligations</i>	
11/27/78-10/31/79	FY79: \$15,285	TOTAL: \$15,285
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Krebs, P. V.	ARC/Lumb, D. R.	39-Env Sci, NEC

## NASA'S UNIVERSITY PROGRAM

### ALASKA (Continued)

**NGL 02-001-092** University of Alaska - Fairbanks 1063  
Application of remote sensing data to surveys of the Alaskan environment

<i>Period</i>	<i>Obligations</i>	
07/26/72-03/31/82	FY79: \$150,000	TOTAL: \$975,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miller, J. M.	HQ-ET/Vitale, J. A.	39-Env Sci, NEC

**NSG 5219** University of Alaska - Fairbanks 1064  
Auroral spectroscopy using atmosphere Explorer observations

<i>Period</i>	<i>Obligations</i>	
10/01/77-07/31/80	FY79: \$24,000	TOTAL: \$47,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rees, M. H.	GSFC/Spencer, N. W.	13-Physics

**NSG 6014** University of Alaska - Fairbanks 1065  
Active experiments using rocket-borne shaped charge barium releases

<i>Period</i>	<i>Obligations</i>	
01/01/76-12/31/79	FY79: \$110,000	TOTAL: \$509,361
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Davis, T. N.	WFC/Gray, J. W.	19-Phys Sci, NEC
Wescott, E. M.	WFC/Pless, R. H.	

**NSG 6024** University of Alaska - Fairbanks 1066  
Observations of barium jets from Porcupine III and IV rocket launches

<i>Period</i>	<i>Obligations</i>	
09/01/78-08/31/79	FY79: \$25,601	TOTAL: \$25,601
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hallinan, T. J.	WFC/Gray, J. W.	19-Phys Sci, NEC
	WFC/Pless, R. H.	

**NSG 6028** University of Alaska - Fairbanks 1067  
Observations of 'firewheel' chemical releases

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY79: \$23,000	TOTAL: \$23,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hallinan, T. J.	WFC/Gray, J. W.	19-Phys Sci, NEC

**NSG 7447** University of Alaska - Fairbanks 1068  
Relationship between the ring current and magnetospheric substorms

<i>Period</i>	<i>Obligations</i>	
06/01/78-05/31/79	FY79:	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Akasofu, S.	HQ-ST/King, J. H.	31-Atmos Sci

**NSG 7625** University of Alaska - Fairbanks 1069  
Numerical simulation of the turbulent cascade and voltage amplification mechanism in the magnetosphere

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$13,000	TOTAL: \$13,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Swift, O. W.	HQ-ST/Hedin, A. E.	19-Phys Sci, NEC
	HQ-ST/Schmerling, E. R.	

### ARIZONA

**DEN 3 50** Arizona State University 1070  
Social and economic impact study of photovoltaic power

<i>Period</i>	<i>Obligations</i>	
07/10/78-11/09/79	FY79:	TOTAL: \$16,190
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bahr, D. M.	LERC/Bifano, W. J.	72-Economics
Merbs, C. F.		

**NAS 1-15168** Arizona State University 1071  
Viking guest investigator program

<i>Period</i>	<i>Obligations</i>	
12/13/77-09/30/79	FY79:	TOTAL: \$25,722
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Greeley, R.	LARC/Spence, D. C.	31-Atmos Sci

**NAS 8-32230** Arizona State University 1072  
Marshall mated element system translator

<i>Period</i>	<i>Obligations</i>	
12/15/76-11/13/78	FY79: \$4,340	TOTAL: \$122,557
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Woodfin, M. A.	MSFC/Lee, G.	21-Mathematics
	MSFC/Smith, J. G.	

**NAS 8-32357** Arizona State University 1073  
Building and obstacles wakes

<i>Period</i>	<i>Obligations</i>	
02/11/77-03/25/80	FY79: \$19,958	TOTAL: \$74,830
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Logan, E., Jr.	MSFC/Alexander, M. B.	31-Atmos Sci

**NAS 8-32937** Arizona State University 1074  
The effect of a dispersed second phase on the ionic conductivity of solid state electrolytes

<i>Period</i>	<i>Obligations</i>	
12/13/77-12/13/82	FY79: \$65,000	TOTAL: \$201,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wagner, J. B.	MSFC/Reeves, F. A.	47-Materials Engr
	MSFC/Rathz, T. J.	

**NCA 2-35802** Arizona State University 1075  
Joint development of a planetary geology curriculum guide

<i>Period</i>	<i>Obligations</i>	
08/01/78-01/31/80	FY79:	TOTAL: \$18,459
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Greeley, R.	ARC/Black, D. C.	32-Geological Sci

**NCA 2-35901** Arizona State University 1076  
Ultra-microstructure of particles abraded under simulated Martian aeolian conditions

<i>Period</i>	<i>Obligations</i>	
10/01/78-11/30/79	FY79: \$19,580	TOTAL: \$19,580
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Krinsley, D.	ARC/Pollack, J. B.	32-Geological Sci
Greeley, R.		



**NASA'S UNIVERSITY PROGRAM  
ARIZONA (Continued)**

**NCA 2-35902** Arizona State University 1077  
 Simulated Martian aeolian erosion and aggregate formation  
*Period* *Obligations*  
 07/01/79-06/30/80 FY79: \$21,362 TOTAL: \$21,362  
*Prin. Invest* *NASA Tech Officer* *CASE Category*  
 Krinsley, D. ARC/Pollack, J. B. 32-Geological Sci  
 Greeley, R.

**NSG 7429** Arizona State University 1084  
 Analysis of lunar mare emplacement and impact cratering experiments  
*Period* *Obligations*  
 02/01/78-02/29/80 FY79: \$35,022 TOTAL: \$68,354  
*Prin. Invest* *NASA Tech Officer* *CASE Category*  
 Greeley, R. HQ-SL/Quaide, W. L. 32-Geological Sci  
 HQ-SL/Boyce, J. M.

**NGL 03-001-001** Arizona State University 1078  
 Development of improved procedures for sampling, characterizing & classifying meteorite specimens  
*Period* *Obligations*  
 04/16/63-02/29/80 FY79: \$29,900 TOTAL: \$360,323  
*Prin. Invest* *NASA Tech Officer* *CASE Category*  
 Moore, C. B. HQ-SL/French, B. M. 32-Geological Sci  
 HQ-SL/Quaide, W. L.

**NSG 7548** Arizona State University 1085  
 Studies in Martian geology  
*Period* *Obligations*  
 03/01/79-09/30/79 FY79: \$79,210 TOTAL: \$79,210  
*Prin. Invest* *NASA Tech Officer* *CASE Category*  
 Greeley, R. HQ-SL/Dwornik, S. E. 31-Atmos Sci

**NSG 2284** Arizona State University 1079  
 Aeolian geology studies  
*Period* *Obligations*  
 12/01/77-12/31/79 FY79: \$30,626 TOTAL: \$63,876  
*Prin. Invest* *NASA Tech Officer* *CASE Category*  
 Greeley, R. ARC/Black, D. C. 19-Phys Sci, NEC

**NSG 7630** Arizona State University 1086  
 The effects of topography, albedo and thermal inertia variations on the generation of mesoscale Martian wind patterns  
*Period* *Obligations*  
 07/01/79-09/30/79 FY79: \$21,690 TOTAL: \$21,690  
*Prin. Invest* *NASA Tech Officer* *CASE Category*  
 Rankin, R. L. HQ-SL/Dwornik, S. E. 32-Geological Sci  
 HQ-SL/Boyce, J. M.

**NSG 3075** Arizona State University 1080  
 Study of multiple jet array impingement heat transfer characteristics  
*Period* *Obligations*  
 09/01/75-05/31/80 FY79: \$78,000 TOTAL: \$301,000  
*Prin. Invest* *NASA Tech Officer* *CASE Category*  
 Metzger, D. E. LERC/Hippenstele, S. A. 41-Aero Engr  
 Florschuetz, L. W.

**NSG 7642** Arizona State University 1087  
 Development of Martian terraced-ejecta deposits  
*Period* *Obligations*  
 10/01/79-09/30/80 FY79: \$29,556 TOTAL: \$29,556  
*Prin. Invest* *NASA Tech Officer* *CASE Category*  
 Sheridan, M. HQ-SL/Dwornik, S. E. 32-Geological Sci  
 HQ-SL/Boyce, J. M.

**NSG 7040** Arizona State University 1081  
 The origin and early evolution of the solar system  
*Period* *Obligations*  
 04/01/74-02/29/80 FY79: \$39,000 TOTAL: \$228,967  
*Prin. Invest* *NASA Tech Officer* *CASE Category*  
 Larimer, J. W. HQ-SL/French, B. M. 32-Geological Sci  
 HQ-SL/Quaide, W. L.

**NSG 9068** Arizona State University 1088  
 High resolution transmission electron microscopy of lunar pyroxenes  
*Period* *Obligations*  
 04/01/78-10/31/79 FY79: \$15,000 TOTAL: \$40,719  
*Prin. Invest* *NASA Tech Officer* *CASE Category*  
 Buseck, P. R. JSC/Harris, J. W. 32-Geological Sci

**NSG 7255** Arizona State University 1082  
 The nature and origin of organic compounds in carbonaceous meteorites  
*Period* *Obligations*  
 06/14/76-01/31/80 FY79: \$45,000 TOTAL: \$147,375  
*Prin. Invest* *NASA Tech Officer* *CASE Category*  
 Cronin, J. B. HQ-SB/Young, R. S. 32-Geological Sci  
 Yuen, G. L.

**NSG 737** Navajo Community College 1089  
 To provide engineering services to implement software, on Navajo Community College PDP11-70 computer  
*Period* *Obligations*  
 08/21/79-10/20/79 FY79: \$9,970 TOTAL: \$9,970  
*Prin. Invest* *NASA Tech Officer* *CASE Category*  
 Isher, S. F. NSTL/Whitley, S. L. 49-Engr, NEC

**NSG 7415** Arizona State University 1083  
 Geological studies in planetology  
*Period* *Obligations*  
 12/01/77-02/29/80 FY79: \$247,477 TOTAL: \$320,312  
*Prin. Invest* *NASA Tech Officer* *CASE Category*  
 Greeley, R. HQ-SL/Dwornik, S. E. 32-Geological Sci  
 HQ-SL/Boyce, J. M.

**NAS 1-14332** University of Arizona 1090  
 Stratospheric aerosol measurement experiment  
*Period* *Obligations*  
 03/19/76-09/30/79 FY79: \$58,000 TOTAL: \$120,000  
*Prin. Invest* *NASA Tech Officer* *CASE Category*  
 Herman, B. M. LARC/McCormick, M. P. 31-Atmos Sci  
 LARC/McMaster, L. R.

**NASA'S UNIVERSITY PROGRAM  
ARIZONA (Continued)**

**NAS 1-14928** University of Arizona 1091  
Stratospheric aerosol and gas experiment  
*Period* Obligations  
07/21/77-09/30/79 FY79: \$25,000 TOTAL: \$60,000  
*Pnn Invest* NASA Tech Officer CASE Category  
Herman, B. M. LARC/McMaster, L. R. 31-Atmos Sci  
LARC/McCormick, M. P.

**NAS 2-6265** University of Arizona 1092  
Imaging photopolarimeter experiment data analysis Pioneer 10 and 11  
*Period* Obligations  
11/01/70-01/31/80 FY79: \$388,000 TOTAL: \$1,983,069  
*Pnn Invest* NASA Tech Officer CASE Category  
Gehrels, A. M. ARC/Hall, C. F. 11-Astronomy  
Tomasko, M. G. ARC/Porter, D. L.  
Doose, L. R.

**NAS 2-9486** University of Arizona 1093  
Pioneer/Venus data analysis of the solar flux radiometer experiment  
*Period* Obligations  
05/27/77-12/31/79 FY79: \$159,490 TOTAL: \$301,549  
*Pnn Invest* NASA Tech Officer CASE Category  
Tomasko, M. G. ARC/Hall, C. F. 11-Astronomy  
Doose, L. R. ARC/Porter, D. L.  
Hunten, D. M.

**NAS 2-9487** University of Arizona 1094  
Pioneer/Venus data analysis  
*Period* Obligations  
01/01/78-09/30/80 FY79: \$79,570 TOTAL: \$111,365  
*Pnn Invest* NASA Tech Officer CASE Category  
Barnes, C. H., Jr. ARC/Hall, C. F. 31-Atmos Sci  
ARC/Porter, D. L.

**NAS 2-10089** University of Arizona 1095  
Update Pioneer Image Conversion System (PICS)  
*Period* Obligations  
11/13/78-11/30/79 FY79: \$46,552 TOTAL: \$46,552  
*Pnn Invest* NASA Tech Officer CASE Category  
Baker, L. R. ARC/Hall, C. F. 22-Computer Science  
ARC/Hogan, R. P.

**NAS 2-10227** University of Arizona 1096  
5 micron detector assemblies study for shuttle infrared telescope facility  
*Period* Obligations  
04/01/79-09/30/79 FY79: \$15,000 TOTAL: \$15,000  
*Pnn Invest* NASA Tech Officer CASE Category  
Riek, G. H. ARC/McCreight, C. R. 11-Astronomy

**NAS 5-24308** University of Arizona 1097  
Study of suitability of Starlab for solar system studies  
*Period* Obligations  
09/27/77-06/30/80 FY79: \$1,408 TOTAL: \$17,585  
*Pnn Invest* NASA Tech Officer CASE Category  
Smith, B. A. GSFC/Wainscott, F. H. 11-Astronomy

**NAS 5-25484** University of Arizona 1098  
Support to the space telescope wide field planetary camera development team  
*Period* Obligations  
02/01/79-10/31/79 FY79: \$32,964 TOTAL: \$32,964  
*Pnn Invest* NASA Tech Officer CASE Category  
Smith, B. A. GSFC/Sours, W. T. 31-Atmos Sci

**NAS 5-25733** University of Arizona 1099  
Space telescope/High Resolution Spectrograph (HRS) extragalactic studies  
*Period* Obligations  
06/18/79-03/31/81 FY79: \$3,000 TOTAL: \$3,000  
*Pnn Invest* NASA Tech Officer CASE Category  
Weymann, R. J. GSFC/Liberatore, F. J. 11-Astronomy

**NAS 8-31192** University of Arizona 1100  
Maintenance and operation of the 60" NASA telescope at Mt Lemmon  
*Period* Obligations  
10/01/74-12/31/79 FY79: \$95,655 TOTAL: \$374,207  
*Pnn Invest* NASA Tech Officer CASE Category  
Benton, E. V. MSFC/Parnell, T. A. 11-Astronomy  
MSFC/Bass, B. G.

**NAS 8-31948** University of Arizona 1101  
Automated analytical electrophoresis apparatus  
*Period* Obligations  
05/17/76-01/10/80 FY79: \$64,685 TOTAL: \$299,305  
*Pnn Invest* NASA Tech Officer CASE Category  
Bartels, P. H. MSFC/Snyder, R. S. 59-Life Sci, NEC

**NAS 8-32950** University of Arizona 1102  
Hormone purification by isoelectric focusing in space  
*Period* Obligations  
03/29/78-03/29/80 FY79: \$62,800 TOTAL: \$137,800  
*Pnn Invest* NASA Tech Officer CASE Category  
Bier, M. MSFC/Williams, J. R. 59-Life Sci, NEC  
Barstow, L. E. MSFC/Snyder, R. S.  
Jewett, W. R.

**NAS 8-33351** University of Arizona 1103  
Low spectral resolution optical survey of the HEAO-B high resolution imager fields  
*Period* Obligations  
05/23/79-05/22/80 FY79: \$21,260 TOTAL: \$21,260  
*Pnn Invest* NASA Tech Officer CASE Category  
Strittmatter, P. A. MSFC/Jones, J. B., Jr. 11-Astronomy

**NAS 9-14692** University of Arizona 1104  
Automated computerized pattern recognition in cytology  
*Period* Obligations  
06/01/75-12/31/77 FY79: TOTAL: \$50,439  
*Pnn Invest* NASA Tech Officer CASE Category  
Bartels, P. H. JSC/Kimzey, S. L. 59-Life Sci, NEC

**NASA'S UNIVERSITY PROGRAM  
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**NASW 3262** University of Arizona **1105**  
Colloquium and book on asteroids and planets  
*Period* *Obligations*  
04/23/79-03/30/80 FY79: \$14,700 TOTAL: \$14,700  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Unavailable HQ-SL/Brunk, W. E. 11-Astronomy

**NGL 03-002-081** University of Arizona **1112**  
Photometry and polarimetry of minor planets  
*Period* *Obligations*  
03/14/66-09/30/79 FY79: \$39,989 TOTAL: \$469,225  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gehrels, A. HQ-SL/Brunk, W. E. 11-Astronomy  
HQ-SL/Murphy, R. E.

**NAS10-8518** University of Arizona **1106**  
Thunderstorm electrical field changes and associated meteorological conditions at KSC  
*Period* *Obligations*  
02/12/74-02/29/80 FY79: \$20,000 TOTAL: \$161,600  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Krider, E. P. KSC/Jafferis, W. 31-Atmos Sci

**NGL 03-002-122** University of Arizona **1113**  
Astrometric and astrophysical investigation of comets, minor planets, and satellites  
*Period* *Obligations*  
02/22/67-04/30/79 FY79: TOTAL: \$214,295  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cox, E. L. HQ-SL/Brunk, W. E. 11-Astronomy  
HQ-SL/Fellows, R. F.

**NCA 5-76** University of Arizona **1107**  
Observation of comets and atmospheric extinction  
*Period* *Obligations*  
04/12/77-03/01/78 FY79: TOTAL: \$6,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Martineck, S. GSFC/Dunkelman, L. 31-Atmos Sci

**NGL 03-002-191** University of Arizona **1114**  
Lunar surface and planetology study  
*Period* *Obligations*  
05/16/69-09/30/79 FY79: TOTAL: \$568,770  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Strom, R. G. HQ-SL/Bohlin, J. M. 32-Geological Sci  
HQ-SL/Flinn, E. A.

**NCA 5-93** University of Arizona **1108**  
Spectroscopic observations of comets  
*Period* *Obligations*  
09/06/78-07/01/79 FY79: TOTAL: \$3,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Martineck, S. GSFC/Donn, B. 31-Atmos Sci

**NGL 03-002-313** University of Arizona **1115**  
Remote sensing applications for state & local government  
*Period* *Obligations*  
03/07/72-02/28/82 FY79: \$150,000 TOTAL: \$850,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Johnson, J. D. HQ-ET/Vitale, J. A. 39-Env Sci, NEC

**NCA 5-94** University of Arizona **1109**  
Infrared absorption studies of clathrates and hydrate ices  
*Period* *Obligations*  
01/23/79-03/31/80 FY79: \$14,800 TOTAL: \$14,800  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Fink, U. W. GSFC/Pearl, J. C. 13-Physics

**NGR 03-002-107** University of Arizona **1116**  
Basic research in astrophysics and space science  
*Period* *Obligations*  
09/01/67-08/31/79 FY79: TOTAL: \$638,063  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hsieh, K. C. HQ-ST/Kaiser, M. L. 13-Physics  
HQ-ST/Schmerling, E. R.

**NGL 03-002-002** University of Arizona **1110**  
Planetary, spectroscopic, selenodetic & physical studies of lunar surface  
*Period* *Obligations*  
08/12/61-05/31/81 FY79: \$47,978 TOTAL: \$2,789,250  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Smith, B. A. HQ-SL/Brunk, W. E. 11-Astronomy  
HQ-SL/Murphy, R. E.

**NGR 03-002-171** University of Arizona **1117**  
Analysis of carbonaceous meteorites  
*Period* *Obligations*  
10/26/68-09/30/80 FY79: \$45,000 TOTAL: \$572,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Nagy, B. HQ-SB/Young, R. S. 32-Geological Sci  
Urey, H. C.  
Nagy, L. A.

**NGL 03-002-019** University of Arizona **1111**  
High resolution electron microscopic techniques to study biological material  
*Period* *Obligations*  
06/07/63-08/31/79 FY79: TOTAL: \$471,055  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hoenig, S. A. HQ-SL/Fellows, R. F. 31-Atmos Sci  
HQ-SL/Brunk, W. E.

**NGR 03-002-219** University of Arizona **1118**  
Photopolarimetry of Mercury, Mars and satellites  
*Period* *Obligations*  
02/13/70-10/31/79 FY79: \$34,993 TOTAL: \$349,415  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gehrels, A. M. HQ-SL/Brunk, W. E. 11-Astronomy  
HQ-SL/Murphy, R. E.

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<b>NGR 03-002-269</b>	<b>University of Arizona</b>	<b>1119</b>
Operation of a 30 cm flying infrared telescope		
<i>Period</i>	<i>Obligations</i>	
05/04/71-05/31/80	FY79: \$70,660	TOTAL: \$568,336
<i>Prin Invest.</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Low, F. J.	HQ-SC/Bogges, N. W.	11-Astronomy
	HQ-SC/Roman, N. G.	
<b>NGR 03-002-332</b>	<b>University of Arizona</b>	<b>1120</b>
Infrared spectroscopy of the planets from 1-5.6 micron with the medium-resolution LPL Fourier interferometer		
<i>Period</i>	<i>Obligations</i>	
03/05/73-10/31/79	FY79: \$105,918	TOTAL: \$520,357
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Larson, H. P.	ARC/Haughney, L. C.	11-Astronomy
<b>NGR 03-002-370</b>	<b>University of Arizona</b>	<b>1121</b>
An investigation of electromagnetic processes in the early solar system with bearing on thermal evolution and fossil magnetism		
<i>Period</i>	<i>Obligations</i>	
10/01/73-12/31/79	FY79: \$40,829	TOTAL: \$233,959
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sonett, C. P.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/French, B. M.	
<b>NGR 03-002-371</b>	<b>University of Arizona</b>	<b>1122</b>
Far infrared observations of galactic and extra-galactic sources of radiation		
<i>Period</i>	<i>Obligations</i>	
09/01/73-11/30/79	FY79: \$90,000	TOTAL: \$360,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hoffman, W. F.	HQ-SC/Bogges, N. W.	11-Astronomy
	HQ-SC/Roman, N. G.	
<b>NGR 03-002-388</b>	<b>University of Arizona</b>	<b>1123</b>
Lunar sample analysis		
<i>Period</i>	<i>Obligations</i>	
02/01/74-09/30/79	FY79: \$21,000	TOTAL: \$281,700
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Drake, M. J.	JSC/Harris, J. W.	12-Chemistry
<b>NGR 03-002-390</b>	<b>University of Arizona</b>	<b>1124</b>
Mapping structure of galactic center		
<i>Period</i>	<i>Obligations</i>	
10/01/73-10/31/79	FY79: \$70,000	TOTAL: \$276,733
<i>Prin Invest.</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Harvey, P. M.	ARC/Haughney, L. C.	11-Astronomy
Hoffman, W. F.		
<b>NSG 2112</b>	<b>University of Arizona</b>	<b>1125</b>
Inviscid transonic flow computations		
<i>Period</i>	<i>Obligations</i>	
11/01/75-10/31/80	FY79: \$61,206	TOTAL: \$221,991
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Seebass, A. R.	ARC/Ballhaus, W. F.	41-Aero Engr
Fung, K. Y.		
Sobieczky, H.		
<b>NSG 2205</b>	<b>University of Arizona</b>	<b>1126</b>
Construction of a radial velocity meter for determining percentage of binaries among solar-type stars		
<i>Period</i>	<i>Obligations</i>	
01/01/77-01/31/80	FY79: \$30,000	TOTAL: \$45,000
<i>Prin. Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Serkowski, K. M.	ARC/Black, D. C.	11-Astronomy
<b>NSG 2349</b>	<b>University of Arizona</b>	<b>1127</b>
Laboratory studies relevant to the Titan atmosphere		
<i>Period</i>	<i>Obligations</i>	
11/01/78-08/31/80	FY79: \$24,990	TOTAL: \$24,990
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fink, U. W.	ARC/Murphy, J. P.	31-Atmos Sci
Hunten, D. M.		
<b>NSG 2381</b>	<b>University of Arizona</b>	<b>1128</b>
Cytofluorometric analysis of viral infection		
<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY79: \$35,000	TOTAL: \$35,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Meinke, W. J.	ARC/Mandel, A. D.	56-Medical Sciences
<b>NSG 5023</b>	<b>University of Arizona</b>	<b>1129</b>
Lightning detection study		
<i>Period</i>	<i>Obligations</i>	
09/01/74-03/31/80	FY79:	TOTAL: \$51,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Krider, E. P.	GSFC/LeVine, D. M.	31-Atmos Sci
<b>NSG 5235</b>	<b>University of Arizona</b>	<b>1130</b>
Research of the ultraviolet spectra of T Tauri and related stars		
<i>Period</i>	<i>Obligations</i>	
02/19/78-04/08/80	FY79: \$4,066	TOTAL: \$6,298
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Imhoff, C. L.	GSFC/Bogges, A.	11-Astronomy
<b>NSG 5249</b>	<b>University of Arizona</b>	<b>1131</b>
Spectrophotometry of planets, satellites and asteroids		
<i>Period</i>	<i>Obligations</i>	
03/01/78-12/31/79	FY79: \$7,000	TOTAL: \$22,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tomasko, M. G.	GSFC/Bogges, A.	11-Astronomy
Zellner, B. H.	GSFC/West, D. K.	
Gehrels, A. M.		
<b>NSG 5279</b>	<b>University of Arizona</b>	<b>1132</b>
Measurement and forecasting of soil moisture by remote means		
<i>Period</i>	<i>Obligations</i>	
07/01/78-01/31/79	FY79:	TOTAL: \$6,600
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Evans, D. D.	GSFC/Schmugge, T. J.	31-Atmos Sci

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<b>NSG 5302</b>	<b>University of Arizona</b>	<b>1133</b>	<b>NSG 7114</b>	<b>University of Arizona</b>	<b>1140</b>
Laser application of incoherent radiation			Infrared observations of the planets		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/15/78-09/14/79	FY79: TOTAL: \$5,000		02/20/75-05/31/80	FY79: \$24,934 TOTAL: \$95,676	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lamb, W. E., Jr.	GSFC/McAvoy, N.	13-Physics	Rieke, G. H.	HQ-SL/Brunk, W. E.	11-Astronomy
				HQ-SL/Murphy, R. E.	
<b>NSG 7011</b>	<b>University of Arizona</b>	<b>1134</b>	<b>NSG 7146</b>	<b>University of Arizona</b>	<b>1141</b>
Radiation history of meteorites			Geologic investigation of Mercury from Mariner 10 television data		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/74-02/28/80	FY79: \$40,000 TOTAL: \$213,816		07/01/75-01/31/81	FY79: \$94,751 TOTAL: \$260,088	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilkening, L. L.	HQ-SL/French, B. M.	32-Geological Sci	Strom, R. G.	HQ-SL/Boyce, J. M.	32-Geological Sci
	HQ-SL/Quaide, W. L.			HQ-SL/Quaide, W. L.	
<b>NSG 7020</b>	<b>University of Arizona</b>	<b>1135</b>	<b>NSG 7168</b>	<b>University of Arizona</b>	<b>1142</b>
Investigation of lunar induced and permanent magnetism in the lunar data analysis and synthesis program			Studies in the production of astrophysical magnetic field		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/74-01/31/80	FY79: \$100,000 TOTAL: \$603,316		09/01/75-01/01/79	FY79: \$192 TOTAL: \$45,192	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sonett, C. P.	HQ-SL/Quaide, W. L.	32-Geological Sci	Levy, E. H.	HQ-ST/Bohlin, J. D.	13-Physics
	HQ-SL/French, B. F.				
<b>NSG 7024</b>	<b>University of Arizona</b>	<b>1136</b>	<b>NSG 7246</b>	<b>University of Arizona</b>	<b>1143</b>
Study of the earth's magnetosphere and solar wind			Carbonaceous fragments		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/01/74-04/30/80	FY79: \$108,100 TOTAL: \$338,100		07/01/76-06/30/78	FY79: TOTAL: \$36,720	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sonett, C. P.	HQ-ST/Hedin, A. E.	13-Physics	Gehrels, A. M.	HQ-SL/French, B. M.	32-Geological Sci
	HQ-ST/Schmerling, E. R.		Degewij, J.	HQ-SL/Quaide, W. L.	
<b>NSG 7045</b>	<b>University of Arizona</b>	<b>1137</b>	<b>NSG 7249</b>	<b>University of Arizona</b>	<b>1144</b>
Interiors of the giant planets			High precision polarimetry of meteorites		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/22/74-03/31/80	FY79: \$33,000 TOTAL: \$198,894		07/01/76-02/29/80	FY79: \$29,309 TOTAL: \$117,268	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hubbard, W. B.	HQ-SL/Brunk, W. E.	11-Astronomy	Zellner, B. H.	HQ-SL/French, B. M.	32-Geological Sci
	HQ-SL/Murphy, R. E.			HQ-SL/Quaide, W. L.	
<b>NSG 7070</b>	<b>University of Arizona</b>	<b>1138</b>	<b>NSG 7333</b>	<b>University of Arizona</b>	<b>1145</b>
Planetary spectroscopy			Study of isoelectric focusing for proteins and peptide hormones in a microgravity environment		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/74-05/31/81	FY79: \$57,799 TOTAL: \$553,748		04/01/79-03/31/82	FY79: \$200,000 TOTAL: \$725,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fink, U. W.	HQ-SL/Brunk, W. E.	11-Astronomy	Bier, M.	HQ-ET/Vitale, J. A.	59-Life Sci, NEC
	HQ-SL/Murphy, R. E.				
<b>NSG 7101</b>	<b>University of Arizona</b>	<b>1139</b>	<b>NSG 7358</b>	<b>University of Arizona</b>	<b>1146</b>
Study structure of astrophysical plasma and turbulent fluctuations			International meeting and book on 'Protostars and planets'		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
11/18/74-08/31/79	FY79: \$55,326 TOTAL: \$223,192		11/01/77-10/31/78	FY79: TOTAL: \$8,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
'okipii, J. R.	HQ-SC/Opp, A. G.	11-Astronomy	Gehrels, A. M.	HQ-SC/Roman, N. G.	11-Astronomy
	HQ-SC/Fishman, G. K.			HQ-SS/Rasool, I. S.	

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<b>NSG 7368</b>	<b>University of Arizona</b>	<b>1147</b>
A deep near infrared photographic sky survey as a support tool for the infrared astronomical satellite		
<i>Period</i>	<i>Obligations</i>	
06/15/77-06/14/80	FY79: \$33,661	TOTAL: \$67,742
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Craine, E. R.	HQ-SC/Bogges, N. W.	11-Astronomy
	HQ-SC/Roman, N. G.	
<b>NSG 7374</b>	<b>University of Arizona</b>	<b>1148</b>
Evaluation of a field-ionization neutral mass spectrometer for possible comet fly-by missions in 1980's		
<i>Period</i>	<i>Obligations</i>	
08/01/77-12/01/79	FY79:	TOTAL: \$35,006
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hsieh, K. C.	HQ-SL/Murphy, R. E.	11-Astronomy
	HQ-SL/Brunk, W. E.	
<b>NSG 7419</b>	<b>University of Arizona</b>	<b>1149</b>
Generation and behavior of solar system magnetic fields		
<i>Period</i>	<i>Obligations</i>	
03/01/79-02/29/80	FY79: \$34,673	TOTAL: \$66,138
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Levy, E. H.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. M.	
<b>NSG 7436</b>	<b>University of Arizona</b>	<b>1150</b>
Rare earths in inclusions from different classes of carbonaceous chondrites		
<i>Period</i>	<i>Obligations</i>	
03/01/78-02/28/79	FY79:	TOTAL: \$38,333
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Boynton, W. V.	HQ-SL/French, B. M.	32-Geological Sci
	HQ-SL/Quaide, W. L.	
<b>NSG 7485</b>	<b>University of Arizona</b>	<b>1151</b>
Stratospheric aeronomy		
<i>Period</i>	<i>Obligations</i>	
09/01/78-08/31/80	FY79: \$112,272	TOTAL: \$112,272
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hunten, D. M.	HQ-ST/Newton, G. P.	31-Atmos Sci
	HQ-ST/Tilford, S. G.	
<b>NSG 7502</b>	<b>University of Arizona</b>	<b>1152</b>
Asteroid population statistics		
<i>Period</i>	<i>Obligations</i>	
09/01/78-08/31/80	FY79: \$24,870	TOTAL: \$24,870
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zellner, B. H.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Murphy, R. E.	
<b>NSG 7544</b>	<b>University of Arizona</b>	<b>1153</b>
Martian landforms response to geologic setting		
<i>Period</i>	<i>Obligations</i>	
04/01/79-11/30/79	FY79: \$19,999	TOTAL: \$19,999
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Woronow, A.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Boyce, J. M.	
<b>NSG 7558</b>	<b>University of Arizona</b>	<b>1154</b>
Planetary aeronomy and related studies		
<i>Period</i>	<i>Obligations</i>	
04/01/79-03/30/80	FY79: \$24,275	TOTAL: \$24,275
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hunten, D. M.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	
<b>NSG 7573</b>	<b>University of Arizona</b>	<b>1155</b>
Scattering of light by amonia crystals		
<i>Period</i>	<i>Obligations</i>	
09/01/78-04/30/80	FY79: \$48,649	TOTAL: \$48,649
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tomasko, M. G.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	
<b>NSG 7574</b>	<b>University of Arizona</b>	<b>1156</b>
Optical photometry and polarimetry and confirmed counterparts for X-ray binary pulsars		
<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY79: \$19,432	TOTAL: \$19,432
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tapia, S. F.	HQ-SC/Weiler, E. J.	11-Astronomy
	HQ-SC/Roman, N. G.	
<b>NSG 7576</b>	<b>University of Arizona</b>	<b>1157</b>
Geochemical evolution of the moon and igneous meteorites		
<i>Period</i>	<i>Obligations</i>	
05/01/79-01/30/80	FY79: \$62,967	TOTAL: \$62,967
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Drake, M. J.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. M.	
<b>NSG 7577</b>	<b>University of Arizona</b>	<b>1158</b>
Terrestrial analog studies of relationships		
<i>Period</i>	<i>Obligations</i>	
03/01/79-09/30/79	FY79: \$30,055	TOTAL: \$30,055
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Drake, M. J.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/Dwornik, S. E.	
<b>NSG 7607</b>	<b>University of Arizona</b>	<b>1159</b>
Laboratory infrared reflectance studies		
<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY79: \$19,363	TOTAL: \$19,363
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lebofsky, L.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. M.	
<b>NSG 7634</b>	<b>University of Arizona</b>	<b>1160</b>
Studies of planetary extended atmospheres		
<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/80	FY79: \$63,330	TOTAL: \$63,330
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Brown, R. A.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Murphy, R. E.	

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**NSG 3249**                      **Arkansas State University**                      **1161**  
 Vaporization thermodynamics of potassium sulfide and potassium sulfite

<i>Period</i>	<i>Obligations</i>	
03/15/79-12/30/79	FY79: \$34,140	TOTAL: \$34,140
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bennett, J. E.	LERC/Burkhart, J. A.	12-Chemistry
	LERC/Seikel, G. R.	

**NAS 8-31550**                      **University of Arkansas - Fayetteville**                      **1162**  
 Statistical analyses of multivariate atmospheric variables

<i>Period</i>	<i>Obligations</i>	
10/31/75-03/31/79	FY79:	TOTAL: \$32,485
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tubbs, J. D.	MSFC/Falls, L. W.	31-Atmos Sci
	MSFC/Smith, O. E.	

**NAS 8-33224**                      **University of Arkansas - Fayetteville**                      **1163**  
 Space shuttle environmental analysis: Statistical models

<i>Period</i>	<i>Obligations</i>	
05/07/79-05/06/80	FY79: \$17,878	TOTAL: \$17,878
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tubbs, J. D.	MSFC/Smith, O. E.	31-Atmos Sci
Brewer, D. W.		

**NAS 9-14251**                      **University of Arkansas - Fayetteville**                      **1164**  
 Remote sensing of soil moisture content

<i>Period</i>	<i>Obligations</i>	
06/01/74-11/30/79	FY79:	TOTAL: \$204,233
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Waite, W. P.	JSC/Demel, K. J.	19-Phys Sci, NEC
	JSC/Baldwin, R. R.	

**NGL 04-001-007**                      **University of Arkansas - Fayetteville**                      **1165**  
 Application of lasers to instrumentation & measurement techniques

<i>Period</i>	<i>Obligations</i>	
06/15/70-04/30/80	FY79: \$21,999	TOTAL: \$424,381
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Broecker, W. S.	ARC/Ragent, B.	41-Aero Engr
Flynn, G. W.	ARC/Horstman, M.	

**NSG 7106**                      **University of Arkansas - Fayetteville**                      **1166**  
 Scalable standard optical sources in VUV: Emission from electron impact on metals

<i>Period</i>	<i>Obligations</i>	
02/15/75-10/31/79	FY79: \$2,000	TOTAL: \$69,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hughes, R. H.	HQ-SC/Roman, N. G.	11-Astronomy

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**NAS 1-9703**                      **California Institute of Technology**                      **1167**  
 Participation in seismology planning for the Viking 1975 missions

<i>Period</i>	<i>Obligations</i>	
04/08/70-01/31/79	FY79:	TOTAL: \$1,109,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, D. L.	LARC/Williams, T. S., Jr.	
	LARC/Glenny, W. R.	39-Env Sci, NEC

**NAS 1-15668**                      **California Institute of Technology**                      **1168**  
 Aerodynamics of the Wright 1903 flyer

<i>Period</i>	<i>Obligations</i>	
01/18/79-10/31/79	FY79: \$11,930	TOTAL: \$11,930
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Culick, F. E.	LARC/Houbolt, J. C.	41-Aero Engr

**NAS 2-6556**                      **California Institute of Technology**                      **1169**  
 Pioneer 10 and 11 data analysis of the Jovian infrared thermal structures experiment

<i>Period</i>	<i>Obligations</i>	
09/17/71-09/30/80	FY79: \$40,600	TOTAL: \$249,549
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ingersoll, A. P.	ARC/Hall, C. F.	11-Astronomy
	ARC/Porter, D. L.	

**NAS 5-11066**                      **California Institute of Technology**                      **1170**  
 IMP-H&J electron isotope spectrometer experiment

<i>Period</i>	<i>Obligations</i>	
01/12/68-02/29/80	FY79: \$155,047	TOTAL: \$2,137,391
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stone, E. C.	GSFC/Gemmell, J. D.	13-Physics

**NAS 5-20721**                      **California Institute of Technology**                      **1171**  
 High energy cosmic rays experiment for International Sun Earth Explorer spacecraft

<i>Period</i>	<i>Obligations</i>	
02/07/75-08/12/80	FY79: \$162,000	TOTAL: \$1,706,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stone, E. C.	GSFC/Davis, M. A.	13-Physics
	GSFC/Gallagher, W. F.	

**NAS 5-22939**                      **California Institute of Technology**                      **1172**  
 Helioscope camera definition study

<i>Period</i>	<i>Obligations</i>	
03/10/76-06/01/80	FY79:	TOTAL: \$39,627
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zirin, H.	GSFC/Neupert, W. M.	11-Astronomy
Prout, R. A.		

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**NAS 5-22965** California Institute of Technology 1173  
Nimbus G earth radiation budget sensor support  
*Period* Obligations  
01/27/76-10/01/80 FY79: \$51,427 TOTAL: \$117,591  
*Prin Invest* NASA Tech Officer CASE Category  
Ingersoll, A. P. GSFC/Nelsen, E. D. 31-Atmos Sci

**NAS 8-33108** California Institute of Technology 1180  
Research in turbomachine rotor forces  
*Period* Obligations  
10/23/78-11/22/79 FY79: \$35,152 TOTAL: \$35,152  
*Prin Invest* NASA Tech Officer CASE Category  
Costa, A. J. MSFC/Gross, L. A. 46-Mech Engr  
Brennen, C. MSFC/Goetz, O. K.

**NAS 5-23315** California Institute of Technology 1174  
Cosmic X-ray experiment for HEAO-2  
*Period* Obligations  
11/15/73-05/31/79 FY79: TOTAL: \$873,218  
*Prin Invest* NASA Tech Officer CASE Category  
Garmire, G. P. GSFC/Wende, C. D. 11-Astronomy

**NAS 8-33215** California Institute of Technology 1181  
ATM guest investigator program empirical studies of solar flares:  
Comparison of X-ray and h-alpha filtrations and analysis of the  
energy balance of the thermal X-ray plasma  
*Period* Obligations  
11/17/78-11/16/79 FY79: \$33,000 TOTAL: \$33,000  
*Prin Invest* NASA Tech Officer CASE Category  
Moore, R. L. MSFC/DeLoach, A. C. 13-Physics  
MSFC/Snoddy, W. C.

**NAS 5-24339** California Institute of Technology 1175  
Xe-filled proportional counter and study on use with hard X-ray  
imaging instrument  
*Period* Obligations  
09/28/77-08/31/79 FY79 TOTAL: \$54,960  
*Prin Invest* NASA Tech Officer CASE Category  
Garmire, G. P. GSFC/Stouffer, C. G. 13-Physics

**NAS 8-33331** California Institute of Technology 1182  
Study of Supernova remnant RCW 103 and a search for X-ray  
emission from dwarf novae  
*Period* Obligations  
02/05/79-02/04/80 FY79: \$10,996 TOTAL: \$10,996  
*Prin Invest* NASA Tech Officer CASE Category  
Garmire, G. P. MSFC/Jones, J. B., Jr. 11-Astronomy  
Tuohy, I. R.

**NAS 5-25049** California Institute of Technology 1176  
HEAO A-2 cosmic X-ray experiment mission support and data  
analysis support  
*Period* Obligations  
08/13/78-03/31/82 FY79: \$233,554 TOTAL: \$294,000  
*Prin Invest* NASA Tech Officer CASE Category  
Garmire, G. P. GSFC/Wende, C. D. 13-Physics

**NAS 8-33352** California Institute of Technology 1183  
A SSS observation of the Supernova remnant RCW 103  
*Period* Obligations  
05/30/79-05/29/80 FY79: \$2,720 TOTAL: \$2,720  
*Prin Invest* NASA Tech Officer CASE Category  
Garmire, G. P. MSFC/Jones, J. B., Jr. 11-Astronomy  
Tuohy, I. R.

**NAS 5-25451** California Institute of Technology 1177  
Wide field/planetary camera for space telescope  
*Period* Obligations  
01/01/79-02/01/84 FY79: \$523,915 TOTAL: \$523,915  
*Prin Invest* NASA Tech Officer CASE Category  
Westphal, J. GSFC/White, R. A. 11-Astronomy

**NCC 5 17** California Institute of Technology 1184  
Theoretical investigation of the mechanics of strike slip faulting  
in unelastic earth  
*Period* Obligations  
06/01/79-05/31/80 FY79: \$40,000 TOTAL: \$40,000  
*Prin Invest* NASA Tech Officer CASE Category  
Melosh, H. J. GSFC/Cohen, S. C. 32-Geological Sci

**NAS 8-27978** California Institute of Technology 1178  
Design, development & operation of the ACR-7 heavy nuclei  
experiment under the HEAO program  
*Period* Obligations  
06/23/72-09/30/80 FY79: \$169,000 TOTAL: \$528,060  
*Prin Invest* NASA Tech Officer CASE Category  
Stone, E. C. MSFC/Talley, D. 11-Astronomy  
MSFC/Cochran, J.

**NGL 05-002-003** California Institute of Technology 1185  
Basic scientific research on lunar & planetary exploration  
*Period* Obligations  
12/01/59-11/30/80 FY79: \$154,091 TOTAL: \$3,192,858  
*Prin Invest* NASA Tech Officer CASE Category  
Muhleman, D. O. HQ-SL/Brunk, W. E. 11-Astronomy  
HQ-SL/Murphy, R. E.

**NAS 8-29313** California Institute of Technology 1179  
Dynamics of unsteady cavitating cascades  
*Period* Obligations  
09/28/72-10/15/79 FY79: \$41,589 TOTAL: \$470,459  
*Prin Invest* NASA Tech Officer CASE Category  
Acosta, A. J. MSFC/Gross, L. A. 46-Mech Engr  
MSFC/Stinson, H. P., Jr.

**NGL 05-002-034** California Institute of Technology 1186  
Research in solar flares and the solar atmosphere  
*Period* Obligations  
05/18/65-09/30/79 FY79: \$244,000 TOTAL: \$2,831,353  
*Prin Invest* NASA Tech Officer CASE Category  
Zirin, H. HQ-ST/Bohlin, J. D. 11-Astronomy



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**NGL 05-002-069** California Institute of Technology 1187  
Theoretical investigation of planetary interiors  
*Period* Obligations  
06/12/67-02/28/80 FY79: TOTAL: \$553,729  
*Prin Invest* NASA Tech Officer CASE Category  
Anderson, D. L. HQ-SL/Quaide, W. L. 32-Geological Sci

**NGL 05-002-105** California Institute of Technology 1188  
Shock effects in minerals  
*Period* Obligations  
08/16/68-03/31/81 FY79: \$217,084 TOTAL: \$1,104,488  
*Prin Invest* NASA Tech Officer CASE Category  
Ahrens, T. J. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. E.

**NGL 05-002-134** California Institute of Technology 1189  
Modern astronomical instrument development  
*Period* Obligations  
10/27/69-09/30/81 FY79: \$61,110 TOTAL: \$722,662  
*Prin Invest* NASA Tech Officer CASE Category  
Oke, J. B. HQ-SC/Roman, N. G. 11-Astronomy  
HQ-SC/Rosendhal, J. D.

**NGL 05-002-140** California Institute of Technology 1190  
Research in planetary astronomy  
*Period* Obligations  
04/11/69-03/31/81 FY79: \$31,805 TOTAL: \$512,710  
*Prin Invest* NASA Tech Officer CASE Category  
Goldreich, P. HQ-SL/Brunk, W. E. 11-Astronomy  
HQ-SL/Murphy, R. E.

**NGL 05-002-188** California Institute of Technology 1191  
Lunar sample analysis  
*Period* Obligations  
02/03/71-01/31/81 FY79: \$342,115 TOTAL: \$4,961,702  
*Prin Invest* NASA Tech Officer CASE Category  
Wasserburg, G. J. JSC/Harris, J. W. 12-Chemistry

**NGL 05-002-190** California Institute of Technology 1192  
Lunar sample analysis  
*Period* Obligations  
01/11/71-01/31/80 FY79: \$58,540 TOTAL: \$892,645  
*Prin Invest* NASA Tech Officer CASE Category  
Epstein, S. JSC/Harris, J. W. 13-Physics

**NGL 05-002-207** California Institute of Technology 1193  
Research in infrared and X-ray astronomy  
*Period* Obligations  
02/18/71-09/30/81 FY79: \$110,000 TOTAL: \$905,000  
*Prin Invest* NASA Tech Officer CASE Category  
Neugebauer, G. HQ-SC/Boggess, N. W. 11-Astronomy  
HQ-SC/Roman, N. G.

**NGL 05-002-338** California Institute of Technology 1194  
Petrologic and microprobe investigations on isotopically dated lunar samples  
*Period* Obligations  
02/01/74-01/31/81 FY79: \$46,571 TOTAL: \$525,930  
*Prin Invest* NASA Tech Officer CASE Category  
Albee, A. L. JSC/Harris, J. W. 13-Physics

**NGR 05-002-114** California Institute of Technology 1195  
Radio interferometry of Mars and Venus  
*Period* Obligations  
10/11/68-09/30/79 FY79: \$52,452 TOTAL: \$424,848  
*Prin Invest* NASA Tech Officer CASE Category  
Muhleman, D. O. HQ-SL/Brunk, W. E. 11-Astronomy  
HQ-SL/Murphy, R. E.

**NGR 05-002-121** California Institute of Technology 1196  
A study of water metabolism in Neurospora Crassa  
*Period* Obligations  
01/01/69-03/31/79 FY79: TOTAL: \$439,119  
*Prin Invest* NASA Tech Officer CASE Category  
Horowitz, N. H. HQ-SB/Young, R. S. 51-Biological Sci

**NGR 05-002-160** California Institute of Technology 1197  
Research in particles and fields  
*Period* Obligations  
10/27/69-09/30/80 FY79: \$390,000 TOTAL: \$3,026,000  
*Prin Invest* NASA Tech Officer CASE Category  
Vogt, R. E. HQ-SC/Kaluzienski, L. J. 11-Astronomy  
HQ-SC/Opp, A. G.

**NGR 05-002-256** California Institute of Technology 1198  
Study and research on experimental tests of gravitation theory  
*Period* Obligations  
02/23/72-12/31/79 FY79: \$25,000 TOTAL: \$188,000  
*Prin Invest* NASA Tech Officer CASE Category  
Thorne, K. S. HQ-SC/Roman, N. G. 11-Astronomy  
HQ-SC/Weiler, E. J.

**NGR 05-002-281** California Institute of Technology 1199  
High angular resolution of H II regions and associated galactic sources  
*Period* Obligations  
03/01/73-10/31/80 FY79: \$60,574 TOTAL: \$359,602  
*Prin Invest* NASA Tech Officer CASE Category  
Werner, M. W. ARC/Haughney, L. C. 11-Astronomy

**NGR 05-002-284** California Institute of Technology 1200  
High angular resolution cosmic X-ray astronomy observations in the energy band 0.15-2Ke and XUV observations of early stars from an attitude controlled rocket  
*Period* Obligations  
03/05/73-09/30/80 FY79: \$150,936 TOTAL: \$1,020,232  
*Prin Invest* NASA Tech Officer CASE Category  
Garmire, G. P. GSFC/Bissell, E. E. 11-Astronomy  
Nousek, J. HQ-SC/Opp, A. G.  
Pravdo, S.

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**NGR 05-002-303** California Institute of Technology 1201  
Systematic search program for new Apollo Amor asteroids  
*Period* *Obligations*  
08/01/73-09/30/80 FY79: \$112,177 TOTAL: \$453,463  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Shoemaker, E. M. HQ-SL/Dwornik, S. E. 32-Geological Sci  
HQ-SL/Boyce, J. M.

**NGR 05-002-333** California Institute of Technology 1202  
Lunar sample analysis  
*Period* *Obligations*  
02/01/74-01/31/80 FY79: \$93,000 TOTAL: \$552,400  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tombrello, T. A. JSC/Harris, J. W. 13-Physics

**NGT 05-003-790** California Institute of Technology 1203  
Summer research program faculty fellowships  
*Period* *Obligations*  
01/01/79-03/31/80 FY79: \$73,688 TOTAL: \$73,688  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Albee, A. L. HQ-LU/Carter, C. H. 49-Engr. NEC

**NSG 1483** California Institute of Technology 1204  
Low speed impact damage on composite materials  
*Period* *Obligations*  
01/15/78-01/15/80 FY79: \$39,920 TOTAL: \$74,886  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Knauss, W. G. LARC/Starns, J. H., Jr. 41-Aero Engr  
Babcock, C. D.

**NSG 2283** California Institute of Technology 1205  
Some aspects of the photochemistry of the atmospheres of Mars and Earth  
*Period* *Obligations*  
12/01/77-12/31/79 FY79: \$8,271 TOTAL: \$24,765  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Yung, Y. L. ARC/Pollack, J. B. 31-Atmos Sci

**NSG 5197** California Institute of Technology 1206  
Search for periodic variations in the X-ray flux from the galactic center  
*Period* *Obligations*  
08/01/77-07/31/78 FY79: TOTAL: \$10,109  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Garmire, G. P. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 5208** California Institute of Technology 1207  
Support of joint infrared and Copernicus X-ray observations  
*Period* *Obligations*  
09/01/77-08/31/79 FY79: TOTAL: \$5,986  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Neugebauer, G. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 5224** California Institute of Technology 1208  
Earthquake research: Premonitory models and the physics of crustal distortion  
*Period* *Obligations*  
01/16/78-01/15/80 FY79: \$65,339 TOTAL: \$190,340  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Whitcomb, J. H. GSFC/Allenby, R. J. 32-Geological Sci  
Allen, C. R.  
Anderson, D. L.

**NSG 5243** California Institute of Technology 1209  
Observations of faint, high latitude blue stars and ultraviolet spectroscopy of peculiar galaxies and quasars  
*Period* *Obligations*  
03/01/78-11/30/79 FY79: \$5,000 TOTAL: \$37,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Greenstein, J. L. GSFC/Boggess, A. 11-Astronomy  
Oke, J. B. GSFC/West, D. K.

**NSG 5244** California Institute of Technology 1210  
Ultraviolet observations of quasi-stellar objects  
*Period* *Obligations*  
03/01/78-11/30/79 FY79: \$4,000 TOTAL: \$22,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Schmidt, M. GSFC/Boggess, A. 11-Astronomy  
Green, F. R.  
Estabrook, F. B.

**NSG 5267** California Institute of Technology 1211  
Theoretical investigation of the mechanics of strike slip faulting in the unelastic program  
*Period* *Obligations*  
04/01/78-05/31/79 FY79: TOTAL: \$13,440  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Melosh, H. J. GSFC/Allenby, R. J. 32-Geological Sci  
GSFC/Mead, G. D.

**NSG 5301** California Institute of Technology 1212  
Research in atmospheric chemistry and transport  
*Period* *Obligations*  
09/15/78-11/14/79 FY79: TOTAL: \$16,739  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Yung, Y. L. GSFC/Hansen, J. E. 31-Atmos Sci

**NSG 5314** California Institute of Technology 1213  
Optical observations at the Big Bear Solar Observatory  
*Period* *Obligations*  
01/01/79-12/31/79 FY79: \$51,528 TOTAL: \$51,528  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Zirin, H. GSFC/Donley, J. L. 31-Atmos Sci

**NSG 5327** California Institute of Technology 1214  
High resolution comparative observations of microwave and hard X-ray sources  
*Period* *Obligations*  
02/01/79-01/31/80 FY79: \$12,600 TOTAL: \$12,600  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Zirin, H. GSFC/Donley, J. L. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NSG 5369** California Institute of Technology 1215  
Research of interstellar lines in the galactic halo  
*Period* *Obligations*  
06/01/79-05/31/80 FY79: \$13,600 TOTAL: \$13,600  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Sargent, W. L. GSFC/Bogges, A. 11-Astronomy  
Gull, T. R.

**NSG 5381** California Institute of Technology 1216  
Support of research involving International Ultraviolet Experiment (IUE) satellite  
*Period* *Obligations*  
07/01/79-06/30/80 FY79: \$7,000 TOTAL: \$7,000  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Greenstein, J. L. GSFC/Bogges, A. 11-Astronomy

**NSG 5384** California Institute of Technology 1217  
Ultraviolet observations of young stellar populations  
*Period* *Obligations*  
07/01/79-06/30/80 FY79: \$2,916 TOTAL: \$2,916  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Meier, D. L. GSFC/Bogges, A. 11-Astronomy  
Schmidt, M.

**NSG 5385** California Institute of Technology 1218  
Study of the hottest White dwarfs from the Palomar-Green survey  
*Period* *Obligations*  
07/01/79-06/30/80 FY79: \$9,200 TOTAL: \$9,200  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Green, R. F. GSFC/Bogges, A. 11-Astronomy  
Liebert, J.  
Strittmatter, P. A.

**NSG 7129** California Institute of Technology 1219  
Relationship of impact cratering to the evolution of the lunar surface  
*Period* *Obligations*  
04/01/75-03/31/81 FY79: \$110,955 TOTAL: \$350,117  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Ahrens, T. J. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. M.

**NSG 7202** California Institute of Technology 1220  
Laboratory partitioning studies relevant to the interpretation of lunar and meteoritic trace element data  
*Period* *Obligations*  
02/01/76-01/31/80 FY79: \$63,130 TOTAL: \$286,593  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Burnett, D. S. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. M.

**NSG 7275** California Institute of Technology 1221  
Heteronuclear spin dynamics and new tools for characterization of bulk and surface properties of solids  
*Period* *Obligations*  
10/01/76-06/30/79 FY79: TOTAL: \$52,012  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Vaughan, R. HQ-RT/Schwenk, F. C. 13-Physics

**NSG 7316** California Institute of Technology 1222  
Crater modification by gravity  
*Period* *Obligations*  
02/01/77-01/31/80 FY79: \$39,960 TOTAL: \$112,360  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Melosh, H. J. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. M.

**NSG 7342** California Institute of Technology 1223  
Theoretical studies of solar oscillation  
*Period* *Obligations*  
04/01/77-09/30/80 FY79: \$14,996 TOTAL: \$39,992  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Guldreich, P. HQ-ST/Bohlin, J. D. 13-Physics

**NSG 7376** California Institute of Technology 1224  
Photochemistry of the Jovian planets and their satellites  
*Period* *Obligations*  
11/01/77-10/30/79 FY79: \$36,647 TOTAL: \$63,647  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Yung, Y. L. HQ-SL/Mitz, M. A. 31-Atmos Sci  
Strobel, D. F. HQ-SL/Brunk, W. E.

**NSG 7387** California Institute of Technology 1225  
Circadian neurons in organ and tissue culture: A feasibility study  
*Period* *Obligations*  
08/01/77-01/31/78 FY79: TOTAL: \$60,000  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Strumwasser, F. HQ-SB/Winter, D. L. 51-Biological Sci

**NSG 7442** California Institute of Technology 1226  
Spectral characterization of analogs to the Martian regolith  
*Period* *Obligations*  
10/01/77-09/30/79 FY79: \$30,083 TOTAL: \$54,236  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Albee, A. L. HQ-SL/Dwornik, S. E. 32-Geological Sci  
HQ-SL/Boyce, J. M.

**NSG 7458** California Institute of Technology 1227  
Space shuttle based compression studies of planetary materials and recovery of very high pressure phases of possible technological usefulness  
*Period* *Obligations*  
03/01/78-12/31/79 FY79: TOTAL: \$50,000  
*Pnn Invest* *NASA Tech Officer* *CASE Category*  
Ahrens, T. J. HQ-RP/Henry, W. 13-Physics  
Gault, D. E.  
Ross, M.

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**NSG 7495** California Institute of Technology 1228  
Detection of gravitational radiation by the Doppler tracking of spacecraft

<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/79	FY79: \$9,800	TOTAL: \$9,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mashhoon, B.	HQ-SC/Roman, N. G.	11-Astronomy
	HQ-SC/Rosendhal, J. D.	

**NSG 7508** California Institute of Technology 1229  
Nonlinear interactions in superfluid dynamics: Non-stationary heat transfer due to second sound shock waves

<i>Period</i>	<i>Obligations</i>	
11/01/78-10/31/79	FY79: \$58,146	TOTAL: \$58,146
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liepmann, H. W.	HQ-RT/Schwenk, F. C.	13-Physics

**NSG 7565** California Institute of Technology 1230  
Analysis of Viking infrared thermal mapping data of Mars orbiter and comet missions

<i>Period</i>	<i>Obligations</i>	
10/11/78-09/30/79	FY79: \$140,000	TOTAL: \$140,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Muhleman, D. O.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/Dwornik, S. E.	

**NSG 7610** California Institute of Technology 1231  
Fundamental studies in geodynamics

<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/82	FY79: \$165,000	TOTAL: \$165,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, D. L.	HQ-ET/Vitale, J. A.	32-Geological Sci

**NSG 9019** California Institute of Technology 1232  
Shock compression measurements on lunar samples

<i>Period</i>	<i>Obligations</i>	
10/01/74-01/31/80	FY79: \$24,500	TOTAL: \$335,100
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ahrens, T. J.	JSC/Harris, J. W.	19-Phys Sci, NEC

**NCA 2-100901** California Maritime Academy 1233  
Study to forecast manning profiles for future space freighters through direct observation of national and multinational supertanker (VLCC) crews and for other purposes

<i>Period</i>	<i>Obligations</i>	
02/01/79-02/01/80	FY79: \$20,000	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rizza, J. P.	ARC/Patton, R. M.	69-Psych, NEC
Craig, W. D.	ARC/Goldwater, D.	
Helmreich, R. L.		

**NAS 2-10364** California Polytechnic State Univ 1234  
Software development and application for dynamic analysis of the tilt rotor Research aircraft

<i>Period</i>	<i>Obligations</i>	
09/04/79-09/03/80	FY79: \$66,948	TOTAL: \$66,948
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Grimes, J. E.	ARC/Magee, J. P.	41-Aero Engr

**NSG 2391** California Polytechnic State Univ 1235  
Delay of separation with free stream turbulence

<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/80	FY79: \$23,933	TOTAL: \$23,933
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hoffmann, J. A.	ARC/Koenig, D. G.	41-Aero Engr

**NSG 4014** California Polytechnic State Univ 1236  
Wake vortex turbulence study using radio controlled models

<i>Period</i>	<i>Obligations</i>	
09/23/77-11/20/79	FY79: \$25,014	TOTAL: \$49,995
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sandlin, D. R.	DFRC/Ayers, T. G.	41-Aero Engr
Nicolaides, J. D.	DFRC/Friend, E. L.	

**NSG 4020** California Polytechnic State Univ 1237  
Wind tunnel test of free wing/free trimmer concept

<i>Period</i>	<i>Obligations</i>	
12/29/78-12/28/79	FY79: \$11,993	TOTAL: \$11,993
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sandlin, D. R.	DFRC/Gee, S. W.	41-Aero Engr
Nicolaides, J. D.	DFRC/Kordes, E. E.	

**NSG 4022** California Polytechnic State Univ 1238  
Flight evaluation of terminal guidance system

<i>Period</i>	<i>Obligations</i>	
03/01/79-12/31/79	FY79: \$56,350	TOTAL: \$56,350
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sandlin, D. R.	DFRC/Gee, S. W.	41-Aero Engr
Nicolaides, J. D.	DFRC/Kordes, E. E.	
Janeway, R. K.		

**NASW 2835** California State University - Chico 1239  
Spacemobile operation and maintenance. Space science education project

<i>Period</i>	<i>Obligations</i>	
07/01/75-09/30/79	FY79: \$1,121,619	TOTAL: \$4,885,037
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Unavailable	HQ-LF/Rich, W. B.	99-Multi-Discip

**NCA 2-253801** California State University - Fullerton 1240  
Real-time simulation of computer-assisted sequencing and scheduling of terminal area operations

<i>Period</i>	<i>Obligations</i>	
07/01/78-06/30/80	FY79: \$15,375	TOTAL: \$23,375
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dear, R. G.	ARC/Tobias, L.	22-Computer Science
	ARC/Erzberger, H.	

**NCA 2-253901** California State University - Fullerton 1241  
Absorption by SO2 in the near UV and visible spectral regions with applications to Venus' atmosphere

<i>Period</i>	<i>Obligations</i>	
06/15/79-09/30/79	FY79: \$8,190	TOTAL: \$8,190
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nanes, R.	ARC/Boese, R. W.	13-Physics

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**NSG 7314** California State University - Fullerton 1242  
 Meteoritic bismuth and lead-208 micro distributions  
 Period Obligations  
 02/01/77-01/31/80 FY79: \$35,921 TOTAL: \$95,089  
 Prin Invest NASA Tech Officer CASE Category  
 Woolum, D. S. HQ-SL/French, B. M. 32-Geological Sci  
 Burnett, D. S. HQ-SL/Quaide, W. L.

**NSG 7614** California State University - Fullerton 1243  
 Atmospheric dynamics from Viking landing data  
 Period Obligations  
 08/01/79-02/28/80 FY79: \$19,414 TOTAL: \$19,414  
 Prin Invest NASA Tech Officer CASE Category  
 Ryan, J. A. HQ-SL/Murphy, R. E. 31-Atmos Sci  
 HQ-SL/Brunk, W. E.

**NCA 2-290801** California State Univ. - Hayward 1244  
 Effects of heat acclimation and exercise on acceleration tolerance  
 Period Obligations  
 01/01/78-12/31/79 FY79: \$17,000 TOTAL: \$34,000  
 Prin Invest NASA Tech Officer CASE Category  
 Brown, C. H. ARC/Greenleaf, J. E. 59-Life Sci, NEC

**NASW 3257** California State University - Los Angeles 1245  
 Development of a direct contact heat exchanger for application in power generation systems utilizing geothermal brines  
 Period Obligations  
 03/12/79-03/11/80 FY79: \$33,285 TOTAL: \$33,285  
 Prin Invest NASA Tech Officer CASE Category  
 Manvi, R. HQ-LU/Pohly, J. G. 46-Mech Engr

**NSG 2199** California State University - Los Angeles 1246  
 Biochemical and structural studies on the thermal resistance of 'hardy' bacterial spores  
 Period Obligations  
 01/01/77-07/31/80 FY79: TOTAL: \$65,000  
 Prin Invest NASA Tech Officer CASE Category  
 Andreoli, A. J. ARC/Hochstein, L. I. 51-Biological Sci

**NSG 7229** California State University - Los Angeles 1247  
 Development of a direct contact heat exchanger for application in power generation systems utilizing geothermal brines  
 Period Obligations  
 06/15/76-09/30/78 FY79: TOTAL: \$25,000  
 Prin Invest NASA Tech Officer CASE Category  
 Maniv, R. HQ-LU/Pohly, J. G. 46-Mech Engr

**NSG 7263** California State University - Los Angeles 1248  
 Differential scanning calorimetry of coal  
 Period Obligations  
 11/15/76-03/15/80 FY79: TOTAL: \$52,900  
 Prin Invest NASA Tech Officer CASE Category  
 Gold, P. I. HQ-LU/Pohly, J. G. 46-Mech Engr  
 JPL/England, C.

**NAS 5-24436** California State University - Northridge 1249  
 Harmonic characteristics of aerodata from binary communication channels  
 Period Obligations  
 02/22/78-06/01/79 FY79: TOTAL: \$5,000  
 Prin Invest NASA Tech Officer CASE Category  
 Nathanson, W. I. GSFC/Greene, E. P.  
 22-Computer Science  
 GSFC/Poland, W. B., Jr.

**NSG 3065** California State University - Northridge 1250  
 Study of rolling element dynamic interactions with separators and raceway paths  
 Period Obligations  
 05/15/75-10/14/79 FY79: TOTAL: \$119,980  
 Prin Invest NASA Tech Officer CASE Category  
 Nypan, L. J. LERC/Coe, H. H. 46-Mech Engr

**NSG 5324** California State University - Northridge 1251  
 Analysis of solar maximum mission spectral information  
 Period Obligations  
 01/15/79-01/14/80 FY79: \$59,263 TOTAL: \$59,263  
 Prin Invest NASA Tech Officer CASE Category  
 Martin, S. F. GSFC/Donley, J. L. 31-Atmos Sci

**NSG 5330** California State University - Northridge 1252  
 Research of active regions on the solar constant  
 Period Obligations  
 02/01/79-01/31/80 FY79: \$11,123 TOTAL: \$11,123  
 Prin Invest NASA Tech Officer CASE Category  
 Chapman, G. A. GSFC/Donley, J. L. 31-Atmos Sci

**NSG 5333** California State University - Northridge 1253  
 Broad spectrum of magnetic, velocity and spectral data  
 Period Obligations  
 02/01/79-01/31/80 FY79: \$26,082 TOTAL: \$26,082  
 Prin Invest NASA Tech Officer CASE Category  
 Chapman, G. A. GSFC/Donley, J. L. 31-Atmos Sci

**NSG 7456** California State University - Northridge 1254  
 Magnetic and velocity field of faculae in collaboration with OSO-1  
 Period Obligations  
 06/01/78-09/30/79 FY79: TOTAL: \$13,153  
 Prin Invest NASA Tech Officer CASE Category  
 Chapman, G. A. HQ-ST/Bohlin, J. D. 13-Physics

**NGR 05-058-003** California State University - Sacramento 1255  
 Development of combustion stability specifications and verification procedures for liquid propellant rocket engines  
 Period Obligations  
 02/23/72-09/30/78 FY79: TOTAL: \$31,218  
 Prin Invest NASA Tech Officer CASE Category  
 Reardon, F. H. LERC/Priem, R. J. 42-Astro Engr

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**NCA 2-283901** **Harvey Mudd College** **1256**  
Solutions to operational problems encountered in the application  
of laser diagnostic systems to helicopter rotors  
*Period* *Obligations*  
05/30/78-08/31/80 **FY79:** **TOTAL: \$44,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Williams, H. **ARC/Luebs, A. B.** **41-Aero Engr**  
**ARC/Orloff, K. L.**

**NSG 1430** **San Diego State University** **1262**  
Use of the Chappuis band for determination of modern and  
historical stratospheric ozone levels  
*Period* *Obligations*  
07/15/77-10/31/79 **FY79:** **TOTAL: \$67,715**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Angione, R. J. **LARC/Levine, J. S.** **31-Atmos Sci**

**NCA 2-280801** **Hastings College of Law** **1257**  
A joint venture to consolidate law library collections and produce  
for mutual use and benefit administrative law practice manuals  
*Period* *Obligations*  
09/25/78-05/25/80 **FY79: \$106,700** **TOTAL: \$126,700**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wolcott, T. **ARC/Glazer, J. H.** **99-Multi-Discip**

**NCA 2-660806** **San Francisco State University** **1263**  
Theoretical studies of solar wind dynamics  
*Period* *Obligations*  
09/01/78-08/31/80 **FY79: \$19,820** **TOTAL: \$25,820**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kilpatrick, T. **ARC/Barnes, A.** **13-Physics**  
Nerney, S. F.

**NSG 2341** **Humboldt State University** **1258**  
Application of remote sensing technology in northern California  
*Period* *Obligations*  
10/01/78-11/30/79 **FY79: \$75,213** **TOTAL: \$75,213**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Fox, L. **ARC/Norman, S. M.** **39-Env Sci, NEC**  
**ARC/Lamb, D. R.**

**NCA 2-660901** **San Francisco State University** **1264**  
Joint use of resources for operation of NASA/Ames university  
consortium  
*Period* *Obligations*  
10/01/78-09/30/79 **FY79: \$70,858** **TOTAL: \$70,858**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Eisenberg, L. **ARC/Tomberlin, K. A.** **99-Multi-Discip**  
Heidtmann, R. W.

**NSG 7525** **Humboldt State University** **1259**  
Developing and implementation of an institutional mechanism  
for transfer of remote sensing technology in northern California  
as a test site  
*Period* *Obligations*  
01/01/79-12/31/79 **FY79: \$77,390** **TOTAL: \$77,390**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hankins, D. B. **HQ-ET/Weinstein, R. H.** **39-Env Sci, NEC**  
**ARC/Lumb, D. R.**

**NCA 2-660902** **San Francisco State University** **1265**  
Homogeneous and heterogeneous ternary complexes involving  
nucleotides, metal cations and amino acids  
*Period* *Obligations*  
07/01/79-05/31/80 **FY79: \$7,705** **TOTAL: \$7,705**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Orenberg, J. B. **ARC/Lawless, J. G.** **12-Chemistry**

**NAS 1-11854** **Pomona College** **1260**  
Participation in inorganic chemistry planning for the Viking 1975  
missions  
*Period* *Obligations*  
08/09/72-12/31/78 **FY79:** **TOTAL: \$175,409**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Baird, A. K. **LARC/Williams, T. S., Jr.** **12-Chemistry**  
**LARC/Glenny, W. R.**

**NSG 2210** **San Francisco State University** **1266**  
Elements of search strategy for SETI  
*Period* *Obligations*  
01/15/77-12/31/79 **FY79: \$90,555** **TOTAL: \$260,498**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Seeger, C. S. **ARC/Stull, M. A.** **99-Multi-Discip**  
**ARC/Wolfe, J. H.**

**NSG 7566** **Pomona College** **1261**  
Viking inorganic chemical analysis experiment: Data analysis  
and laboratory simulations  
*Period* *Obligations*  
03/01/79-09/30/79 **FY79: \$75,752** **TOTAL: \$75,752**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Baird, A. K. **HQ-SL/Quaide, W. L.** **32-Geological Sci**  
**HQ-SL/Dwornik, S. E.**

**NSG 2281** **San Francisco State University** **1267**  
Chronic stress, ethanol and testicular function  
*Period* *Obligations*  
11/01/77-12/31/79 **FY79:** **TOTAL: \$40,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kakahana, R. **ARC/Oyama, J** **59-Life Sci, NEC**

**NSG 7512** **San Francisco State University** **1268**  
Smectite clays in Mars soil: Evidence for their presence and  
role in Viking biology experiments  
*Period* *Obligations*  
10/01/78-09/30/79 **FY79: \$34,232** **TOTAL: \$34,232**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Orenberg, J. B. **HQ-SB/Young, R. S.** **51-Biological Sci**

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CALIFORNIA (Continued)**

**NCA 2-675801** San Jose State University 1269  
Assessment of motion sickness in rats: An investigation of pica  
as the relevant behavioral manifestation  
*Period* *Obligations*  
10/01/77-12/31/79 FY79: \$18,700 TOTAL: \$37,400  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Fox, R. A. ARC/Daunton, N. G. 61-Biol Aspects

**NCA 2-675904** San Jose State University 1276  
Investigation of an automatic electronic controller for use in human  
thermal regulation with a liquid cooled garment  
*Period* *Obligations*  
03/01/79-08/31/80 FY79: \$14,653 TOTAL: \$14,653  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kurzweil, J. ARC/Webbon, B. W. 45-Elec Engr

**NCA 2-675808** San Jose State University 1270  
Central synoptic actions of antimotion sickness agents  
*Period* *Obligations*  
05/01/78-04/30/80 FY79: \$19,927 TOTAL: \$39,854  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Banks, P. M. ARC/Daunton, N. G. 61-Biol Aspects

**NCA 2-675906** San Jose State University 1277  
Altered gravity as a research tool in the study of mammalian  
aging and life span  
*Period* *Obligations*  
04/01/79-03/31/80 FY79: \$19,999 TOTAL: \$19,999  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ballard, R. C. ARC/Miquel, J. 51-Biological Sci

**NCA 2-675809** San Jose State University 1271  
Stratospheric-mesospheric dynamics  
*Period* *Obligations*  
06/04/78-06/01/80 FY79: \$28,523 TOTAL: \$48,519  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Riegel, C. A. ARC/Whitten, R. C. 31-Atmos Sci  
ARC/Page, W. A.

**NCA 2-675907** San Jose State University 1278  
Population dynamics in small scale microbial ecosystems  
*Period* *Obligations*  
07/01/79-06/30/81 FY79: \$7,995 TOTAL: \$7,995  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Haight, R. D. ARC/Deal, P. H. 51-Biological Sci

**NCA 2-675810** San Jose State University 1272  
Radiation chemistry studies of carbon suboxide polymers: An  
investigation of a proposed pre-biotic link to the origins of life  
*Period* *Obligations*  
06/01/78-01/31/80 FY79: \$17,000 TOTAL: \$29,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ling, A. C. ARC/Oyama, V. I. 12-Chemistry  
Mayer, L. A.  
Selter, G. A.

**NCA 2-675908** San Jose State University 1279  
Pioneer/Venus probe anomalies in lower Venus atmosphere  
*Period* *Obligations*  
08/24/79-02/28/80 FY79: \$18,616 TOTAL: \$18,616  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Goodman, J. K. ARC/Polaski, L. J. 12-Chemistry  
Albert, N. E. ARC/Colin, L.

**NCA 2-675901** San Jose State University 1273  
Joint development of a display software system for unsteady  
transonic flow field computations  
*Period* *Obligations*  
10/01/78-10/31/79 FY79: \$7,000 TOTAL: \$7,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Mitchem, J. ARC/Chyu, W. J. 22-Computer Science  
Teall, M.

**NCA 2-675910** San Jose State University 1280  
Investigation on prochloron: A prokaryotic green alga  
*Period* *Obligations*  
07/15/79-09/30/79 FY79: \$2,500 TOTAL: \$2,500  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Weaver, E. C. ARC/Klein, H. P. 51-Biological Sci

**NCA 2-675902** San Jose State University 1274  
Rotor system research aircraft: Mathematical modeling, state  
estimation, and parameter identification  
*Period* *Obligations*  
10/01/78-05/31/80 FY79: \$18,891 TOTAL: \$18,891  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wang, J. C. ARC/DuVal, R. W. 46-Mech Engr

**NCC 2 2** San Jose State University 1281  
A study of planetary meteorology  
*Period* *Obligations*  
04/01/79-03/31/80 FY79: \$8,198 TOTAL: \$8,198  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Riegel, C. A. ARC/Pollack, J. B. 31-Atmos Sci

**NCA 2-675903** San Jose State University 1275  
Quantitation of readaptation of selected physiological variables  
following environmental perturbation  
*Period* *Obligations*  
01/01/79-12/31/80 FY79: \$19,495 TOTAL: \$19,495  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Holley, D. C. ARC/Winget, C. M. 51-Biological Sci

**NCC 2 3** San Jose State University 1282  
A study of fiber materials for use in temperature resistant fiber  
reinforced composites  
*Period* *Obligations*  
05/31/79-05/31/80 FY79: \$40,354 TOTAL: \$40,354  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Anderson, R. N. ARC/Riccitiello, S. R. 47-Materials Engr  
ARC/Goldstein, H. E.

**NASA'S UNIVERSITY PROGRAM  
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<b>NCC 2 4</b>	<b>San Jose State University</b>	<b>1283</b>
An investigation of the toxic hazards from burning materials in controlled fires		
<i>Period</i>	<i>Obligations</i>	
04/01/79-03/31/80	FY79: \$34,015	TOTAL: \$34,015
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ballard, R. C.	ARC/Cagliostro, D. E.	12-Chemistry
<b>NSG 2130</b>	<b>San Jose State University</b>	<b>1289</b>
Two-dimensional stratospheric model modification		
<i>Period</i>	<i>Obligations</i>	
02/01/76-03/31/80	FY79: \$44,532	TOTAL: \$100,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Riegel, C. A.	ARC/Whitten, R. C.	31-Atmos Sci
	ARC/Borucki, W. J.	
<b>NCC 2 5</b>	<b>San Jose State University</b>	<b>1284</b>
Theoretical studies of the transport and removal processes of Sahara dust		
<i>Period</i>	<i>Obligations</i>	
04/01/79-09/30/79	FY79: \$14,823	TOTAL: \$14,823
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bornstein, R. D.	ARC/Swan, P. R.	31-Atmos Sci
	ARC/Toom, O. B.	
<b>NSG 2186</b>	<b>San Jose State University</b>	<b>1290</b>
Characterization and formulation of fluorocarbon ether elastomers		
<i>Period</i>	<i>Obligations</i>	
10/01/76-09/30/80	FY79: \$156,000	TOTAL: \$238,023
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hyer, M. W.	ARC/Poiser, R. W.	12-Chemistry
Korus, R. A.	ARC/Parker, J. A.	
<b>NSG 2209</b>	<b>San Jose State University</b>	<b>1291</b>
A study of processing parameters for non-metallic composites		
<i>Period</i>	<i>Obligations</i>	
03/01/77-02/28/80	FY79: \$22,000	TOTAL: \$63,574
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ling, A. C.	ARC/Fohlen, G. M.	12-Chemistry
Holloway, J.	ARC/Heimbuch, A. H.	
<b>NSG 2213</b>	<b>San Jose State University</b>	<b>1292</b>
A unified system for the biological exploration of Mars		
<i>Period</i>	<i>Obligations</i>	
03/01/77-07/31/80	FY79: \$47,925	TOTAL: \$87,061
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ballard, R. C.	ARC/Dalton, B. P.	59-Life Sci, NEC
Young, J.	ARC/Johnson, R. D.	
<b>NSG 2239</b>	<b>San Jose State University</b>	<b>1293</b>
Coastal zone color scanner surface truth measurements		
<i>Period</i>	<i>Obligations</i>	
06/01/77-09/30/80	FY79: \$20,000	TOTAL: \$59,975
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Broenkow, W. W.	ARC/Wrigley, R. C.	33-Oceanography
<b>NCC 2 8</b>	<b>San Jose State University</b>	<b>1285</b>
Development of superoxidos as an improved oxygen source for breathing apparatus		
<i>Period</i>	<i>Obligations</i>	
06/20/79-06/19/80	FY79: \$45,012	TOTAL: \$45,012
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Spitze, L. A.	ARC/Wydeven, T. J.	12-Chemistry
Ballou, E. V.		
<b>NCC 2 14</b>	<b>San Jose State University</b>	<b>1286</b>
Oxygen effects and early biochemical evolution synthetases in yeast		
<i>Period</i>	<i>Obligations</i>	
06/01/79-05/30/80	FY79: \$42,112	TOTAL: \$42,112
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Neptune, J. A.	ARC/Klein, H. P.	54-Env Biology
Satyanarayana, T.		
<b>NCC 2 17</b>	<b>San Jose State University</b>	<b>1287</b>
Stratospheric pollutant transports by planetary waves and tropical circulations		
<i>Period</i>	<i>Obligations</i>	
07/16/79-07/15/80	FY79: \$31,200	TOTAL: \$31,200
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Riegel, C. A.	ARC/Young, R. E.	31-Atmos Sci
<b>NGR 05-046-011</b>	<b>San Jose State University</b>	<b>1288</b>
Investigation of transport parameters relating to hyperfiltration for waste water purification		
<i>Period</i>	<i>Obligations</i>	
04/01/70-12/31/79	FY79: \$47,862	TOTAL: \$387,730
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Spitze, L. A.	ARC/Wydeven, T. J.	12-Chemistry
Ballou, E. V.		
<b>NSG 2274</b>	<b>San Jose State University</b>	<b>1295</b>
Characterization and degradation studies on aromatic polyimides and polyesters		
<i>Period</i>	<i>Obligations</i>	
10/01/77-10/31/79	FY79: \$56,000	TOTAL: \$113,948
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hsu, M. T.	ARC/Heimbuch, A. H.	12-Chemistry
Rosenberg, M. L.	ARC/Parker, J. A.	



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**NSG 2305** San Jose State University 1296  
Applications of X-ray fluorescence spectrometry to water quality assurance programs

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/80	FY79: \$23,000	TOTAL: \$40,898
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ling, A. C.	ARC/Nishioka, K.	39-Env Sci, NEC

**NSG 2371** San Jose State University 1303  
Graphite epoxy composite protective coatings

<i>Period</i>	<i>Obligations</i>	
01/01/79-11/30/79	FY79: \$22,546	TOTAL: \$22,546
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mayer, L. A.	ARC/Fish, R. H.	12-Chemistry

**NSG 2307** San Jose State University 1297  
A study of the physical properties of composites

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/30/80	FY79: \$25,280	TOTAL: \$55,268
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Holmstrom, F. Craig, R. Cox, C.	ARC/Mansfield, J. A.	46-Mech Engr

**NSG 2398** San Jose State University 1304  
Establishment of a sample treatment protocol for virus detection by laser fluorometry

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$21,653	TOTAL: \$21,653
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Funk, G. A.	ARC/Johnson, R. D. ARC/Dalton, B. P.	39-Env Sci, NEC

**NSG 2315** San Jose State University 1298  
Modification of polymeric substrata for the gas chromatographic analyses of CO, carbonyls and O2 in atmospheres

<i>Period</i>	<i>Obligations</i>	
04/01/78-09/30/79	FY79:	TOTAL: \$1,993
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mayer, L. A. Christensen, W. W.	ARC/Woeller, F. H. ARC/Oyama, V. I.	31-Atmos Sci

**NAS 1-9692** Stanford University 1305  
Participation in the biology planning for the Viking 1975 missions

<i>Period</i>	<i>Obligations</i>	
04/13/70-09/30/78	FY79:	TOTAL: \$57,125
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lederberg, J.	LARC/Williams, T. S., Jr. LARC/Glenny, W. R.	59-Life Sci, NEC

**NSG 2332** San Jose State University 1299  
Fiber reinforced polymeric materials

<i>Period</i>	<i>Obligations</i>	
08/01/78-11/30/79	FY79: \$21,382	TOTAL: \$29,901
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, R. N. Jayarajan, A.	ARC/Fish, R. H. ARC/Mansfield, J. A.	47-Materials Engr

**NAS 2-8898** Stanford University 1306  
Selected studies in research and development management techniques

<i>Period</i>	<i>Obligations</i>	
06/09/75-12/31/79	FY79: \$14,597	TOTAL: \$139,892
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pederson, C. A.	ARC/Barnett, R. M. ARC/Eddy, R.	75-Political Sci

**NSG 2339** San Jose State University 1300  
Changes in cortisol and antidiuretic hormone during induced motion sickness in cats

<i>Period</i>	<i>Obligations</i>	
10/01/78-03/31/80	FY79: \$9,772	TOTAL: \$19,598
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fox, R. A.	ARC/Suri, K. P. ARC/Daunton, N. G.	61-Biol Aspects

**NAS 5-20871** Stanford University 1307  
Experimental study of interactions in the magnetosphere between energetic particles and VLF waves

<i>Period</i>	<i>Obligations</i>	
02/11/75-12/11/79	FY79: \$105,000	TOTAL: \$726,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Helliwell, R. A.	GSFC/Davis, M. A.	13-Physics

**NSG 2353** San Jose State University 1301  
Environmental stability of composite resin matrices

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/79	FY79: \$63,407	TOTAL: \$63,407
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ling, A. C.	ARC/Golub, M. A. ARC/Gilwee, W. J.	12-Chemistry

**NAS 5-21960** Stanford University 1308  
Gravity only orbit control subsystem

<i>Period</i>	<i>Obligations</i>	
12/21/73-05/30/80	FY79: \$1,473	TOTAL: \$231,262
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Debra, D. B.	GSFC/Kant, S.	42-Astro Engr

**NSG 2355** San Jose State University 1302  
Antireflection coatings for solar cells

<i>Period</i>	<i>Obligations</i>	
12/01/78-11/30/79	FY79: \$35,000	TOTAL: \$35,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sree Horsha, K. S. Donohoe, K.	ARC/Wydeven, T. J.	12-Chemistry

**NAS 5-24232** Stanford University 1309  
Applications of heat capacity mapping mission satellite data to the study of urban heating patterns

<i>Period</i>	<i>Obligations</i>	
06/01/77-08/08/81	FY79: \$19,778	TOTAL: \$94,276
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lyon, R. J.	GSFC/Broderick, J. C.	32-Geological Sci

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**NAS 5-24409**                      **Stanford University**                      **1310**  
Controlled and naturally occurring wave particle interactions in  
the magnetosphere, for dynamic Explorer

<i>Period</i>	<i>Obligations</i>	
09/22/78-05/30/81	FY79:                      TOTAL: \$40,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Helliwell, R. A.	GSFC/Fellerman, K. D.	13-Physics
Park, C. G.	GSFC/Lidston, J. M.	

**NAS 8-32605**                      **Stanford University**                      **1317**  
Superconducting bearings for application in cryogenic experiments  
in space

<i>Period</i>	<i>Obligations</i>	
08/01/77-04/10/80	FY79: \$50,000                      TOTAL: \$136,901	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Everitt, C. W.	MSFC/Urban, E. W.	13-Physics
	MSFC/Decher, R.	

**NAS 5-24420**                      **Stanford University**                      **1311**  
Observation and correlative studies from ISEE-C data from the  
Stanford solar telescope

<i>Period</i>	<i>Obligations</i>	
02/17/78-07/23/81	FY79: \$100,000                      TOTAL: \$200,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilcox, J. M.	GSFC/Davis, M. A.	13-Physics

**NAS 8-32852**                      **Stanford University**                      **1318**  
Definition study of plasma depletion experiments during Spacelab  
mission 2

<i>Period</i>	<i>Obligations</i>	
10/01/77-08/31/82	FY79: \$35,700                      TOTAL: \$47,841	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Darosa, A. V.	MSFC/Guynes, B. V.	31-Atmos Sci
	MSFC/Ise, R.	

**NAS 5-24479**                      **Stanford University**                      **1312**  
Soil moisture in relation to geologic structure and lithology in  
northern California

<i>Period</i>	<i>Obligations</i>	
04/21/78-09/20/80	FY79: \$1,500                      TOTAL: \$18,945	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rich, E. I.	GSFC/Broderick, J. C.	32-Geological Sci

**NAS 8-33012**                      **Stanford University**                      **1319**  
An investigation of the thermal structure of selected diffuse features  
in the soft X-ray/EUV background HEAO-1

<i>Period</i>	<i>Obligations</i>	
05/23/78-05/22/79	FY79:                      TOTAL: \$16,904	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Walker, A. B., Jr.	MSFC/Dailey, C. C.	11-Astronomy

**NAS 5-25043**                      **Stanford University**                      **1313**  
Radiographic applications of spatial frequency multiplexing

<i>Period</i>	<i>Obligations</i>	
06/19/78-06/19/80	FY79: \$30,000                      TOTAL: \$60,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
MacOvski, A.	GSFC/Ostrow, H.	19-Phys Sci, NEC

**NAS 8-33110**                      **Stanford University**                      **1320**  
Direct observation of interface instability during crystal growth

<i>Period</i>	<i>Obligations</i>	
12/01/78-11/30/79	FY79: \$82,793                      TOTAL: \$82,793	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tiller, W. A.	MSFC/Davidson, M. C.	
Feigelson, R. S.	MSFC/Thomas, P. E.	19-Phys Sci, NEC
Elwell, D.		

**NAS 5-25544**                      **Stanford University**                      **1314**  
High energy telescope definition study

<i>Period</i>	<i>Obligations</i>	
11/30/78-12/10/79	FY79: \$65,000                      TOTAL: \$65,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hofstadter, R.	GSFC/Fichtel, C.	11-Astronomy

**NAS 8-33234**                      **Stanford University**                      **1321**  
Theoretical study of hard X-ray emissions from Cygnus X-1 using  
the HEAO-A observational results

<i>Period</i>	<i>Obligations</i>	
11/20/78-11/19/79	FY79: \$12,999                      TOTAL: \$12,999	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wagoner, R. V.	MSFC/Dailey, C. C.	11-Astronomy

**NAS 8-32263**                      **Stanford University**                      **1315**  
Scientific data reduction and analysis activities ATM/S 056  
experiment

<i>Period</i>	<i>Obligations</i>	
10/01/76-10/31/79	FY79: \$100,000                      TOTAL: \$307,500	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Underwood, J. H.	MSFC/Snoddy, W. C.	11-Astronomy

**NAS 8-32355**                      **Stanford University**                      **1316**  
Gyro test of general relativity in a satellite

<i>Period</i>	<i>Obligations</i>	
03/11/77-12/31/79	FY79: \$420,000                      TOTAL: \$1,109,667	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Everitt, C. W.	MSFC/Potter, R. A.	13-Physics
Debra, D. B.	MSFC/Decher, R.	

**NASW 2916**                      **Stanford University**                      **1322**  
Advanced studies in computer visual systems for exploratory  
vehicles

<i>Period</i>	<i>Obligations</i>	
03/01/76-09/30/78	FY79:                      TOTAL: \$90,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McCarthy, J.	HQ-RE/Pontious, C. E.	45-Elec Engr

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**NASW 3204** **Stanford University** **1323**  
A program of research and research internships in telecommunications and information technology  
*Period* *Obligations*  
07/01/78-09/30/79 **FY79:** **TOTAL: \$250,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
McAlister, J. F. HQ-ET/Roberson, F. I.39-Env Sci, NEC  
HQ-LU/Carter, C. H.

**NCA 2-745001** **Stanford University** **1324**  
Eigenvector and eigenvalue analysis of finite difference schemes used to solve the Euler equations  
*Period* *Obligations*  
10/01/79-09/30/80 **FY79: \$7,524** **TOTAL: \$7,524**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Shevell, R. S. ARC/Lomax, H. 41-Aero Engr

**NCA 2-745709** **Stanford University** **1325**  
Glucocorticoid effects on bone formation in vitro  
*Period* *Obligations*  
01/01/77-09/30/80 **FY79:** **TOTAL: \$28,030**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Feldman, D. ARC/Holton, E. M. 56-Medical Sciences

**NCA 2-745802** **Stanford University** **1326**  
Renal receptors and simulated weightlessness  
*Period* *Obligations*  
10/01/77-09/30/80 **FY79: \$16,038** **TOTAL: \$34,573**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Feldman, D. ARC/Holton, E. M. 56-Medical Sciences

**NCA 2-745803** **Stanford University** **1327**  
The investigation of an Auger electron microprobe: Its capabilities, limitations, and applications  
*Period* *Obligations*  
10/01/77-09/30/79 **FY79:** **TOTAL: \$15,070**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Spicer, W. E. ARC/Whiting, E. E. 47-Materials Engr

**NCA 2-745901** **Stanford University** **1328**  
A study of the epitaxial nucleation and growth characteristics of metals on refractory oxide substrates by in-situ transmission electron microscopy  
*Period* *Obligations*  
11/15/78-11/14/80 **FY79: \$11,618** **TOTAL: \$11,618**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Heinemann, K. H. ARC/Poppa, H. R. 47-Materials Engr

**NCA 2-745902** **Stanford University** **1329**  
The interaction of metal ions and nucleotides: Possible mechanisms for the adsorption of nucleotides on homionic bentonite clays  
*Period* *Obligations*  
01/01/79-12/31/79 **FY79: \$17,189** **TOTAL: \$17,189**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Loew, G. H. ARC/Lawless, J. G. 59-Life Sci, NEC

**NCA 2-745903** **Stanford University** **1330**  
Joint design and development of interactive graphics editor  
*Period* *Obligations*  
02/01/79-10/31/79 **FY79: \$8,094** **TOTAL: \$8,094**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
VanCleemput, W. M. ARC/Romiez, M. P. 21-Mathematics

**NCA 2-745905** **Stanford University** **1331**  
Characterization of non-bonding molecular complexes by empirical energy methods coupled to the Ames graphics system  
*Period* *Obligations*  
01/01/79-12/31/79 **FY79: \$9,200** **TOTAL: \$9,200**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Loew, G. H. ARC/MacElroy, R. D. 51-Biological Sci

**NCA 2-745906** **Stanford University** **1332**  
Numerical simulation of the turbulent shear layer using the vortex-in-cell method  
*Period* *Obligations*  
09/01/79-08/31/80 **FY79: \$20,000** **TOTAL: \$20,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Buneman, O. ARC/Leonard, A. 45-Elec Engr  
Couet, B.

**NCA 2-745907** **Stanford University** **1333**  
Nutrient recycling in a closed, synthetic ecosystem: A model for the study of ecosystem control  
*Period* *Obligations*  
07/01/79-06/30/80 **FY79: \$14,841** **TOTAL: \$14,841**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Young, L. Y. ARC/Silverman, M. P. 59-Life Sci, NEC

**NCA 2-745908** **Stanford University** **1334**  
Catalytic oxidation reactions on group VIII metal particles supported on single crystal  
*Period* *Obligations*  
06/01/79-05/31/81 **FY79: \$8,356** **TOTAL: \$8,356**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Boudart, M. ARC/Poppa, H. R. 43-Chem Engr

**NCA 2-745909** **Stanford University** **1335**  
Vectorizing transonic codes for use on advanced computers  
*Period* *Obligations*  
06/01/79-09/30/79 **FY79: \$10,000** **TOTAL: \$10,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
VanDyke, M. D. ARC/Lomax, H. 21-Mathematics  
Buning, P. G. ARC/Stevens, K. G.

**NCA 2-745910** **Stanford University** **1336**  
Optimization of an interactive batch analysis setup system for LANDSAT applications  
*Period* *Obligations*  
07/16/79-09/30/79 **FY79: \$5,785** **TOTAL: \$5,785**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Peterson, A. M. ARC/Hofman, L. B. 39-Env Sci, NEC

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**NCA 2-745911** **Stanford University** **1337**  
Cardiovascular deconditioning and exercise performance  
*Period* *Obligations*  
09/01/79-08/31/81 **FY79: \$22,165** **TOTAL: \$22,165**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Debusk, R. F. ARC/Goldwater, D. 51-Biological Sci

**NCC 2 21** **Stanford University** **1344**  
Fundamental studies of unsteady turbulent boundary layers  
*Period* *Obligations*  
09/01/79-11/15/79 **FY79: \$20,000** **TOTAL: \$20,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Reynolds, W. C. ARC/Carr, L. W. 41-Aero Engr  
Parikh, P. ARC/McCroskey, W. J.

**NCA 2-745912** **Stanford University** **1338**  
Blending element-difference schemes  
*Period* *Obligations*  
08/01/79-07/31/80 **FY79: \$5,857** **TOTAL: \$5,857**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Golub, G. H. ARC/Lomax, H. 21-Mathematics  
Stephenson, J. W.

**NGL 05-020-007** **Stanford University** **1345**  
Guidance and control of flight vehicles  
*Period* *Obligations*  
08/17/72-08/14/81 **FY79: \$98,125** **TOTAL: \$1,547,689**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bryson, A. E., Jr. ARC/Erzberger, H. 49-Engr, NEC  
Franklin, G. F. ARC/Creer, B. Y.

**NCC 2 1** **Stanford University** **1339**  
Development of ultrasonic indices for space shuttle passenger selection  
*Period* *Obligations*  
04/01/79-03/31/80 **FY79: \$50,000** **TOTAL: \$50,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Popp, R. ARC/Sandler, H. 56-Medical Sciences

**NGL 05-020-008** **Stanford University** **1346**  
A study of the effects on the earth's environment of very low frequency radiation into the magnetosphere from electrical transmission lines and ground based very low frequency transmitters  
*Period* *Obligations*  
09/01/61-02/28/81 **FY79: \$48,000** **TOTAL: \$1,640,443**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Helliwell, R. A. HQ-ST/Wiskerchen, M. J. 13-Physics  
HQ-ST/Schmerling, E. R.

**NCC 2 10** **Stanford University** **1340**  
Aerothermodynamic heat shield environments  
*Period* *Obligations*  
09/15/79-08/31/80 **FY79: \$60,000** **TOTAL: \$60,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bershader, D. ARC/Park, C. G. 42-Astro Engr  
ARC/Howe, J. T.

**NGL 05-020-014** **Stanford University** **1347**  
Theoretical & experimental radio & radar studies of lunar, planetary ionospheres, atmospheres, and surfaces of sun & interplanetary medium  
*Period* *Obligations*  
04/30/63-09/30/79 **FY79: \$205,000** **TOTAL: \$3,314,574**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Eshleman, V. R. HQ-SL/Murphy, R. E. 31-Atmos Sci  
HQ-ST/Brunk, W. E.

**NCC 2 13** **Stanford University** **1341**  
Experimental studies of rotors  
*Period* *Obligations*  
06/01/79-05/30/80 **FY79: \$30,087** **TOTAL: \$30,087**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Karamcheti, K. ARC/Hickey, D. H. 41-Aero Engr  
Chopra, I. ARC/Johnson, W. R.

**NGL 05-020-103** **Stanford University** **1348**  
Investigation of laser dynamics, modulation and control by means of intra-cavity time varying perturbation  
*Period* *Obligations*  
05/16/66-03/31/80 **FY79: \$1,122,000** **TOTAL: \$1,122,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Harris, S. F. HQ-RE/Fitzmaurice, M. W.  
Siegman, A. E. GSFC/McElroy, J. H. 45-Elec Engr  
Young, J. F.

**NCC 2 15** **Stanford University** **1342**  
A cooperative program in the computation of turbulent flows  
*Period* *Obligations*  
07/01/79-10/31/79 **FY79: \$25,000** **TOTAL: \$25,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Reynolds, W. C. ARC/Rubesin, M. W. 19-Phys Sci, NEC  
Ferziger, J. H. ARC/Leonard, A.

**NGL 05-020-176** **Stanford University** **1349**  
Investigation of space-related whistler propagation phenomena in laboratory plasmas  
*Period* *Obligations*  
03/02/67-06/30/81 **FY79: \$90,000** **TOTAL: \$1,179,800**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Crawford, F. W. HQ-ST/Kaiser, M. L. 19-Phys Sci, NEC  
HQ-ST/Schmerling, E. R.

**NCC 2 18** **Stanford University** **1343**  
Studies in rotor aerodynamics and noise  
*Period* *Obligations*  
04/01/79-12/31/79 **FY79: \$52,806** **TOTAL: \$52,806**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Karamcheti, K. ARC/Hickey, D. H. 41-Aero Engr  
Wright, S. E.

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**NGL 05-020-243** **Stanford University** **1350**  
 Refined methods of aeroelastic analysis and optimization  
*Period* *Obligations*  
 08/14/67-08/31/82 **FY79: \$41,925** **TOTAL: \$192,555**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Ashley, H. LARC/Doggott, R. V., Jr. 41-Aero Engr

**NGL 05-020-272** **Stanford University** **1351**  
 Theoretical study of the solar atmosphere and the structure of  
 active regions  
*Period* *Obligations*  
 06/07/68-09/30/79 **FY79: \$74,000** **TOTAL: \$944,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Sturrock, P. A. HQ-ST/Bohlin, J. D. 13-Physics

**NGL 05-020-305** **Stanford University** **1352**  
 Evaluation of the cardiovascular system during various circulatory  
 stresses  
*Period* *Obligations*  
 09/17/68-11/30/81 **FY79: \$90,000** **TOTAL: \$1,409,032**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Harrison, D. C. ARC/Sandler, H. 56-Medical Sciences

**NGL 05-020-582** **Stanford University** **1353**  
 Abiotic origins of optical activity  
*Period* *Obligations*  
 04/18/72-04/30/80 **FY79: \$31,400** **TOTAL: \$282,578**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Bonner, W. A. HQ-SB/Young, R. S. 59-Life Sci, NEC

**NGR 05-020-001** **Stanford University** **1354**  
 Ionospheric research utilizing satellite radio transmissions  
*Period* *Obligations*  
 07/20/59-12/31/79 **FY79: \$39,000** **TOTAL: \$1,374,622**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 DaRosa, A. V. HQ-ST/Kaiser, M. L. 19-Phys Sci, NEC  
 HQ-ST/Schmerling, E. R.

**NGR 05-020-004** **Stanford University** **1355**  
 Cytochemical studies of planetary microorganisms  
*Period* *Obligations*  
 04/01/60-05/30/80 **FY79:** **TOTAL: \$4,673,087**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Lederberg, J. HQ-SB/Young, R. S. 51-Biological Sci  
 Levinthal, E. C.

**NGR 05-020-435** **Stanford University** **1356**  
 Neuronal analysis of visual perception  
*Period* *Obligations*  
 01/01/70-11/30/79 **FY79:** **TOTAL: \$42,345**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Chow, K. L. ARC/Mehler, W. R. 59-Life Sci, NEC

**NGR 05-020-452** **Stanford University** **1357**  
 Instrumentation study development for high energy physics  
 experiment in space  
*Period* *Obligations*  
 06/09/70-12/31/79 **FY79: \$270,000** **TOTAL: \$2,072,941**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Hofstadter, R. HQ-SC/Kaluzański, L. J. 11-Astronomy  
 HQ-SC/Opp, A. G.

**NGR 05-020-456** **Stanford University** **1358**  
 Effects of altered gravitational stress on fluid balance and  
 circulation of blood  
*Period* *Obligations*  
 05/13/70-12/31/80 **FY79: \$45,000** **TOTAL: \$392,090**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Luetscher, J. A. ARC/Keil, L. C. 56-Medical Sciences

**NGR 05-020-559** **Stanford University** **1359**  
 Structure of solar magnetic and velocity fields  
*Period* *Obligations*  
 03/22/72-09/30/79 **FY79: \$95,000** **TOTAL: \$642,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Wilcox, J. M. HQ-ST/Bohlin, J. D. 11-Astronomy

**NGR 05-020-615** **Stanford University** **1360**  
 Ultrasonic Doppler measurement of renal artery blood flow  
*Period* *Obligations*  
 05/26/72-11/30/79 **FY79: \$80,000** **TOTAL: \$695,154**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Meindl, J. D. ARC/Sandler, H. 56-Medical Sciences

**NGR 05-020-622** **Stanford University** **1361**  
 Computation of turbulent flows  
*Period* *Obligations*  
 07/20/72-11/30/79 **FY79: \$42,045** **TOTAL: \$446,689**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Reynolds, W. C. ARC/Rubenstein, M. W. 47-Materials Engr  
 Ferziger, J. H. ARC/Lomax, H.

**NGR 05-020-634** **Stanford University** **1362**  
 Biomedical technology transfer  
*Period* *Obligations*  
 12/07/72-12/31/79 **FY79: \$250,000** **TOTAL: \$1,491,488**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Harrison, D. C. ARC/Sandler, H. 56-Medical Sciences

**NGR 05-020-649** **Stanford University** **1363**  
 Study of lunar and planetary surfaces  
*Period* *Obligations*  
 03/06/73-03/31/80 **FY79: \$20,000** **TOTAL: \$127,170**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Howard, H. T. HQ-SL/Dwornik, S. E. 32-Geological Sci  
 HQ-SL/Boyce, J. M.

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**NGR 05-020-668** **Stanford University** **1364**  
**Magnetosphere structure and radiation mechanisms on pulsars**  
*Period* *Obligations*  
 11/01/73-10/31/79 **FY79: \$30,000** **TOTAL: \$158,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Sturrock, P. A. HQ-SC/Kaluzienski, L. J. 11-Astronomy  
 HQ-SC/Opp, A. G.

**NSG 2007** **Stanford University** **1371**  
**Some experimental studies relating to airfoil noise**  
*Period* *Obligations*  
 01/15/74-11/30/79 **FY79: \$120,990** **TOTAL: \$1,223,917**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Karamcheti, K. ARC/Snyder, C. T. 19-Phys Sci, NEC  
 ARC/Hickey, D. H.

**NGR 05-020-690** **Stanford University** **1365**  
**Miniature gas analysis systems**  
*Period* *Obligations*  
 09/01/73-11/30/79 **FY79: \$30,000** **TOTAL: \$252,632**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Angell, J. ARC/Carle, G. C. 56-Medical Sciences

**NSG 2085** **Stanford University** **1372**  
**Aerothermodynamic heat-shield environments**  
*Period* *Obligations*  
 09/15/75-09/14/79 **FY79: \$53,297** **TOTAL: \$195,395**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Rana, D. S. ARC/Howe, J. T. 42-Astro Engr  
 Prakash, G. ARC/Nachtsheim, P. R.

**NGR 05-020-710** **Stanford University** **1366**  
**Interaction of coatings w/heating environments**  
*Period* *Obligations*  
 01/01/74-12/31/79 **FY79: \$52,328** **TOTAL: \$259,894**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Bates, C. W. ARC/Goldstein, H. E. 46-Mech Engr  
 ARC/Larson, H. K.

**NSG 2092** **Stanford University** **1373**  
**In vivo determination of bone properties from mechanical measurements**  
*Period* *Obligations*  
 07/01/75-10/31/79 **FY79: \$25,252** **TOTAL: \$99,119**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Steele, C. R. ARC/Young, D. R. 56-Medical Sciences

**NGT 05-020-409** **Stanford University** **1367**  
**Summer faculty fellowship program in engineering systems design**  
*Period* *Obligations*  
 12/18/69-12/31/79 **FY79:** **TOTAL: \$1,036,626**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Adams, J. L. HQ-LU/Carter, C. H. 49-Engr, NEC

**NSG 2100** **Stanford University** **1374**  
**Control methods for aiding a pilot during STOL engine-out transients**  
*Period* *Obligations*  
 08/01/75-12/31/79 **FY79:** **TOTAL: \$77,868**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Debra, D. B. ARC/Franklin, J. A. 41-Aero Engr  
 Bryson, A. E., Jr.

**NGT 05-020-412** **Stanford University** **1368**  
**A summer program of NASA summer faculty fellowships**  
*Period* *Obligations*  
 12/16/69-03/31/80 **FY79: \$194,751** **TOTAL: \$1,462,461**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Bershader, D. HQ-LU/Carter, C. H. 49-Engr, NEC

**NSG 2121** **Stanford University** **1375**  
**Preliminary design and computer simulation of a very large Fourier transform processor for the inter-stellar search system**  
*Period* *Obligations*  
 01/01/76-12/31/79 **FY79:** **TOTAL: \$64,371**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Peterson, A. M. ARC/Billingham, J. 49-Engr, NEC  
 Teague, C. C. ARC/Wolpe, J. H.

**NGT 05-020-777** **Stanford University** **1369**  
**Support of specialized post-MD training in aerospace medicine**  
*Period* *Obligations*  
 07/01/76-08/31/78 **FY79:** **TOTAL: \$98,269**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Beard, R. R. HQ-LU/Carter, C. H. 59-Life Sci, NEC

**NSG 2190** **Stanford University** **1376**  
**Evaluation of the weight and aerodynamics methodology of the general aviation synthesis program for application to moderate size short haul transport aircraft**  
*Period* *Obligations*  
 11/01/76-10/31/79 **FY79: \$49,990** **TOTAL: \$119,256**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Shevell, R. S. ARC/Galloway, T. L. 41-Aero Engr  
 ARC/Bowles, J. V.

**NSG 1443** **Stanford University** **1370**  
**Generalized eigenvalue problem**  
*Period* *Obligations*  
 10/01/77-12/31/79 **FY79:** **TOTAL: \$26,095**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Golub, G. H. LARC/Shoosmith, J. N. 21-Mathematics  
 Wilkinson, J. H.

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**NSG 2203** Stanford University 1377  
 Air cargo in an integrated transportation  
 Period Obligations  
 02/01/77-12/01/79 FY79: \$20,000 TOTAL: \$90,197  
 Prin Invest NASA Tech Officer CASE Category  
 Dajani, J. R. ARC/Belsley, S. E. 41-Aero Engr  
 ARC/Jones, J. L.

**NSG 2254** Stanford University 1383  
 Stanford/Ames joint institute for aeronautics and acoustics,  
 helicopter noise detection study  
 Period Obligations  
 07/01/77-01/31/79 FY79: TOTAL: \$62,000  
 Prin Invest NASA Tech Officer CASE Category  
 Karamcheti, K. ARC/Schmitz, F. H. 39-Env Sci, NEC  
 Hersh, S. ARC/Mosher, M.

**NSG 2215** Stanford University 1378  
 Studies of the effects of forward flight on aircraft noise and its  
 simulation  
 Period Obligations  
 03/01/77-02/28/80 FY79: \$160,000 TOTAL: \$535,950  
 Prin Invest NASA Tech Officer CASE Category  
 Karamcheti, K. ARC/Hickey, D. H. 41-Aero Engr  
 Ayoub, A. ARC/Atencio, A.  
 Dash, R.

**NSG 2258** Stanford University 1384  
 Fundamental studies of unsteady turbulent boundary layers  
 Period Obligations  
 09/01/77-11/30/79 FY79: \$40,000 TOTAL: \$159,835  
 Prin Invest NASA Tech Officer CASE Category  
 Reynolds, W. C. ARC/McCroskey, W. J. 41-Aero Engr  
 Parikh, P. ARC/Carr, L. W.

**NSG 2233** Stanford University 1379  
 Experimental studies relating to airfoil unsteady aerodynamics  
 Period Obligations  
 03/01/77-11/30/79 FY79: \$55,000 TOTAL: \$293,430  
 Prin Invest NASA Tech Officer CASE Category  
 Karamcheti, K. ARC/Davis, S. S. 41-Aero Engr  
 Bodapati, S.

**NSG 2285** Stanford University 1385  
 An investigation of the performance, application potential, and  
 inherent limitations of a new microanalytical instrument: The  
 Auger microprobe  
 Period Obligations  
 12/01/77-12/31/79 FY79: \$61,780 TOTAL: \$123,566  
 Prin Invest NASA Tech Officer CASE Category  
 Heinemann, K. H. ARC/Whiting, E. E. 13-Physics  
 Pound, G. M.  
 Spicer, W. E.

**NSG 2246** Stanford University 1380  
 Spacelab infrared telescope pointing and control system  
 Period Obligations  
 07/01/77-11/30/79 FY79: \$45,740 TOTAL: \$88,846  
 Prin Invest NASA Tech Officer CASE Category  
 Powell, J. D. ARC/Lorell, K. R. 49-Engr, NEC

**NSG 2289** Stanford University 1386  
 Applications of car spectroscopy to turbulence measurements  
 Period Obligations  
 01/01/78-12/31/79 FY79: \$30,000 TOTAL: \$66,833  
 Prin Invest NASA Tech Officer CASE Category  
 Byer, R. L. ARC/McKenzie, R. L. 13-Physics

**NSG 2249** Stanford University 1381  
 High-resolution transmission electron microscope studies of small  
 metal crystallites and surfaces  
 Period Obligations  
 10/01/77-10/31/79 FY79: \$30,572 TOTAL: \$59,645  
 Prin Invest NASA Tech Officer CASE Category  
 Heinemann, K. H. ARC/Whiting, E. E. 13-Physics

**NSG 2292** Stanford University 1387  
 Work on laser-electron beam interactions  
 Period Obligations  
 01/01/78-12/31/79 FY79: \$38,867 TOTAL: \$88,867  
 Prin Invest NASA Tech Officer CASE Category  
 Pantell, R. H. ARC/Billman, K. W. 13-Physics  
 Piestrup, M. A.

**NSG 2251** Stanford University 1382  
 Theoretical study of carbon monoxide molecule chemisorbed on  
 iron and platinum surfaces  
 Period Obligations  
 09/15/77-12/31/79 FY79: \$72,514 TOTAL: \$136,703  
 Prin Invest NASA Tech Officer CASE Category  
 Pound, G. M. ARC/Stallcop, J. R. 47-Materials Engr  
 Spicer, W. E.  
 Laskowski, B. C.

**NSG 2294** Stanford University 1388  
 Effect of space flight as simulated by bed rest on drug dis-  
 position  
 Period Obligations  
 01/01/78-12/31/79 FY79: \$80,000 TOTAL: \$140,000  
 Prin Invest NASA Tech Officer CASE Category  
 Harrison, D. C. ARC/Sandler, H. 56-Medical Sciences  
 Kates, R. E.  
 Goldwater, D.

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**NSG 2297** **Stanford University** **1389**  
**Studies on perceptual problems in aeronautics**  
*Period* *Obligations*  
 01/01/78-10/31/79 **FY79: \$71,881** **TOTAL: \$187,975**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Karamcheti, K. ARC/Nagel, D. C. 41-Aero Engr  
 Ahumada, A., Jr.

**NSG 2393** **Stanford University** **1396**  
**The annoyance of impulsive helicopter noise**  
*Period* *Obligations*  
 07/01/79-12/31/79 **FY79: \$25,150** **TOTAL: \$25,150**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Karamcheti, K. ARC/Mosher, M. 69-Psych, NEC  
 Hersh, S. ARC/Nagel, D. C.

**NSG 2308** **Stanford University** **1390**  
**Dispersion relationships in turbulence with application to noise/turbulence diagnosis**  
*Period* *Obligations*  
 03/01/78-02/28/80 **FY79: \$40,000** **TOTAL: \$102,842**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Karamcheti, K. ARC/Chapman, G. 41-Aero Engr  
 Koutsoyannis, S. P. ARC/Ahtye, W. F.

**NSG 2400** **Stanford University** **1397**  
**Control of V/STOL aircraft in ground effect**  
*Period* *Obligations*  
 08/01/79-07/31/80 **FY79: \$17,000** **TOTAL: \$17,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Debra, D. B. ARC/Franklin, J. A. 41-Aero Engr  
 Bryson, A. E., Jr.

**NSG 2346** **Stanford University** **1391**  
**Mechanical properties of advanced fabric materials**  
*Period* *Obligations*  
 11/01/78-12/31/79 **FY79: \$9,574** **TOTAL: \$9,574**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Baytes, C. W. ARC/Fewell, L. L. 46-Mech Engr

**NSG 3124** **Stanford University** **1398**  
**Heat transfer and hydrodynamic studies on a curved surface with full-covrage film cooling**  
*Period* *Obligations*  
 10/01/76-10/31/79 **FY79: \$40L** **TOTAL: \$213,170**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Johnston, T. P. LERC/Gaugler, R. E. 46-Mech Engr  
 Kays, W. M.  
 Moffat, R. J.

**NSG 2359** **Stanford University** **1392**  
**Aerodynamics, aeroelasticity and stability of hang gliders**  
*Period* *Obligations*  
 01/01/79-12/31/79 **FY79: \$25,000** **TOTAL: \$25,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Ashley, H. ARC/Ciffone, D. L. 41-Aero Engr

**NSG 4002** **Stanford University** **1399**  
**Theoretical and experimental investigations in the control of aircraft**  
*Period* *Obligations*  
 09/01/74-11/01/79 **FY79: \$70,000** **TOTAL: \$330,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Debra, D. B. DFRC/Edwards, J. W. 41-Aero Engr  
 Ashley, H.  
 Bryson, A. E., Jr.

**NSG 2370** **Stanford University** **1393**  
**Flow analysis over an advancing rotor blade**  
*Period* *Obligations*  
 02/01/79-11/30/79 **FY79: \$30,710** **TOTAL: \$30,710**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Karamcheti, K. ARC/Tauber, M. 41-Aero Engr  
 Arieli, R. ARC/Presley, L. L.

**NSG 5131** **Stanford University** **1400**  
**Spectroscopy of cosmic X-ray sources of the solar corona**  
*Period* *Obligations*  
 11/15/76-11/30/79 **FY79: \$180,000** **TOTAL: \$525,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Walker, A. B., Jr. GSFC/Bissell, E. E. 13-Physics  
 Stern, R. A. HQ-ST/Bohlin, J. D.  
 Underwood, J. H.

**NSG 2372** **Stanford University** **1394**  
**Ultra high resolution molecular beam mas spectroscopy with applications to planetary atmospheric molecules**  
*Period* *Obligations*  
 01/01/79-12/31/79 **FY79: \$30,000** **TOTAL: \$30,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Byer, R. L. ARC/Chackerian, C., Jr. 13-Physics

**NSG 2392** **Stanford University** **1395**  
**The behavior of sub-grid scale motions in turbulent shear flow**  
*Period* *Obligations*  
 07/01/79-06/30/80 **FY79: \$22,221** **TOTAL: \$22,221**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Cantwell, B. ARC/Chapman, G. T. 41-Aero Engr  
 ARC/Tobak, M.

**NSG 5254** **Stanford University** **1401**  
**Stochastic modeling of time-averaged equations for climate dynamics**  
*Period* *Obligations*  
 03/15/78-03/14/80 **FY79: \$80,000** **TOTAL: \$170,900**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Spreiter, J. R. GSFC/Halem, M. 31-Atmos Sci



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**NSG 7092** **Stanford University** **1402**  
Energy release in solar flares based on OSO-5 data  
*Period* *Obligations*  
10/01/74-09/30/79 **FY79: \$45,000 TOTAL: \$215,000**  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Petrosian, V. HQ-ST/Bohlin, J. D. 11-Astronomy

**NSG 7204** **Stanford University** **1403**  
Theoretical analyses of relativistic gravitational experiments  
*Period* *Obligations*  
10/01/75-09/30/79 **FY79: \$19,970 TOTAL: \$69,685**  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Will, C. M. HQ-SC/Roman, N. G. 11-Astronomy  
HQ-SC/Rosendhal, J. D.

**NSG 7395** **Stanford University** **1404**  
Radar studies of the Martian surface  
*Period* *Obligations*  
03/15/78-03/14/79 **FY79: TOTAL: \$32,300**  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Tyler, G. L. HQ-SL/Brunk, W. E. 11-Astronomy  
HQ-SL/Quaide, W. L.

**NSG 7476** **Stanford University** **1405**  
An investigation of the structure and composition of the ISM and of fluorescence and self-absorption at low energies in binary X-ray sources using SAS-3 observations  
*Period* *Obligations*  
06/01/78-02/28/80 **FY79 \$21,100 TOTAL: \$21,100**  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Walker, A. B., Jr. HQ-SC/Kaluzienski, L. J. 11-Astronomy  
Ride, S. K. HQ-SC/Fishman, G. J.

**NSG 7538** **Stanford University** **1406**  
Stereophotogrammetric and stereophotometric analysis of Viking lander imaging data  
*Period* *Obligations*  
04/01/79-03/31/80 **FY79: \$40,658 TOTAL: \$40,658**  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Levinthal, E. C. HQ-SL/Dwornik, S. E. 32-Geological Sci  
HQ-SL/Boyce, J. M.

**NSG 7552** **Stanford University** **1407**  
Analysis of coronal flow and wave phenomena during the solar occultation of the Viking earth radio link  
*Period* *Obligations*  
10/01/78-09/30/79 **FY79: \$44,000 TOTAL: \$44,000**  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Tyler, G. L. HQ-ST/Bohlin, J. D. 13-Physics

**NSG 7561** **Stanford University** **1408**  
Reduction and analyses of Viking bistatic radar observations of Mars from the winter 1977/1978 apparition  
*Period* *Obligations*  
03/01/79-11/01/79 **FY79: \$70,000 TOTAL: \$70,000**  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Tyler, G. L. HQ-SL/Brunk, W. E. 11-Astronomy  
HQ-SL/Murphy, R. E.

**NSG 7619** **Stanford University** **1409**  
Studies on lasers and laser devices  
*Period* *Obligations*  
04/01/79-03/31/80 **FY79: \$65,000 TOTAL: \$65,000**  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Harris, S. E. HQ-PT/Schwenk, F. C. 13-Physics  
Siegman, A. E. HQ-RS/Rubin, B.

**NAS 5-20079** **University of California - Berkeley** **1410**  
Energetic particles flux experiment for International Sun-Earth Explorer mother & daughter spacecraft  
*Period* *Obligations*  
05/23/74-12/31/81 **FY79: \$131,200 TOTAL: \$1,429,290**  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Anderson, K. A. GSFC/Kowalski, G. E. 13-Physics

**NAS 5-20080** **University of California - Berkeley** **1411**  
Quasi-electric fields experiment for ISEE mother/daughter spacecraft  
*Period* *Obligations*  
05/21/74-10/30/79 **FY79: \$88,555 TOTAL: \$993,555**  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Mozer, F. S. GSFC/Davis, M. A. 13-Physics

**NAS 5-20995** **University of California - Berkeley** **1412**  
Isotopic composition of primary cosmic rays H thru FE for ISEE-C spacecraft  
*Period* *Obligations*  
03/19/75-08/31/80 **FY79 \$113,000 TOTAL: \$1,508,000**  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Heckman, H. K. GSFC/Gallagher, W. F. 13-Physics  
GSFC/Davis, M. A.

**NAS 5-22307** **University of California - Berkeley** **1413**  
Solar X-ray and interplanetary and solar electrons for the ISEE-C spacecraft  
*Period* *Obligations*  
04/11/75-12/31/83 **FY79: \$192,000 TOTAL: \$1,593,000**  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Anderson, K. A. GSFC/Davis, M. A. 32-Geological Sci

**NAS 5-24189** **University of California - Berkeley** **1414**  
Study the feasibility of developing three telescopes in the 100-1000A range  
*Period* *Obligations*  
07/19/77-12/31/79 **FY79: TOTAL: \$63,752**  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Bowyer, C. S. GSFC/Willis, S. E. 11-Astronomy

**NAS 5-24445** **University of California - Berkeley** **1415**  
Development of instrumentation for an extreme ultraviolet Explorer  
*Period* *Obligations*  
02/28/78-02/01/80 **FY79: \$105,314 TOTAL: \$399,993**  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Bowyer, C. S. GSFC/Willis, S. E. 11-Astronomy  
GSFC/Townsend, M. A.

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**NAS 5-25007**      **University of California - Berkeley**      **1416**  
 Microwave and theoretical studies for Cosmic Background Explorer (COBE) satellite

<i>Period</i>	<i>Obligations</i>	
03/01/78-01/01/80	FY79: \$40,722	TOTAL: \$126,719
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smoot, G.	GSFC/Nice, D. A.	11-Astronomy
	GSFC/Donohoe, M. J.	

**NAS 8-32577**      **University of California - Berkeley**      **1422**  
 Spacelab mission 1 exp. 95 far UV observations using the Faust instrument on the first Spacelab mission

<i>Period</i>	<i>Obligations</i>	
05/10/77-11/30/81	FY79: \$153,783	TOTAL: \$314,868
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bowyer, C. S.	MSFC/Marmann, R.	11-Astronomy
	Lampton, M.	

**NAS 5-25070**      **University of California - Berkeley**      **1417**  
 Provide engineering and consulting services to the space telescope instrument science team

<i>Period</i>	<i>Obligations</i>	
05/20/78-01/31/84	FY79: \$23,000	TOTAL: \$50,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
King, I.	GSFC/Hobbs, R. W.	11-Astronomy

**NAS 8-33011**      **University of California - Berkeley**      **1423**  
 High energy X-ray observation of clusters of galaxies

<i>Period</i>	<i>Obligations</i>	
06/01/78-06/07/79	FY79:	TOTAL: \$22,6
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, K. A.	MSFC/Dailey, C. C.	11-Astronomy

**NAS 5-25453**      **University of California - Berkeley**      **1418**  
 Plastic track detector study

<i>Period</i>	<i>Obligations</i>	
03/16/79-03/15/80	FY79: \$29,999	TOTAL: \$29,999
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Price, P. B.	GSFC/Campbell, C. E.	47-Materials Engr

**NAS 8-33349**      **University of California - Berkeley**      **1424**  
 A survey and detailed studies of selected systems

<i>Period</i>	<i>Obligations</i>	
03/26/79-03/25/80	FY79: \$25,000	TOTAL: \$25,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bowyer, C. S.	MSFC/Jones, J. B., Jr.	11-Astronomy

**NAS 5-25876**      **University of California - Berkeley**      **1419**  
 Digital design and parts documentation for solar flare X-ray detector

<i>Period</i>	<i>Obligations</i>	
09/18/79-09/30/79	FY79: \$25,536	TOTAL: \$25,536
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, D. A.	GSFC/Porreca, G.	11-Astronomy
Kane, S. R.	GSFC/Cline, T. L.	
Lin, R. P.		

**NAS 8-33356**      **University of California - Berkeley**      **1425**  
 The interaction of Supernova remnants with interstellar medium

<i>Period</i>	<i>Obligations</i>	
06/12/79-06/11/80	FY79: \$8,001	TOTAL: \$8,001
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McKee, C.	MSFC/Jones, J. B., Jr.	11-Astronomy

**NAS 5-25892**      **University of California - Berkeley**      **1420**  
 Solar X-ray flare experiment for the international solar polar mission

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/83	FY79: \$2,500	TOTAL: \$2,500
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, D. A.	GSFC/Porreca, G.	11-Astronomy
Kane, S. R.	GSFC/Cline, T. L.	
Lin, R. P.		

**NAS 8-33357**      **University of California - Berkeley**      **1426**  
 Spatial distribution of FE line emission in the Virgo cluster of galaxies

<i>Period</i>	<i>Obligations</i>	
07/02/79-07/01/80	FY79: \$5,342	TOTAL: \$5,342
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, K. A.	MSFC/Barnes, J. B.	11-Astronomy
Lea, S. M.		

**NAS 8-29603**      **University of California - Berkeley**      **1421**  
 Trans-uranic cosmic ray flight experiment

<i>Period</i>	<i>Obligations</i>	
03/13/73-11/01/77	FY79:	TOTAL: \$300,439
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Price, P. B.	MSFC/Ondrak, B. T.	13-Physics

**NAS 9-14565**      **University of California - Berkeley**      **1427**  
 Study development of improved photointerpretative techniques to wheat identification

<i>Period</i>	<i>Obligations</i>	
05/15/75-11/14/79	FY79: \$300,000	TOTAL: \$1,206,203
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Colwell, R. N.	JSC/Garcia, J. C.	39-Env Sci, NEC

**NCA 2-50001**      **University of California - Berkeley**      **1428**  
 Influence of fluid rheology and air resistance on the behavior of liquid jets and drops

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/80	FY79: \$30,000	TOTAL: \$30,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goren, S. L.	ARC/Altman, R. L.	12-Chemistry

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<b>NCA 2-50704</b>	<b>University of California - Berkeley</b>	<b>1429</b>
Microwave systems for in-situ measurement of wetness of snow and earth		
<i>Period</i>	<i>Obligations</i>	
01/10/77-07/31/80	FY79: \$15,000	TOTAL: \$40,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Angelakos, D. J.	ARC/Linlor, W. I.	39-Env Sci, NEC
<b>NCA 2-50705</b>	<b>University of California - Berkeley</b>	<b>1430</b>
High resolution surface analysis for materials science studies		
<i>Period</i>	<i>Obligations</i>	
05/01/77-03/31/80	FY79:	TOTAL: \$10,450
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Angelakos, D. J.	ARC/Poppa, H. R.	13-Physics
Barstow, L. E.		
Jewett, W. R.		
<b>NCA 2-50710</b>	<b>University of California - Berkeley</b>	<b>1431</b>
The modeling of extraterrestrial ecosystems		
<i>Period</i>	<i>Obligations</i>	
09/15/77-05/31/80	FY79: \$17,390	TOTAL: \$40,390
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Spear, R.	ARC/MacElroy, R. D.	59-Life Sci, NEC
Auslander, D.		
<b>NCA 2-50801</b>	<b>University of California - Berkeley</b>	<b>1432</b>
Utilization of light-energy by halobacterium halobium		
<i>Period</i>	<i>Obligations</i>	
10/01/77-09/30/79	FY79: \$18,500	TOTAL: \$36,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Packer, L.	ARC/Lanyi, J. K.	51-Biological Sci
<b>NCA 2-50803</b>	<b>University of California - Berkeley</b>	<b>1433</b>
Predictions of motion sickness susceptibility based on human autonomic response pattern data: A mathematical model		
<i>Period</i>	<i>Obligations</i>	
05/01/78-10/01/79	FY79:	TOTAL: \$14,300
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Strohmman, R. C.	ARC/Cowings, P. S.	61-Biol Aspects
<b>NCA 2-50901</b>	<b>University of California - Berkeley</b>	<b>1434</b>
Moving finite element methods for the two-dimensional Navier/Stokes equations		
<i>Period</i>	<i>Obligations</i>	
10/01/78-03/31/80	FY79: \$15,000	TOTAL: \$15,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miller, K.	ARC/Lomax, H.	21-Mathematics
<b>NCA 2-50903</b>	<b>University of California - Berkeley</b>	<b>1435</b>
An investigation of the uses of digitally mosaiced LANDSAT and terrain data for wildland resource management in Mendocino County, California		
<i>Period</i>	<i>Obligations</i>	
05/01/79-09/30/79	FY79: \$18,500	TOTAL: \$18,500
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Colwell, R. N.	ARC/Norman, S. M.	39-Env Sci, NEC
Benson, A. S.		
<b>NCA 2-50904</b>	<b>University of California - Berkeley</b>	<b>1436</b>
Physical conditions in warm molecular clouds		
<i>Period</i>	<i>Obligations</i>	
07/15/79-10/15/79	FY79: \$1,057	TOTAL: \$1,057
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Silk, J. I.	ARC/Erickson, E. F.	11-Astronomy
<b>NCA 2-50905</b>	<b>University of California - Berkeley</b>	<b>1437</b>
Optimal additives to produce anti-misting fuels		
<i>Period</i>	<i>Obligations</i>	
09/15/79-09/14/80	FY79: \$30,000	TOTAL: \$30,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Williams, M. C.	ARC/Altman, R. L.	12-Chemistry
Grens, E. A.		
<b>NGL 05-003-003</b>	<b>University of California - Berkeley</b>	<b>1438</b>
Study of extraterrestrial life using reflection spectra as a basis		
<i>Period</i>	<i>Obligations</i>	
08/01/60-10/31/79	FY79: \$125,600	TOTAL: \$4,008,081
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Calvin, M.	HQ-SB/Young, R. S.	32-Geological Sci
Weaver, H.		
<b>NGL 05-003-017</b>	<b>University of California - Berkeley</b>	<b>1439</b>
Investigation of high energy solar flare radiation & trapped radiation, including balloon-borne & sounding rocket tests of prototype detectors		
<i>Period</i>	<i>Obligations</i>	
04/08/63-01/31/82	FY79: \$56,000	TOTAL: \$1,968,942
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, K. A.	HQ-ST/King, J. H.	19-Phys Sci, NEC
	HQ-ST/Schmerling, E. R.	
<b>NGL 05-003-272</b>	<b>University of California - Berkeley</b>	<b>1440</b>
Research on radiation physics		
<i>Period</i>	<i>Obligations</i>	
03/01/68-02/28/82	FY79: \$55,000	TOTAL: \$1,136,380
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Townes, C. H.	HQ-SC/Boggett, N. W.	11-Astronomy
	HQ-SC/Roman, N. G.	
<b>NGL 05-003-286</b>	<b>University of California - Berkeley</b>	<b>1441</b>
Orbiting spacecraft infrared spectrometer development for terrestrial and laboratory study of planetary atmospheres		
<i>Period</i>	<i>Obligations</i>	
08/08/68-08/31/79	FY79:	TOTAL: \$1,004,004
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pimental, G. C.	HQ-SL/Fellows, R. F.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	
<b>NGL 05-003-404</b>	<b>University of California - Berkeley</b>	<b>1442</b>
Integrated study of earth resources in the State of California using remote sensing techniques		
<i>Period</i>	<i>Obligations</i>	
07/13/70-10/31/79	FY79:	TOTAL: \$4,093,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Colewell, R. N.	HQ-ET/Vitale, J. A.	39-Env Sci, NEC
	ARC/Arno, R. D.	

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**NGR 05-003-409** University of California - Berkeley 1443  
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
01/26/71-01/31/81	FY79: \$72,638	TOTAL: \$971,488
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Reynolds, J. H.	JSC/Harris, J. W.	13-Physics

**NGR 05-003-497** University of California - Berkeley 1444  
Research in space sciences

<i>Period</i>	<i>Obligations</i>	
04/05/72-03/31/82	FY79: \$250,000	TOTAL: \$1,800,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tole, J. R.	HQ-SP/Tate, F.	99-Multi-Discip
Young, L. R.		

**NGR 05-003-239** University of California - Berkeley 1445  
Auroral zone rocket studies of electric fields and precipitating particles

<i>Period</i>	<i>Obligations</i>	
08/26/68-12/14/79	FY79: \$177,609	TOTAL: \$1,275,420
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mozer, F. S.	GSFC/Bissell, E. E.	13-Physics
	HQ-ST/Schmerling, E. R.	

**NGR 05-003-376** University of California - Berkeley 1446  
High resolution studies of cosmic rays and solar particles

<i>Period</i>	<i>Obligations</i>	
04/16/71-10/31/79	FY79: \$125,000	TOTAL: \$753,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Price, P. B.	HQ-SC/Kaluzienski, L. J.	11-Astronomy
	HQ-SC/Opp, A. G.	

**NGR 05-003-450** University of California - Berkeley 1447  
Study of X-ray emission from galactic and extragalactic sources with emphasis on soft and ultra-soft wavelengths

<i>Period</i>	<i>Obligations</i>	
05/28/71-11/30/79	FY79: \$141,096	TOTAL: \$1,154,752
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bowyer, C. S.	GSFC/Bissell, E. E.	11-Astronomy
	HQ-SC/Opp, A. G.	

**NGR 05-003-451** University of California - Berkeley 1448  
Research in aeronautics & air transportation

<i>Period</i>	<i>Obligations</i>	
03/30/71-10/15/80	FY79: \$95,035	TOTAL: \$665,885
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Holt, M.	ARC/Lee, G.	41-Aero Engr
Talbot, L.		

**NGR 05-003-452** University of California - Berkeley 1449  
Infrared spectra of planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
02/18/72-06/30/80	FY79: \$55,044	TOTAL: \$370,384
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Townes, C. H.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Murphy, R. E.	

**NGR 05-003-460** University of California - Berkeley 1450  
The chemistry of living systems

<i>Period</i>	<i>Obligations</i>	
07/21/71-10/31/78	FY79: \$75,000	TOTAL: \$643,750
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jukes, J. H.	HQ-SB/Young, R. S.	12-Chemistry

**NGR 05-003-471** University of California - Berkeley 1451  
Sociopolitical assessment of advanced technology

<i>Period</i>	<i>Obligations</i>	
05/21/71-12/31/79	FY79:	TOTAL: \$319,309
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
LaPorte, T. R.	ARC/Tanner, T. A.	79-Soc Sci, NEC

**NGR 05-003-511** University of California - Berkeley 1452  
Spectrographic observation of infrared lines

<i>Period</i>	<i>Obligations</i>	
03/01/73-10/31/79	FY79: \$45,150	TOTAL: \$297,172
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Townes, C. H.	ARC/Haughney, L. C.	11-Astronomy

**NGR 05-003-513** University of California - Berkeley 1453  
Heavy ion fragmenent experiments at the bevatron

<i>Period</i>	<i>Obligations</i>	
10/01/73-09/30/79	FY79: \$195,320	TOTAL: \$830,320
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Heckman, H. H.	HQ-SC/Opp, A. G.	11-Astronomy
	HQ-SC/Kaluzienski, L. J.	

**NGR 05-003-553** University of California - Berkeley 1454  
High energy primary cosmic radiation measured by superconducting magnetic spectrometer

<i>Period</i>	<i>Obligations</i>	
05/10/73-12/31/80	FY79: \$300,000	TOTAL: \$1,850,164
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Buffington, A.	HQ-SC/Kaluzienski, L. J.	11-Astronomy
Alvarez, L. W.	HQ-SC/Opp, A. G.	

**NGR 05-003-578** University of California - Berkeley 1455  
Theoretical X-ray and gamma-ray astronomy

<i>Period</i>	<i>Obligations</i>	
08/01/73-09/30/80	FY79: \$37,323	TOTAL: \$190,840
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Silk, J. I.	HQ-SC/Weiler, E. J.	11-Astronomy
	HQ-SC/Roman, N. G.	

**NSG 1637** University of California - Berkeley 1456  
Integrated-optics cadmium/telluride electro optic modulator for the 10 um region

<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/80	FY79: \$40,000	TOTAL: \$40,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chiao, R. Y.	LARC/Sachse, G. W.	13-Physics
Gustafson, K. T.	LARC/Gross, C.	

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**NSG 2127** University of California - Berkeley 1457  
An investigation of sources of information on short haul air passengers

<i>Period</i>	<i>Obligations</i>	
01/01/76-03/31/80	FY79: \$29,987	TOTAL: \$132,325
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kanafani, A.	ARC/Williams, L. J.	41-Aero Engr
	ARC/Galloway, T. L.	

**NSG 2151** University of California - Berkeley 1458  
Infrared and optical tunneling junctions

<i>Period</i>	<i>Obligations</i>	
05/01/76-01/14/80	FY79: \$30,000	TOTAL: \$165,427
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gustafson, K. T.	ARC/Billman, K. W.	13-Physics

**NSG 2207** University of California - Berkeley 1459  
Determining the usefulness of remote sensing for estimating agricultural water demand in California

<i>Period</i>	<i>Obligations</i>	
01/01/77-12/31/79	FY79: \$274,000	TOTAL: \$434,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Colwell, R. N.	ARC/Bauer, E.	39-Env Sci, NEC

**NSG 2271** University of California - Berkeley 1460  
Selected target search for extraterrestrial observations using very long base interferometry techniques and pattern recognition studies

<i>Period</i>	<i>Obligations</i>	
10/01/77-10/15/79	FY79: \$38,467	TOTAL: \$54,480
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Welch, W. J.	ARC/Stull, M. A.	59-Life Sci, NEC
Bowyer, C. S.	ARC/Billingham, J.	

**NSG 2344** University of California - Berkeley 1461  
'Aether drift' and the isotropy of the universe

<i>Period</i>	<i>Obligations</i>	
11/01/78-06/30/80	FY79: \$49,293	TOTAL: \$49,293
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smoot, G. F.	ARC/Haughney, L. C.	11-Astronomy

**NSG 3028** University of California - Berkeley 1462  
Techniques for stabilization of lean combustion systems

<i>Period</i>	<i>Obligations</i>	
07/01/74-02/01/79	FY79:	TOTAL: \$337,182
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Daily, J. W.	LERC/Marek, C. J.	46-Mech Engr
Oppenheim, A. K.	LERC/Diehl, L. A.	
Sawyer, R. F.		

**NSG 3227** University of California - Berkeley 1463  
Study of the mechanism of flashback

<i>Period</i>	<i>Obligations</i>	
10/01/78-10/01/81	FY79:	TOTAL: \$122,445
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Oppenheim, A. K.	LERC/Marek, C. J.	41-Aero Engr

**NSG 5093** University of California - Berkeley 1464  
Microwave scattering properties of snow fields

<i>Period</i>	<i>Obligations</i>	
02/01/76-07/31/78	FY79:	TOTAL: \$61,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Angelakos, D. J.	GSFC/Chang, T. C.	49-Engr, NEC

**NSG 5227** University of California - Berkeley 1465  
Rotation modulation collimator experiment studies by SAS-3

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/79	FY79:	TOTAL: \$6,264
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bowyer, C. S.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

**NSG 5256** University of California - Berkeley 1466  
Water quality mapping and location of entrapment zone in San Francisco Bay delta

<i>Period</i>	<i>Obligations</i>	
03/15/78-08/14/79	FY79:	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Colwell, R. N.	GSFC/Kim, H. H.	33-Oceanography
Knight, A. W.		

**NSG 5292** University of California - Berkeley 1467  
Simultaneous X-ray and optical observations

<i>Period</i>	<i>Obligations</i>	
08/01/78-07/31/79	FY79:	TOTAL: \$9,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bowyer, C. S.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

**NSG 5360** University of California - Berkeley 1468  
Ultraviolet observations of stars, a cosmological comparison

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/80	FY79: \$4,267	TOTAL: \$4,267
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Spinrad, H.	GSFC/Bogges, A.	11-Astronomy

**NSG 7127** University of California - Berkeley 1469  
Map lunar surface remanent magnetic fields and to develop the theory of solar winds cavity

<i>Period</i>	<i>Obligations</i>	
03/25/75-02/28/80	FY79: \$42,957	TOTAL: \$246,613
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, K. A.	HQ-SL/Quaide, W. L.	39-Env Sci, NEC
	HQ-SL/French, B. E.	

**NSG 7152** University of California - Berkeley 1470  
Studies of solar system objects with the new hat creek millimeter wave length radio interferometer

<i>Period</i>	<i>Obligations</i>	
07/01/75-10/31/78	FY79: \$33,172	TOTAL: \$141,133
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Welch, W. J.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Quaide, W. L.	

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<b>NSG 7205</b>	<b>University of California - Berkeley</b>	<b>1471</b>
Far infrared all-sky survey		
<i>Period</i>	<i>Obligations</i>	
02/01/76-04/15/80	FY79: \$44,000	TOTAL: \$127,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Richards, P. L.	HQ-SC/Boggett, N. W.	11-Astronomy
	HQ-SC/Roman, N. G.	
<b>NSG 7220</b>	<b>University of California - Berkeley</b>	<b>1472</b>
Remote sensing to selected problems within the State of California		
<i>Period</i>	<i>Obligations</i>	
05/01/76-04/30/82	FY79: \$250,000	TOTAL: \$840,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Colwell, R. N.	HQ-ET/Vitale, J. A.	39-Env Sci, NEC
<b>NSG 7262</b>	<b>University of California - Berkeley</b>	<b>1473</b>
Primate hemodynamics and metabolism under conditions of weightlessness		
<i>Period</i>	<i>Obligations</i>	
07/01/76-09/30/79	FY79: \$61,441	TOTAL: \$212,641
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pace, N.	HQ-SB/Geib, D. S.	51-Biological Sci
<b>NSG 7277</b>	<b>University of California - Berkeley</b>	<b>1474</b>
Adapt and evaluate a particle detection system for the experiment to measure lunar magnetic fields using the electron reflection method on the terrestrial bodies orbiter mission		
<i>Period</i>	<i>Obligations</i>	
09/01/76-03/31/78	FY79:	TOTAL: \$41,430
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lin, R. P.	HQ-SL/Smith, M. J.	31-Atmos Sci
	HQ-SL/Quaide, W. E.	
<b>NSG 7336</b>	<b>University of California - Berkeley</b>	<b>1475</b>
Gravity, body mass, composition, and metabolic rate		
<i>Period</i>	<i>Obligations</i>	
12/01/76-11/30/79	FY79: \$50,000	TOTAL: \$150,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pace, N.	HQ-SB/Halstead, T. W.	51-Biological Sci
	HQ-SB/Geib, D. S.	
<b>NSG 7401</b>	<b>University of California - Berkeley</b>	<b>1476</b>
Theoretical study of Equatorial F region irregularities		
<i>Period</i>	<i>Obligations</i>	
11/01/77-10/31/79	FY79:	TOTAL: \$49,874
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mozer, F. S.	HQ-ST/Kaiser, M. L.	19-Phys Sci, NEC
	HQ-ST/Schmerling, E. R.	
<b>NSG 7455</b>	<b>University of California - Berkeley</b>	<b>1477</b>
Cosmic microwave background isotropy research		
<i>Period</i>	<i>Obligations</i>	
04/15/78-10/31/79	FY79:	TOTAL: \$29,992
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smoot, G.	HQ-SC/Boggett, N. W.	11-Astronomy
	HQ-SC/Roman, N. G.	
<b>NSG 7522</b>	<b>University of California - Berkeley</b>	<b>1478</b>
Social issues and implications of remote sensing applications: Paradigms of technology transfer		
<i>Period</i>	<i>Obligations</i>	
01/01/79-12/30/79	FY79: \$128,125	TOTAL: \$128,125
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Colwell, R. N.	HQ-ET/Tuyahov, A. J.	79-Soc Sci, NEC
Hoos, I. R.	HQ-ET/Weinstein, R. H.	
<b>NSG 7527</b>	<b>University of California - Berkeley</b>	<b>1479</b>
A balloon-borne high resolution X and gamma-ray spectrometer		
<i>Period</i>	<i>Obligations</i>	
02/01/79-01/31/80	FY79: \$24,000	TOTAL: \$24,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, K. A.	HQ-ST/Bohlin, J. D.	13-Physics
<b>NSG 7592</b>	<b>University of California - Berkeley</b>	<b>1480</b>
A balloon-borne high resolution X and gamma-ray spectrometer		
<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY79: \$24,000	TOTAL: \$24,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, K. A.	HQ-SC/Kaluziński, L. J.	11-Astronomy
	HQ-SC/Opp, A. G.	
<b>NSG 7635</b>	<b>University of California - Berkeley</b>	<b>1481</b>
Thermal behavior of Martian satellites Phobos and Deimos		
<i>Period</i>	<i>Obligations</i>	
06/01/79-09/30/79	FY79: \$18,000	TOTAL: \$18,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Townes, C. H.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Murphy, R. E.	
<b>NAS 2-10258</b>	<b>University of California - Davis</b>	<b>1482</b>
Study of conductivity in modified graphite		
<i>Period</i>	<i>Obligations</i>	
07/16/79-03/15/80	FY79: \$19,071	TOTAL: \$19,071
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fong, C. Y.	ARC/Hansen, C. F.	13-Physics
<b>NAS 5-22964</b>	<b>University of California - Davis</b>	<b>1483</b>
Nimbus-G experiment team support for earth radiation budget		
<i>Period</i>	<i>Obligations</i>	
02/18/76-08/31/79	FY79:	TOTAL: \$62,187
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coulson, K. L.	GSFC/Nelsen, E. D.	13-Physics
<b>NAS 9-15203</b>	<b>University of California - Davis</b>	<b>1484</b>
Bone density by photon absorptiometry		
<i>Period</i>	<i>Obligations</i>	
01/01/77-03/31/78	FY79:	TOTAL: \$39,997
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Vogel, J. M.	JSC/Rambaut, P. C.	56-Medical Sciences

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**NCA 2-180703** University of California - Davis **1485**  
Human performance under selected environmental stresses: Effects of heat acclimation and physical training on the body fluids and temperature responses during heat stress

<i>Period</i>	<i>Obligations</i>	
04/01/77-09/30/79	FY79: <b>\$19,420</b>	<b>TOTAL: \$19,420</b>
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rizza, J. P.	ARC/Greenleaf, J. E.	56-Medical Sciences
Craig, W. D.		
Helmreich, R. L.		

**NCA 2-180803** University of California - Davis **1486**  
A comprehensive analysis of human performance requirements for future space flight

<i>Period</i>	<i>Obligations</i>	
04/01/78-09/30/79	FY79: <b>\$5,949</b>	<b>TOTAL: \$10,545</b>
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Harrison, A. A.	ARC/Connors, M. M.	79-Soc Sci, NEC

**NCA 2-180901** University of California - Davis **1487**  
Remote measurement of crop moisture stress utilizing the stress degree day concept

<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/80	FY79: <b>\$15,000</b>	<b>TOTAL: \$15,000</b>
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hatfield, J. L.	ARC/Millard, J. P.	31-Atmos Sci

**NCA 2-180903** University of California - Davis **1488**  
Wind-tunnel determination of particle to fluid speed for saltating flow

<i>Period</i>	<i>Obligations</i>	
06/15/79-06/15/80	FY79: <b>\$18,500</b>	<b>TOTAL: \$18,500</b>
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
White, B. R.	ARC/Pollack, J. B.	46-Mech Engr

**NCA 2-180905** University of California - Davis **1489**  
Development of a special purpose system for assessment of 24-hour biorhythm desynchronization and its effects on performance and psychological state

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: <b>\$28,800</b>	<b>TOTAL: \$28,800</b>
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chapman, L. F.	ARC/Winget, C. M.	51-Biological Sci

**NCC 2 20** University of California - Davis **1490**  
Improvement in mechanical properties of low conductivity carbon fibers by impregnating with polymers and metals

<i>Period</i>	<i>Obligations</i>	
09/01/79-12/31/79	FY79: <b>\$15,000</b>	<b>TOTAL: \$15,000</b>
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Needles, H. L.	ARC/Cagliostro, D. E.	12-Chemistry
	ARC/Hansen, C. F.	

**NSG 2256** University of California - Davis **1491**  
Turbulent transport modeling of separating and reattaching shear flow

<i>Period</i>	<i>Obligations</i>	
10/01/77-09/30/80	FY79: <b>\$59,798</b>	<b>TOTAL: \$117,540</b>
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lauder, B.	ARC/Marvin, J. G.	41-Aero Engr
Sindir, M.	ARC/Rubessin, M. W.	

**NSG 2383** University of California - Davis **1492**  
Improvement of the electron-phonon interaction as a final major step for calculating the superconducting transition temperature in niobium

<i>Period</i>	<i>Obligations</i>	
03/01/79-02/28/80	FY79: <b>\$1,965</b>	<b>TOTAL: \$1,965</b>
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fong, C. Y.	ARC/Arnold, J. O.	13-Physics

**NSG 2406** University of California - Davis **1493**  
Matching crop varieties to efficient use of nitrates ammonium and urea for the Controlled Ecology Life Support System (CELSS)

<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/80	FY79: <b>\$40,731</b>	<b>TOTAL: \$40,731</b>
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Huffaker, R. C.	ARC/Merek, E. L.	51-Biological Sci
Rains, D. W.		
Qualset, C. O.		

**NSG 5092** University of California - Davis **1494**  
Use of remote data in hydrologic engineering models

<i>Period</i>	<i>Obligations</i>	
02/01/76-12/31/79	FY79: <b>\$180,000</b>	<b>TOTAL: \$180,000</b>
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Algazi, V. R.	GSFC/Rango, A.	39-Env Sci, NEC
	GSFC/Salomonson, V. V.	

**NSG 7493** University of California - Davis **1495**  
Avian embryonic development in hyperdynamic environments

<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/79	FY79: <b>\$46,000</b>	<b>TOTAL: \$46,000</b>
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, A. H.	HQ-SB/Halstead, T. W.	51-Biological Sci
Abbott, U. K.	HQ-SB/Geib, D. S.	

**NAS 3-21963** University of California - Irvine **1496**  
Development and evaluation of an ion-beam sputter-ventilated ventricular catheter

<i>Period</i>	<i>Obligations</i>	
09/27/79-01/10/81	FY79: <b>\$47,463</b>	<b>TOTAL: \$47,463</b>
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Foltz, E. L.	LERC/Sater, B. L.	56-Medical Sciences

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**NGR 05-041-012** University of California - Irvine 1497  
Diagnosis of preclinical viral illness and prophylaxis against viral disease

<i>Period</i>	<i>Obligations</i>	
07/13/71-11/30/79	FY79: \$35,000	TOTAL: \$279,342
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tilles, J. G.	ARC/Mandel, A. D.	56-Medical Sciences

**NAS 5-20064** University of California - Los Angeles 1504  
Magnetic field investigation for ISEE mother/daughter spacecraft

<i>Period</i>	<i>Obligations</i>	
06/05/74-12/30/81	FY79: \$184,940	TOTAL: \$1,014,908
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Russell, C. T.	GSFC/Davis, M. A.	13-Physics

**NSG 7208** University of California - Irvine 1498  
Gas phase reactions of chlorine and fluorine compound of interest for stratospheric chemistry

<i>Period</i>	<i>Obligations</i>	
01/01/76-09/30/80	FY79: \$78,000	TOTAL: \$332,111
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Molina, M. J.	HQ-EB/Seals, R. K., Jr.	31-Atmos Sci
	HQ-EB/Tilford, S. G.	

**NAS 5-23702** University of California - Los Angeles 1505  
ATS-6 environmental measurements experiment data reduction and analysis

<i>Period</i>	<i>Obligations</i>	
10/29/76-06/30/79	FY79: \$22,499	TOTAL: \$124,999
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coleman, P. J., Jr.	GSFC/Wende, C. D.	39-Env Sci, NEC
McPherron, R. L.		

**NSG 7375** University of California - Irvine 1499  
Coronal plasma structures

<i>Period</i>	<i>Obligations</i>	
06/01/77-09/30/79	FY79: \$31,000	TOTAL: \$75,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
VanHoven, G.	HQ-ST/Bohlin, J. D.	13-Physics
	HQ-ST/Timothy, A. F.	

**NAS 5-25039** University of California - Los Angeles 1506  
Theory formulation and analysis support for the Dynamic Explorer (DE) project

<i>Period</i>	<i>Obligations</i>	
08/08/78-02/28/83	FY79:	TOTAL: \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coroniti, F. V.	GSFC/Hoffman, R. A.	13-Physics

**NSG 7472** University of California - Irvine 1500  
Research on some properties of nearly perfect crystals at very low temperatures

<i>Period</i>	<i>Obligations</i>	
07/01/78-06/30/80	FY79: \$13,397	TOTAL: \$23,397
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wallis, R. F.	HQ-RT/Whiting, E. E.	13-Physics

**NAS 5-25657** University of California - Los Angeles 1507  
Space telescope/high resolution spectrograph interstellar medium studies

<i>Period</i>	<i>Obligations</i>	
04/25/79-01/31/82	FY79: \$8,000	TOTAL: \$8,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jura, M. A.	GSFC/Liberatore, F. J.	11-Astronomy

**NAS 2-9128** University of California - Los Angeles 1501  
Interdisciplinary scientist, Pioneer/Venus program

<i>Period</i>	<i>Obligations</i>	
02/09/76-10/01/80	FY79:	TOTAL: \$1,759
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kaula, W. H.	ARC/Hall, C. F.	11-Astronomy
	ARC/Porter, D. L.	

**NAS 8-33115** University of California - Los Angeles 1508  
Experiment for materials processing in space entitled: Ultra-Pure Metals Preparation in Space

<i>Period</i>	<i>Obligations</i>	
08/07/78-12/07/79	FY79:	TOTAL: \$67,118
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bunshah, R. F.	MSFC/Williams, J. R.	47-Materials Engr
	MSFC/Oran, W. A.	

**NAS 2-9131** University of California - Los Angeles 1502  
Interdisciplinary scientist, Pioneer/Venus program

<i>Period</i>	<i>Obligations</i>	
02/09/76-10/01/80	FY79: \$32,759	TOTAL: \$35,642
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schubert, G.	ARC/Hall, C. F.	11-Astronomy
	ARC/Porter, D. L.	

**NAS 8-33353** University of California - Los Angeles 1509  
X-ray imagery of nearby GSO 0241 + 622

<i>Period</i>	<i>Obligations</i>	
06/05/79-06/04/80	FY79: \$7,990	TOTAL: \$7,990
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Margon, B. H.	MSFC/Jones, J. B., Jr.	11-Astronomy

**NAS 2-9491** University of California - Los Angeles 1503  
Pioneer/Venus data analysis of magnetic fields experiment

<i>Period</i>	<i>Obligations</i>	
08/01/77-11/30/79	FY79: \$234,149	TOTAL: \$304,149
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Russell, C. T.	ARC/Hall, C. F.	31-Atmos Sci
Coleman, P. J., Jr.	ARC/Porter, D. L.	
Coroniti, F. V.		

**NCA 2-390801** University of California - Los Angeles 1510  
Studies on rat b-lipo:ropin

<i>Period</i>	<i>Obligations</i>	
10/01/77-10/01/79	FY79:	TOTAL: \$31,350
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Parlow, A.	ARC/Ellis, S.	61-Biol Aspects



**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

<b>NCA 2-390803</b>	<b>University of California - Los Angeles</b>	<b>1511</b>
Low expansion copper aluminosilicate glasses and glass-ceramics		
<i>Period</i>	<i>Obligations</i>	
05/01/78-10/31/79	FY79: TOTAL: \$14,888	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
MacKenzie, J. D.	ARC/Goldstein, H. E.	47-Materials Engr
<b>NCA 2-390901</b>	<b>University of California - Los Angeles</b>	<b>1512</b>
Damage resistance of space shuttle orbiter thermal protection tiles		
<i>Period</i>	<i>Obligations</i>	
02/01/79-10/31/79	FY79: \$4,562 TOTAL: \$4,562	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ono, K.	ARC/Goldstein, H. E.	47-Materials Engr
Varner, J. R.		
<b>NCA 2-390903</b>	<b>University of California - Los Angeles</b>	<b>1513</b>
A study of dry-chemical fire-extinguishing mechanisms		
<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/80	FY79: \$29,579 TOTAL: \$29,579	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Knuth, E. L.	ARC/Altman, R. L.	12-Chemistry
<b>NCC 2 7</b>	<b>University of California - Los Angeles</b>	<b>1514</b>
Composite glass fibers with ultra-high modulus		
<i>Period</i>	<i>Obligations</i>	
06/01/79-06/01/80	FY79: \$26,000 TOTAL: \$26,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
MacKenzie, J. D.	ARC/Riccitiello, S. R.	47-Materials Engr
Wakaki, J.	ARC/Goldstein, H. E.	
<b>NGL 05-007-002</b>	<b>University of California - Los Angeles</b>	<b>1515</b>
Theoretical evaluation of the internal structures and atmospheres of planets and the moon		
<i>Period</i>	<i>Obligations</i>	
01/01/62-12/31/80	FY79: \$33,892 TOTAL: \$868,077	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kaula, W. M.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. E.	
<b>NGL 05-007-004</b>	<b>University of California - Los Angeles</b>	<b>1516</b>
Theoretical & experimental investigations of particles & fields in space, including construction of prototype instrumentation		
<i>Period</i>	<i>Obligations</i>	
05/01/62-10/01/81	FY79: \$170,000 TOTAL: \$2,785,554	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cobman, P. J., Jr.	HQ-ST/Cauffman, D. P.	39-Env Sci, NEC
	HQ-ST/Schmerling, E. R.	
<b>NGL 05-007-190</b>	<b>University of California - Los Angeles</b>	<b>1517</b>
Theoretical space plasma physics		
<i>Period</i>	<i>Obligations</i>	
06/27/68-09/30/81	FY79: \$149,927 TOTAL: \$593,307	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kennel, C. F.	HQ-ST/Wiskerchen, M. J.	19-Phys Sci, NEC
	HQ-ST/Schmerling, E. R.	
<b>NGL 05-007-367</b>	<b>University of California - Los Angeles</b>	<b>1518</b>
Lunar sample analysis		
<i>Period</i>	<i>Obligations</i>	
06/30/72-01/31/80	FY79: \$80,000 TOTAL: \$578,570	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Molnar, P.	JSC/Harris, J. W.	12-Chemistry
Toksoz, M. N.		
<b>NGR 05-007-221</b>	<b>University of California - Los Angeles</b>	<b>1519</b>
Nature and changes of organic matter in deep ocean cores		
<i>Period</i>	<i>Obligations</i>	
08/08/69-12/31/78	FY79: \$60,000 TOTAL: \$586,462	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kaplan, I. R.	HQ-SB/Young, R. S.	32-Geological Sci
<b>NGR 05-007-276</b>	<b>University of California - Los Angeles</b>	<b>1520</b>
Data analysis on the OGO-3 and OGO-4 search coil magnetometers		
<i>Period</i>	<i>Obligations</i>	
04/03/70-04/30/79	FY79: TOTAL: \$180,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Holzer, R. E.	HQ-ST/Taylor, W. W.	13-Physics
<b>NGR 05-007-289</b>	<b>University of California - Los Angeles</b>	<b>1521</b>
Lunar sample analysis		
<i>Period</i>	<i>Obligations</i>	
12/29/70-01/31/80	FY79: \$82,319 TOTAL: \$661,899	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kaplan, I. R.	JSC/Harris, J. W.	13-Physics
<b>NGR 05-007-317</b>	<b>University of California - Los Angeles</b>	<b>1522</b>
Photogeologic interpretation of Mariner/Mars 1969 imagery		
<i>Period</i>	<i>Obligations</i>	
03/09/71-04/30/80	FY79: \$14,406 TOTAL: \$143,877	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schubert, G.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Boyce, J. M.	
<b>NGR 05-007-328</b>	<b>University of California - Los Angeles</b>	<b>1523</b>
Numerical modeling of the global atmosphere and the world oceans		
<i>Period</i>	<i>Obligations</i>	
08/15/71-11/30/79	FY79: \$50,000 TOTAL: \$440,649	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arakawa, A.	GSFC/Halem, M.	31-Atmos Sci
Suarez, M.		
<b>NGR 05-007-329</b>	<b>University of California - Los Angeles</b>	<b>1524</b>
Elemental variations in genetically related meteorites		
<i>Period</i>	<i>Obligations</i>	
04/27/71-02/28/80	FY79: \$72,000 TOTAL: \$426,995	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wasson, J. T.	HQ-SL/French, B. M.	32-Geological Sci
	HQ-SL/Quaide, W. L.	

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NGR 05-007-351 University of California - Los Angeles 1525**  
Correlative studies of Apollo 15 and 16 satellite magnetometer data with the Explorer 35 and lunar surface magnetometer data

<i>Period</i>	<i>Obligations</i>	
05/25/72-01/31/80	FY79: \$82,800	TOTAL: \$705,074
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coleman, P. J., Jr.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. E.	

**NSG 3082 University of California - Los Angeles 1532**  
Investigation of aeroelastic effects in wind turbines

<i>Period</i>	<i>Obligations</i>	
09/01/75-08/31/78	FY79:	TOTAL: \$68,273
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Friedman, P. P.	LERC/Sperra, D. A.	46-Mech Engr

**NGR 05-007-407 University of California - Los Angeles 1526**  
Paleobiologic studies of the antiquity and precambrian evolution of life

<i>Period</i>	<i>Obligations</i>	
04/10/73-05/31/80	FY79: \$20,251	TOTAL: \$214,098
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, R. N.	HQ-SB/Young, R. S.	32-Geological Sci

**NSG 3116 University of California - Los Angeles 1533**  
Forecast of future aviation fuels

<i>Period</i>	<i>Obligations</i>	
08/01/76-09/31/80	FY79: \$50,000	TOTAL: \$297,826
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liu, C. Y.	LERC/Friedman, R.	41-Aero Engr
English, J. M.		

**NGR 05-007-418 University of California - Los Angeles 1527**  
Utricular influences on visual motor control research

<i>Period</i>	<i>Obligations</i>	
09/01/73-06/30/80	FY79: \$21,000	TOTAL: \$136,023
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Markham, C. H.	ARC/Dauntan, N. G.	54-Env Biology

**NSG 3153 University of California - Los Angeles 1534**  
Cryo-coolant helium super conductor interaction

<i>Period</i>	<i>Obligations</i>	
06/01/77-07/14/79	FY79:	TOTAL: \$43,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Frederking, T. H.	LERC/Burkhart, J. A.	46-Mech Engr
	LERC/Bercaw, R. W.	

**NSG 1490 University of California - Los Angeles 1528**  
Fundamental studies of methods for structural synthesis

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/82	FY79: \$65,000	TOTAL: \$187,416
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schmit, L. A., Jr.	LARC/Sobieski, J.	49-Engr, NEC

**NSG 3236 University of California - Los Angeles 1535**  
Investigations of the interaction between a grazing flow over a Helmholtz resonator orifice and the acoustically induced velocity in it

<i>Period</i>	<i>Obligations</i>	
11/14/78-11/20/80	FY79: \$60,352	TOTAL: \$60,352
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Charwat, A. F.	LERC/Rice, E. J.	13-Physics
	LERC/Baumeister, K. J.	

**NSG 1578 University of California - Los Angeles 1529**  
Response studies of rotors and rotor blades with applications to aeroelastic tailoring

<i>Period</i>	<i>Obligations</i>	
12/01/78-11/30/79	FY79: \$58,782	TOTAL: \$58,782
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Friedman, P. P.	LARC/Hammond, C. E.	41-Aero Engr

**NSG 4001 University of California - Los Angeles 1536**  
Short-time climatology related to air turbulence

<i>Period</i>	<i>Obligations</i>	
03/01/74-03/31/79	FY79:	TOTAL: \$118,809
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wurtele, M. G.	DFRC/Ehernberger, L. J.	31-Atmos Sci

**NSG 2290 University of California - Los Angeles 1530**  
Research program in jet/surface interactions

<i>Period</i>	<i>Obligations</i>	
11/01/77-10/31/80	FY79:	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Meecham, W. C.	ARC/Ahtye, W. F.	41-Aero Engr
	ARC/Hickey, D. H.	

**NSG 4015 University of California - Los Angeles 1537**  
Modeling, identification and control with applications to flight vehicles

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/82	FY79: \$47,301	TOTAL: \$127,301
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Seidel, B. S.	DFRC/Edwards, J. W.	41-Aero Engr
	DFRC/Iliff, K. W.	

**NSG 2321 University of California - Los Angeles 1531**  
High modulus glass fibers by ionic and atomic stuffing

<i>Period</i>	<i>Obligations</i>	
06/01/78-06/01/80	FY79: \$28,000	TOTAL: \$52,154
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
MacKenzie, J. D.	ARC/Riccitiello, S. R.	19-Phys Sci, NEC
	ARC/Goldstein, H. E.	

**NSG 4024 University of California - Los Angeles 1538**  
Models for numerical simulation of gravity waves and clear air turbulence formation

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY79: \$50,000	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wurtele, M. G.	DFRC/Ehernberger, L. J.	31-Atmos Sci
Sharman, R.		

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NSG 5056** University of California - Los Angeles 1539  
Investigation of the far UV spectra of the pole on BE stars Cen  
and Cyg  
*Period* Obligations  
02/01/75-09/30/77 FY79: TOTAL: \$8,623  
*Prin Invest* NASA Tech Officer CASE Category  
Peters, C. J. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 5165** University of California - Los Angeles 1540  
A search for slow X-ray pulsars from orbiting astronomical  
observatory Copernicus  
*Period* Obligations  
03/14/77-11/13/78 FY79: TOTAL: \$8,540  
*Prin Invest* NASA Tech Officer CASE Category  
Margon, B. H. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 5169** University of California - Los Angeles 1541  
Physical conditions, abundances and chemistry in diffuse  
interstellar clouds  
*Period* Obligations  
03/14/77-05/13/80 FY79: \$6,157 TOTAL: \$10,602  
*Prin Invest* NASA Tech Officer CASE Category  
Jura, M. A. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 5190** University of California - Los Angeles 1542  
Energetic particle precipitation effects on stratospheric and  
mesospheric composition and dynamics  
*Period* Obligations  
07/18/77-08/31/80 FY79: \$13,772 TOTAL: \$48,185  
*Prin Invest* NASA Tech Officer CASE Category  
Thorne, R. M. GSFC/Reed, E. I. 31-Atmos Sci  
Siscoe, G. L.  
Venkateswaran, S. V.

**NSG 5263** University of California - Los Angeles 1543  
Earth dynamics analyses  
*Period* Obligations  
03/15/78-03/14/80 FY79: \$56,000 TOTAL: \$129,000  
*Prin Invest* NASA Tech Officer CASE Category  
Kaula, W. M. GSFC/Smith, D. E. 32-Geological Sci

**NSG 5272** University of California - Los Angeles 1544  
Problems of mass loss and mass transfer in close binary systems  
*Period* Obligations  
05/01/78-04/30/80 FY79: TOTAL: \$15,999  
*Prin Invest* NASA Tech Officer CASE Category  
Plavec, M. GSFC/Bogges, A. 11-Astronomy  
GSFC/West, D. K.

**NSG 5351** University of California - Los Angeles 1545  
Investigation of the wayside boundary region plasma and magnetic  
field  
*Period* Obligations  
05/01/79-04/30/80 FY79: \$30,571 TOTAL: \$30,571  
*Prin Invest* NASA Tech Officer CASE Category  
Siscoe, G. L. GSFC/Kupperian, J. E., Jr. 32-Geological Sci

**NSG 5358** University of California - Los Angeles 1546  
Ultraviolet observations of high excitation planetary nebulae  
*Period* Obligations  
05/09/79-05/08/80 FY79: \$6,100 TOTAL: \$6,100  
*Prin Invest* NASA Tech Officer CASE Category  
Aller, L. H. GSFC/Bogges, A. 11-Astronomy

**NSG 5377** University of California - Los Angeles 1547  
Observations of interstellar zinc  
*Period* Obligations  
06/01/79-05/31/80 FY79: \$6,100 TOTAL: \$6,100  
*Prin Invest* NASA Tech Officer CASE Category  
Jura, M. A. GSFC/Bogges, A. 11-Astronomy

**NSG 7052** University of California - Los Angeles 1548  
Shock processes in terrestrial analogs of porous lunar & meteoritic  
materials  
*Period* Obligations  
04/01/74-01/31/80 FY79: TOTAL: \$137,486  
*Prin Invest* NASA Tech Officer CASE Category  
Oertel, G. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. M.

**NSG 7158** University of California - Los Angeles 1549  
Three-dimensional study of solar oscillation  
*Period* Obligations  
07/01/75-11/30/77 FY79: TOTAL: \$41,733  
*Prin Invest* NASA Tech Officer CASE Category  
Ulrich, R. K. HQ-ST/Timothy, A. F. 13-Physics

**NSG 7164** University of California - Los Angeles 1550  
Dynamical studies of the Venus atmosphere  
*Period* Obligations  
09/01/75-08/31/79 FY79: \$18,623 TOTAL: \$88,251  
*Prin Invest* NASA Tech Officer CASE Category  
Schubert, G. HQ-SL/Murphy, R. E. 31-Atmos Sci  
HQ-SL/Brunk, W. E.

**NSG 7180** University of California - Los Angeles 1551  
Investigation of the subsonic magnetosheath plasma and magnetic  
field data from Explorer  
*Period* Obligations  
10/01/75-06/30/79 FY79: TOTAL: \$99,950  
*Prin Invest* NASA Tech Officer CASE Category  
Siscoe, G. L. HQ-ST/Cauffman, D. P. 39-Env Sci, NEC  
HQ-ST/Schmerling, E. R.

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NSG 7239** University of California - Los Angeles 1552  
Possible correlations between the interplanetary magnetic field and zodiacal light polarization vectors

<i>Period</i>	<i>Obligations</i>	
06/01/76-12/31/79	FY79: \$140	TOTAL: \$15,275
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Swinson, W. F.	HQ-SL/Murphy, R. E.	31-Atmos Sci
Turner, J. L.		
Ranson, W. F.		

**NSG 7282** University of California - Los Angeles 1553  
Experimental study of Martian carbonate formation

<i>Period</i>	<i>Obligations</i>	
10/01/76-09/30/78	FY79: \$11,152	TOTAL: \$41,276
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kieffer, H. H.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/Boyce, J. M.	

**NSG 7295** University of California - Los Angeles 1554  
Analysis of data from the helium vector magnetometers on the Pioneers 10 and 11 spacecraft

<i>Period</i>	<i>Obligations</i>	
10/01/76-09/30/79	FY79: \$110,000	TOTAL: \$285,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coleman, P. J., Jr.	HQ-SL/Dwornik, S. E.	31-Atmos Sci
	HQ-SL/Boyce, J. M.	

**NSG 7315** University of California - Los Angeles 1555  
Theoretical studies of moon plasma interactions

<i>Period</i>	<i>Obligations</i>	
02/01/77-01/31/80	FY79: \$55,238	TOTAL: \$122,585
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schubert, G.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. E.	

**NSG 7335** University of California - Los Angeles 1556  
Rare earths in inclusions from different classes of carbonaceous chondrites

<i>Period</i>	<i>Obligations</i>	
03/01/77-02/28/80	FY79: \$46,014	TOTAL: \$75,865
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Boynton, W. V.	HQ-SL/French, B. M.	32-Geological Sci
	HQ-SL/Quaide, W. L.	

**NSG 7341** University of California - Los Angeles 1557  
Physics of astrophysical plasmas

<i>Period</i>	<i>Obligations</i>	
04/01/77-08/31/80	FY79: \$43,437	TOTAL: \$73,437
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kennel, C. F.	HQ-SC/Kaluzienski, L. J.	11-Astronomy
	HQ-SC/Opp, A. G.	

**NSG 7407** University of California - Los Angeles 1558  
A three-dimensional observational study of the solar five-minute oscillation

<i>Period</i>	<i>Obligations</i>	
10/01/77-12/31/79	FY79: \$71,000	TOTAL: \$106,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ulrich, R. K.	HQ-ST/Bohlin, J. D.	13-Physics

**NSG 7484** University of California - Los Angeles 1559  
Planetary dynamos

<i>Period</i>	<i>Obligations</i>	
08/01/78-01/31/80	FY79: \$33,132	TOTAL: \$33,132
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Busse, F. W.	HQ-SL/Quaide, W. L.	32-Geological Sci

**NSG 7489** University of California - Los Angeles 1560  
Paleobiologic studies of Archean evolution

<i>Period</i>	<i>Obligations</i>	
06/01/79-08/31/80	FY79: \$155,476	TOTAL: \$155,476
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schopf, J. W.	HQ-SB/Young, R. S.	32-Geological Sci
Hayes, J. M.		
Hofmann, H. J.		

**NSG 7581** University of California - Los Angeles 1561  
Thermal behavior of the Martian north polar region during fall, winter and spring

<i>Period</i>	<i>Obligations</i>	
03/01/79-09/30/79	FY79: \$2,079	TOTAL: \$2,079
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kieffer, H. H.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/Dwornik, S. E.	

**NSG 7582** University of California - Los Angeles 1562  
Viking orbiter combined infrared studies of Mars atmosphere and surface

<i>Period</i>	<i>Obligations</i>	
03/01/79-09/30/79	FY79: \$6,265	TOTAL: \$6,265
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kieffer, H. H.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/Dwornik, S. E.	

**NSG 7583** University of California - Los Angeles 1563  
Thermal behavior of Martian regional and local features

<i>Period</i>	<i>Obligations</i>	
03/01/79-09/30/79	FY79: \$42,298	TOTAL: \$42,298
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shubert, G.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/Boyce, J. M.	

**NSG 7594** University of California - Los Angeles 1564  
Thermal behavior of the Mars atmosphere

<i>Period</i>	<i>Obligations</i>	
03/01/79-09/30/79	FY79: \$21,000	TOTAL: \$21,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Martin, T. Z.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

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**NSG 7616** University of California - Los Angeles 1565  
 Beam-plasma interactions in a large laboratory plasma  
*Period* *Obligations*  
 07/01/79-06/30/80 FY79: \$50,000 TOTAL: \$50,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Stenzel, R. L. HQ-ST/Schmerling, E. R. 19-Phys Sci, NEC

**NSG 7621** University of California - Los Angeles 1566  
 Studies of circumstellar and interstellar grains  
*Period* *Obligations*  
 09/01/79-08/31/80 FY79: \$21,339 TOTAL: \$21,339  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Jura, M. A. HQ-SC/Weiler, E. J. 11-Astronomy  
 HQ-SC/Roman, N. G.

**NGR 05-008-022** University of California - Riverside 1567  
 Measurement of neutrons from sun  
*Period* *Obligations*  
 05/16/69-06/30/80 FY79: \$139,669 TOTAL: \$519,669  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 White, R. S. HQ-SC/Kaluzienski, L. J. 11-Astronomy  
 HQ-SC/Opp, A. G.

**NAS 2-6552** University of California - San Diego 1568  
 Data analysis of Jovian trapped radiation by Pioneer F/G  
*Period* *Obligations*  
 01/25/72-11/30/79 FY79: \$168,837 TOTAL: \$980,798  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Fillius, R. W. ARC/Hall, C. F. 11-Astronomy  
 ARC/Porter, D. L.

**NAS 3-21386** University of California - San Diego 1569  
 Measurement of optical properties for Great Lakes organic and inorganic species  
*Period* *Obligations*  
 07/31/78-10/30/78 FY79: TOTAL: \$6,995  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Austin, R. W. LERC/Salzman, J. A. 19-Phys Sci, NEC

**NAS 3-21473** University of California - San Diego 1570  
 Lake Erie spectral radiance and irradiance study  
*Period* *Obligations*  
 06/06/78-08/06/78 FY79: TOTAL: \$13,068  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Austin, R. W. LERC/Salzman, J. A. 33-Oceanography

**NAS 5-22375** University of California - San Diego 1571  
 Hard X-ray imaging system study  
*Period* *Obligations*  
 05/13/75-02/28/79 FY79: TOTAL: \$316,757  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Tabakoff, W. GSFC/Stouffer, C. G. 11-Astronomy  
 Hamed, A.

**NAS 5-23481** University of California - San Diego 1572  
 A spacecraft charging study  
*Period* *Obligations*  
 05/03/76-09/30/79 FY79: TOTAL: \$184,014  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 McIlwain, C. E. GSFC/Bartlett, R. O. 11-Astronomy

**NAS 5-23705** University of California - San Diego 1573  
 Data reduction and analysis of environmental measurement experiments data onboard ATS-6  
*Period* *Obligations*  
 11/15/76-12/31/78 FY79: TOTAL: \$113,335  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 McIlwain, C. E. GSFC/Wende, C. D. 31-Atmos Sci

**NAS 5-24463** University of California - San Diego 1574  
 Faint object spectrograph for space telescope program  
*Period* *Obligations*  
 09/15/78-01/31/84 FY79: \$6,815,993 TOTAL: \$8,723,993  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Harms, R. J. GSFC/White, R. A. 11-Astronomy  
 GSFC/Sours, W. T.

**NAS 5-24466** University of California - San Diego 1575  
 Fabrication and analysis of digicons  
*Period* *Obligations*  
 02/01/78-08/15/78 FY79: TOTAL: \$39,985  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Beaver, E. A. GSFC/Shannon, J. L. 11-Astronomy

**NAS 5-25054** University of California - San Diego 1576  
 Development of digiton image tubes  
*Period* *Obligations*  
 05/01/78-02/14/80 FY79: \$109,863 TOTAL: \$394,863  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Beaver, E. A. GSFC/Shannon, J. L. 11-Astronomy

**NAS 5-25448** University of California - San Diego 1577  
 Final definition phase for Gamma Ray Observatory (GRO) experiment  
*Period* *Obligations*  
 12/11/78-10/31/79 FY79: \$170,000 TOTAL: \$170,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Peterson, L. E. GSFC/Davis, M. A. 13-Physics

**NAS 5-25450** University of California - San Diego 1578  
 Remote sensing surface truth cruise of the horizon  
*Period* *Obligations*  
 01/30/79-09/30/80 FY79: \$119,947 TOTAL: \$119,947  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Austin, R. W. GSFC/Nelsen, E. D. 33-Oceanography

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<p><b>NAS 8-27974</b> University of California - San Diego <b>1579</b> Design &amp; development of AGR-4 MeV range gamma ray telescope experiment under the HEAO program</p>		<p><b>NGL 05-005-007</b> University of California - San Diego <b>1585</b> Study of geomagnetically trapped particles by Explorer &amp; Injun satellite data, refining particle detectors, detector systems &amp; telemetered-data processing equipment</p>	
<i>Period</i>	<i>Obligations</i>	<i>Period</i>	<i>Obligations</i>
06/22/72-09/30/80	FY79: \$438,000 TOTAL: \$7,395,119	02/20/64-09/30/80	FY79: \$63,000 TOTAL: \$2,372,591
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>
Peterson, L. E.	MSFC/Manning, H. S.	Mellwain, C. E.	HQ-ST/Hedin, A. E. HQ-ST/Schmerling, E. R.
	11-Astronomy		13-Physics
<p><b>NAS 8-31145</b> University of California - San Diego <b>1580</b> Joint analysis of satellite data study</p>		<p><b>NGL 05-009-002</b> University of California - San Diego <b>1586</b> Studies of the composition and structure of meteorites</p>	
<i>Period</i>	<i>Obligations</i>	<i>Period</i>	<i>Obligations</i>
12/17/74-09/30/78	FY79: TOTAL: \$83,502	10/02/63-02/29/80	FY79: \$78,992 TOTAL: \$752,871
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>
Mellwain, C. E.	MSFC/Chappell, C. R. MSFC/Burch, J. L.	Arrhenius, G.	HQ-SL/Quaide, W. L. HQ-SL/French, B. M.
	13-Physics		32-Geological Sci
<p><b>NAS 8-32984</b> University of California - San Diego <b>1581</b> Analysis of soft X-ray data</p>		<p><b>NGL 05-009-004</b> University of California - San Diego <b>1587</b> Research on interaction of meteorites, cosmic rays, consideration of origin and history of meteorites</p>	
<i>Period</i>	<i>Obligations</i>	<i>Period</i>	<i>Obligations</i>
02/01/79-01/31/81	FY79: \$41,184 TOTAL \$41,184	12/19/62-03/14/80	FY79 TOTAL: \$1,002,694
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>
Svestka, Z.	MSFC/DeLoach, A. C. MSFC/Snoddy, W. C.	Arnold, J. R. Fruchter, J. S. Kohl, C. P.	HQ-SL/French, B. M. HQ-SL/Quaide, W. L. 32-Geological Sci
	13-Physics		
<p><b>NASW 2996</b> University of California - San Diego <b>1582</b> Development of a 200 channel photometer for use in low light level astronomy</p>		<p><b>NGL 05-009-005</b> University of California - San Diego <b>1588</b> Research on general geochemical problems, including meteorite materials, rare gas content of meteorites &amp; separation in gas phase at time of formation of solar system</p>	
<i>Period</i>	<i>Obligations</i>	<i>Period</i>	<i>Obligations</i>
07/01/76-08/15/78	FY79: TOTAL \$205,998	10/31/62-01/31/80	FY79 \$17,590 TOTAL: \$536,253
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>
Mellwain, C. E. Beaver, E. A. Arms, R. H.	HQ-SC/Aucremanne, M. J. HQ-SC/Rosendhal, J. D.	Suess, H. E. Herndon, J. M.	HQ-SL/Quaide, W. L. 19-Phys Sci, NEC
	31-Atmos Sci		
<p><b>NGL 05-005-003</b> University of California - San Diego <b>1583</b> Laboratory and balloon experiments in X-ray and gamma ray astronomy</p>		<p><b>NGL 05-009-109</b> University of California - San Diego <b>1589</b> In-flight evaluation of weightlessness and gravity on cardiopulmonary function of man</p>	
<i>Period</i>	<i>Obligations</i>	<i>Period</i>	<i>Obligations</i>
09/15/62-11/30/79	FY79: \$155,000 TOTAL: \$2,405,752	02/17/69-10/31/80	FY79 TOTAL: \$873,139
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>
Peterson, L. E. Pelling, R. M.	HQ-SC/Kaluzienski, L. J. HQ-SC/Opp, A. G.	West, J. B.	ARC/Greenleaf, J. E.
	13-Physics		56-Medical Sciences
<p><b>NGL 05-005-004</b> University of California - San Diego <b>1584</b> Theoretical studies in astrophysics</p>		<p><b>NGL 05-009-148</b> University of California - San Diego <b>1590</b> Lunar sample analysis</p>	
<i>Period</i>	<i>Obligations</i>	<i>Period</i>	<i>Obligations</i>
02/04/63-04/01/81	FY79: \$26,000 TOTAL: \$802,361	02/11/71-01/31/80	FY79: \$104,204 TOTAL: \$915,124
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>
Gould, R. J.	HQ-SC/Opp, A. G. HQ-SC/Roman, N. G.	Arnold, J. R.	JSC/Harris, J. W.
	11-Astronomy		12-Chemistry

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**NGI 05-009-150 University of California - San Diego 1591**  
Lunar sample analysis

Period	Obligations
02/01/71-01/31/81	FY79 \$96,600 TOTAL \$1,435,322
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Marti, K.	JSC/Harris, J. W. 12-Chemistry

**NGR 05-009-264 University of California - San Diego 1598**  
Optical parallel processing

Period	Obligations
03/15/74-10/31/78	FY79: TOTAL \$177,825
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Lee, S. H.	GSFC/Schaefer, C. H. 49-Engr, NEC

**NGR 05-005-005 University of California - San Diego 1592**  
Study of lunar gamma ray emission

Period	Obligations
09/10/63-05/31/80	FY79: \$55,155 TOTAL: \$767,505
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Arnold, J. R.	HQ-SL/Quaide, W. L. 32-Geological Sci HQ-SL/French, B. M.

**NSG 1590 University of California - San Diego 1599**  
Halogen Occultation Experiment (HALOE) satellite science team participation

Period	Obligations
12/15/78-12/14/79	FY79 \$62,009 TOTAL: \$62,009
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Cicerone, R. J.	LARC/Sullivan, E. M. 31-Atmos Sci LARC/Russell, J. M., III

**NGR 05-005-055 University of California - San Diego 1593**  
Infrared astronomic observation from high altitude airplane/telescope program

Period	Obligations
06/05/73-10/31/79	FY79 \$76,063 TOTAL \$365,280
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Willner, S. P.	ARC/Haughney, L. C. 11-Astronomy

**NSG 1641 University of California - San Diego 1600**  
Ship and satellite bio-optical research in the California Bight

Period	Obligations
08/01/79-01/31/80	FY79: \$28,397 TOTAL: \$28,397
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Smith, R. C.	LARC/Whitlock, C. H. 33-Oceanography LARC/Maddrea, G. L.

**NGR 05-009-110 University of California - San Diego 1594**  
The structure and evolution of the asteroid belt

Period	Obligations
01/23/70-11/30/79	FY79: \$35,000 TOTAL: \$508,690
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Alfven, H.	HQ-SL/Murphy, R. E. 11-Astronomy HQ-SL/Brunk, W. E.

**NSG 2376 University of California - San Diego 1601**  
Three inch dimensional bispectra and the mean rate of transfer of energy in turbulence

Period	Obligations
03/01/79-02/28/80	FY79 \$35,119 TOTAL \$35,119
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Rosenblatt, M.	ARC/Rubesin, M. W. 19-Phys Sci, NEC Helland, K. N. ARC/Leonard, A. Lin, K. S.

**NGR 05-009-188 University of California - San Diego 1595**  
Construction of a 200 channel photometer for use in low light level astronomy

Period	Obligations
05/17/72-03/31/80	FY79: TOTAL: \$564,863
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Mellwain, C. E.	HQ-SC/Rosendhal, J. D. 11-Astronomy HQ-SC/Roman, N. G.

**NSG 3034 University of California - San Diego 1602**  
Preparation and identification of hydrides of intermetallic compounds

Period	Obligations
08/01/74-12/31/78	FY79 TOTAL: \$150,383
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Oesterreicher, H.	LERC/Flood, D. J. 47-Materials Engr

**NGR 05-009-246 University of California - San Diego 1596**  
Geophysical perturbations on satellite geodesy

Period	Obligations
11/01/73-11/30/79	FY79: \$130,097 TOTAL: \$943,333
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Berger, J.	GSFC/Smith, D. J. 39-Env Sci, NEC Brune, J. N.

**NSG 3047 University of California - San Diego 1603**  
Investigation of droplet burning at zero g

Period	Obligations
06/01/75-12/31/78	FY79 TOTAL \$75,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Williams, F. A.	LERC/Haggard, J. B. 43-Chem Engr

**NGR 05-009-257 University of California - San Diego 1597**  
Single scan television radiography

Period	Obligations
11/01/73-11/01/79	FY79: TOTAL: \$163,979
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Baily, N. A.	ARC/Sandler, H. 56-Medical Sciences

**NSG 3045 University of California - San Diego 1604**  
Chemical vapor deposition of high TC superconductors

Period	Obligations
05/01/75-12/31/78	FY79: TOTAL \$216,045
<i>Prin Invest</i>	<i>NASA Tech Officer</i> <i>CASE Category</i>
Webb, G. W.	LERC/Woolam, J. A. 19-Phys Sci, NEC Engelhardt, J. J. LERC/Brown, G. V.

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**NSG 3103** University of California - San Diego **1605**  
Superconductivity in ternary molybdenum sulfides

<i>Period</i>	<i>Obligations</i>	
04/01/76-03/31/79	FY79: TOTAL: \$100,888	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Luo, H. L.	LERC/Woollam, J. A.	13-Physics
	LERC/Brown, G. V.	

**NSG 7027** University of California - San Diego **1612**  
Orbital geochemical data analysis and synthesis

<i>Period</i>	<i>Obligations</i>	
03/01/74-01/31/80	FY79: \$44,000 TOTAL: \$387,568	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arnold, J. R.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. M.	

**NSG 3150** University of California - San Diego **1606**  
Analysis of interaction between spacecraft and artificially injected particles

<i>Period</i>	<i>Obligations</i>	
05/01/77-11/01/79	FY79: TOTAL: \$180,671	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Whipple, E. C., Jr.	LERC/Purvis, C. K.	39-Env Sci, NEC
Deforest, S. E.	LERC/Stevens, N. J.	

**NSG 7102** University of California - San Diego **1613**  
Research on processes controlling the formation and evolution of the small bodies in the solar system

<i>Period</i>	<i>Obligations</i>	
09/01/74-09/30/79	FY79: \$48,204 TOTAL: \$237,204	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Alfven, H.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/Dwornik, S. E.	

**NSG 3219** University of California - San Diego **1607**  
Research on variable density turbulence

<i>Period</i>	<i>Obligations</i>	
10/01/78-09/21/79	FY79: TOTAL: \$65,577	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Libby, P. A.	LERC/Marek, C. J.	41-Aero Engr
Larue, J. C.		

**NSG 7121** University of California - San Diego **1614**  
Carbonaceous chondrites early irradiation and 244/pu fission records

<i>Period</i>	<i>Obligations</i>	
02/27/75-02/01/80	FY79: \$55,000 TOTAL: \$187,422	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
MacDougall, J. D.	HQ-SL/French, B. M.	32-Geological Sci
	HQ-SL/Quaide, W. L.	

**NSG 3296** University of California - San Diego **1608**  
Studies related to droplet burning at zero g

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/80	FY79: \$30,000 TOTAL: \$30,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Williams, F. A.	LERC/Cochran, T. H.	13-Physics

**NSG 7161** University of California - San Diego **1615**  
Analysis and interpretation of solar X-ray data from OSO-7

<i>Period</i>	<i>Obligations</i>	
07/01/75-09/30/79	FY79: \$52,000 TOTAL: \$215,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Peterson, L. E.	HQ-ST/Bohlin, J. D.	13-Physics

**NSG 5321** University of California - San Diego **1609**  
Coronal non-thermal processes

<i>Period</i>	<i>Obligations</i>	
01/15/79-01/14/80	FY79: \$21,977 TOTAL: \$21,977	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hudson, H. S.	GSFC/Donley, J. L.	31-Atmos Sci

**NSG 7294** University of California - San Diego **1616**  
Preparation of a set of sky maps in hard X-rays from OSO-1 data

<i>Period</i>	<i>Obligations</i>	
10/01/76-08/31/80	FY79: \$54,000 TOTAL: \$84,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rothschild, R. E.	HQ-SC/Kaluzienski, L. J.	11-Astronomy
	HQ-SC/Opp, A. G.	

**NSG 5322** University of California - San Diego **1610**  
Solar analysis of the solar-constant monitoring package

<i>Period</i>	<i>Obligations</i>	
01/15/79-01/14/80	FY79: \$30,435 TOTAL: \$30,435	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hudson, H. S.	GSFC/Donley, J. L.	31-Atmos Sci

**NSG 7377** University of California - San Diego **1617**  
Ultraviolet spectra of quasars related extra galactic sources, and X-ray sources

<i>Period</i>	<i>Obligations</i>	
09/15/77-09/14/79	FY79: \$24,200 TOTAL: \$54,200	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burbidge, M.	HQ-SC/Burbidge, E.	11-Astronomy
	HQ-SC/Rosendhal, J. D.	

**NSG 5331** University of California - San Diego **1611**  
Measurement of vertical crustal motion with superconducting gravimeters

<i>Period</i>	<i>Obligations</i>	
02/01/79-01/31/80	FY79: \$46,000 TOTAL: \$46,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goodkind, J. M.	GSFC/Kahn, W. D.	19-Phys Sci, NEC
Warburton, R. J.		

**NSG 7406** University of California - San Diego **1618**  
Hydrodynamic models of flares

<i>Period</i>	<i>Obligations</i>	
03/01/78-02/28/80	FY79: \$69,985 TOTAL: \$116,985	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Canfield, R. C.	HQ-ST/Bohlin, J. D.	13-Physics



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**NSG 7474** University of California - San Diego 1619  
Thermal history of enstatite chondrite meteorites

<i>Period</i>	<i>Obligations</i>	
07/01/78-06/30/79	FY79: TOTAL: \$17,000	
<i>Prin. Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rudee, M. L.	HQ-SL/French, B. M.	32-Geological Sci
Herndon, J. M.	HQ-SL/Quaide, W. L.	

**NAS 2-10350** University of California - San Francisco 1626  
Bone resorption and calcium absorption in rats during space-flight

<i>Period</i>	<i>Obligations</i>	
09/04/79-08/31/80	FY79: \$10,000 TOTAL: \$10,000	
<i>Prin. Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cann, C. E.	ARC/Souza, K. A.	59-Life Sci, NEC

**NSG 7541** University of California - San Diego 1620  
Theoretical studies in gamma ray line astronomy

<i>Period</i>	<i>Obligations</i>	
02/01/79-01/31/80	FY79: \$35,000 TOTAL: \$35,000	
<i>Prin. Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lingenfelter, R. E.	HQ-SC/Kaluzienski, L. J.	11-Astronomy
	HQ-SC/Opp, A. G.	

**NAS 9-15887** University of California - San Francisco 1627  
Computerized tomographic determination of spinal bone mineral content

<i>Period</i>	<i>Obligations</i>	
09/15/79-09/14/80	FY79: \$53,400 TOTAL: \$53,400	
<i>Prin. Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Genant, H. K.	JSC/Altchuler, S. I.	56-Medical Sciences
Cann, C. E.		

**NSG 7623** University of California - San Diego 1621  
The new plasmas and its applications to planetary magnetospheres and the heliosphere

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$60,000 TOTAL: \$60,000	
<i>Prin. Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Alfven, H.	HQ-ST/Schmerling, E. R.	19-Phys Sci, NEC
	HQ-ST/Cauffman, D. P.	

**NCA 2-665801** University of California - San Francisco 1628  
Amelioration of muscle protein degradation

<i>Period</i>	<i>Obligations</i>	
10/01/77-09/30/79	FY79: \$26,026 TOTAL: \$42,526	
<i>Prin. Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Searle, G. L.	ARC/Feller, D. D.	59-Life Sci, NEC

**NSG 9048** University of California - San Diego 1622  
Mechanism of compensation for vestibular lesions and integrative functions in control of equilibrium

<i>Period</i>	<i>Obligations</i>	
01/01/77-01/31/80	FY79: \$35,000 TOTAL: \$146,250	
<i>Prin. Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bullock, T. H.	JSC/Homick, J. L.	56-Medical Sciences

**NCA 2-665802** University of California - San Francisco 1629  
Light and electron microscopic investigations of the connections of brain stem emetic trigger zone regions

<i>Period</i>	<i>Obligations</i>	
01/01/78-12/31/79	FY79: \$9,845 TOTAL: \$29,810	
<i>Prin. Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Snyder, R. L.	ARC/Mehler, W. R.	51-Biological Sci

**NSG 9075** University of California - San Diego 1623  
In-flight evaluation of weightlessness and gravity on cardiopulmonary function in man

<i>Period</i>	<i>Obligations</i>	
12/01/78-11/30/79	FY79: \$50,000 TOTAL: \$50,000	
<i>Prin. Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
West, J. B.	JSC/Alexander, W. C.	56-Medical Sciences

**NCA 2-665803** University of California - San Francisco 1630  
Evaluation of endocrinological control of y-carboxyglutamic acid-containing protein in bone

<i>Period</i>	<i>Obligations</i>	
01/01/78-12/31/79	FY79: \$15,640 TOTAL: \$31,040	
<i>Prin. Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Asling, C. W.	ARC/Callahan, P. X.	
	ARC/Ellis, S.	56-Medical Sciences

**NAS 2-10162** University of California - San Francisco 1624  
Bones and joint development in neonatal rat

<i>Period</i>	<i>Obligations</i>	
02/12/79-08/15/80	FY79: \$48,770 TOTAL: \$48,770	
<i>Prin. Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arnoud, C. D.	ARC/Souza, K. A.	51-Biological Sci
	ARC/Holton, E. M.	

**NCA 2-665806** University of California - San Francisco 1631  
Regulation of adrenal glucocorticoid response to hemorrhage in the conscious dog

<i>Period</i>	<i>Obligations</i>	
06/01/78-05/31/80	FY79: \$17,336 TOTAL: \$34,672	
<i>Prin. Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dallman, M. F.	ARC/Keil, L. C.	59-Life Sci, NEC

**NAS 2-10164** University of California - San Francisco 1625  
Quantitative analysis of selected bone parameters

<i>Period</i>	<i>Obligations</i>	
02/12/79-08/15/80	FY79: \$44,876 TOTAL: \$44,876	
<i>Prin. Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arnoud, C. D.	ARC/Souza, K. A.	51-Biological Sci
	ARC/Holton, E. M.	

**NCA 2-665807** University of California - San Francisco 1632  
Control of blood volume

<i>Period</i>	<i>Obligations</i>	
06/01/78-05/31/80	FY79: \$8,470 TOTAL: \$18,216	
<i>Prin. Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ramsay, D. J.	ARC/Keil, L. C.	56-Medical Sciences

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**NCA 2-665810** University of California - San Francisco 1633  
Autogenic-feedback training for vestibular symptomatology:  
Massed vs. distributed training schedules

<i>Period</i>	<i>Obligations</i>	
09/01/78-08/31/80	FY79: \$17,800	TOTAL: \$19,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kamiya, J.	ARC/Cowings, P. S.	61-Biol Aspects
Toscano, W. B.		
Johnston, J.		

**NCA 2-665901** University of California - San Francisco 1634  
Studies on the muscle peptidases and myosin properties after  
freeze-injury, cross reinnervation, immobilization and thyroid  
status

<i>Period</i>	<i>Obligations</i>	
02/01/79-01/31/81	FY79: \$19,930	TOTAL: \$19,930
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Riley, D. A.	ARC/Ellis, S.	51-Biological Sci

**NCA 2-665902** University of California - San Francisco 1635  
Bone turnover and endocrine status in rats on a model system  
that simulates weightlessness

<i>Period</i>	<i>Obligations</i>	
04/15/79-04/14/81	FY79: \$20,000	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arnaud, C. D.	ARC/Holton, E. M.	51-Biological Sci

**NCA 2-665903** University of California - San Francisco 1636  
Localization of tripeptidyl aminopeptidase and carbonic anhydrase  
III in rat muscles by light and electron microscopy

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/81	FY79: \$19,710	TOTAL: \$19,710
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Riley, D. A.	ARC/Ellis, S.	51-Biological Sci

**NCA 2-665904** University of California - San Francisco 1637  
Development of computer-controlled studies and a record  
management system for psychophysiological research

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/81	FY79: \$8,800	TOTAL: \$8,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kamiya, J.	ARC/Cowings, P. S.	69-Psych, NEC
Capparell, J.		

**NCA 2-665905** University of California - San Francisco 1638  
Quantitative determination of diastolic left ventricular properties  
and dynamic geometry in the dog

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/81	FY79: \$2,500	TOTAL: \$2,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Glantz, S. A.	ARC/Sandler, H	56-Medical Sciences

**NSG 7151** University of California - San Francisco 1639  
Light energy conversion in halobacterium

<i>Period</i>	<i>Obligations</i>	
07/01/75-09/30/80	FY79: \$50,000	TOTAL: \$219,620
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stoekkenius, W.	HQ-SB/Young, R. S.	51-Biological Sci
Bogomolni, R. A.		
Lozier, R. H.		

**NAS 9-15509** University of California - Santa Barbara 1640  
Forest classification and inventory system using LANDSAT,  
digital terrain, and ground sample data

<i>Period</i>	<i>Obligations</i>	
04/01/78-04/30/80	FY79: \$56,791	TOTAL: \$108,927
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Strahler, A. H.	JSC/Amsbury, D. L.	32-Geological Sci

**NCA 2-680805** University of California - Santa Barbara 1641  
Studies of rotational gas cloud collapse, fragmentation and disk  
formation

<i>Period</i>	<i>Obligations</i>	
09/01/78-10/31/79	FY79:	TOTAL: \$1,430
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Glantz, S. A.	ARC/Cassen, P.	13-Physics
Boss, A.	ARC/Black, D. C.	

**NCA 2-680901** University of California - Santa Barbara 1642  
Conceptual design and preliminary demonstration of a prime  
agricultural land component of an integrated remote sensing  
system

<i>Period</i>	<i>Obligations</i>	
01/01/79-09/30/79	FY79: \$19,987	TOTAL: \$19,987
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Estes, J. E.	ARC/Norman, S. M.	39-Env Sci, NEC
Tinney, L.		

**NCA 2-680902** University of California - Santa Barbara 1643  
The California Integrated Remote Sensing System (CIRSS)

<i>Period</i>	<i>Obligations</i>	
03/01/79-12/31/79	FY79: \$19,947	TOTAL: \$19,947
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Estes, J. E.	ARC/Norman, S. M.	39-Env Sci, NEC

**NCA 2-680903** University of California - Santa Barbara 1644  
Joint training courses for educators

<i>Period</i>	<i>Obligations</i>	
07/01/79-04/30/80	FY79: \$10,088	TOTAL: \$10,088
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Estes, J. E.	ARC/Jones, H.	39-Env Sci, NEC

**NCC 2 11** University of California - Santa Barbara 1645  
Investigation of liquid drop dynamics in zero gravity

<i>Period</i>	<i>Obligations</i>	
05/01/79-12/31/79	FY79: \$14,951	TOTAL: \$14,951
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Vanyo, J. P.	ARC/Brooks, W. F.	13-Physics

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**NCC 5 5 University of California - Santa Barbara 1646**  
Soil moisture detection using SEASAT data and radar scatterometers

<i>Period</i>	<i>Obligations</i>	
04/01/79-03/31/80	FY79: \$30,003	TOTAL: \$30,003
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Estes, J. E.	GSFC/Chang, A. T.	32-Geological Sci
Simonett, D. S.		

**NGR 05-010-062 University of California - Santa Barbara 1647**  
Planetary geophysics

<i>Period</i>	<i>Obligations</i>	
03/01/73-01/31/80	FY79: \$30,117	TOTAL: \$144,828
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Peale, S. J.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. M.	

**NGR 05-010-081 University of California - Santa Barbara 1648**  
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
02/01/73-01/31/80	FY79: \$15,495	TOTAL: \$385,897
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tilton, G. R.	JSC/Harris, J. W.	32-Geological Sci

**NSG 2222 University of California - Santa Barbara 1649**  
An investigation of the kinetics for hydrogen chemisorption on iron metal surfaces

<i>Period</i>	<i>Obligations</i>	
04/01/77-03/31/80	FY79: \$39,932	TOTAL: \$114,610
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shanabarger, M. R.	ARC/Nelson, H. G.	47-Materials Engr

**NSG 2358 University of California - Santa Barbara 1650**  
Proposed universities regional applications program work plan FY 79

<i>Period</i>	<i>Obligations</i>	
12/01/78-12/31/79	FY79: \$34,796	TOTAL: \$34,796
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Estes, J. E.	ARC/Jones, H.	39-Env Sci, NEC

**NSG 2377 University of California - Santa Barbara 1651**  
Use of collateral information to improve LANDSAT classification accuracies

<i>Period</i>	<i>Obligations</i>	
04/01/79-04/30/80	FY79: \$47,600	TOTAL: \$47,600
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Estes, J. E.	ARC/Peterson, D.	39-Env Sci, NEC
Strahler, A. H.	ARC/Lumb, D. R.	

**NSG 3256 University of California - Santa Barbara 1652**  
Laser fluorescence studies of the chemical interactions of sodium species with sulfur bearing fuels

<i>Period</i>	<i>Obligations</i>	
03/01/79-03/21/80	FY79: \$34,995	TOTAL: \$34,995
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Steinberg, M.	LERC/Kohl, F. J.	12-Chemistry
Schofield, K.	LERC/Stearns, C. A.	

**NSG 5106 University of California - Santa Barbara 1653**  
Research of ocean color in the Santa Barbara Channel

<i>Period</i>	<i>Obligations</i>	
03/01/76-12/31/77	FY79:	TOTAL: \$17,490
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Estes, J. E.	GSFC/Barnes, W. L.	33-Oceanography

**NSG 5155 University of California - Santa Barbara 1654**  
Remote sensing applications to hydrologic modeling

<i>Period</i>	<i>Obligations</i>	
01/17/77-03/16/78	FY79:	TOTAL: \$49,547
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ozier, J. D.	GSFC/Salomonson, V. V.	
Simonett, D. S.	GSFC/Ormsby, J. O.	32-Geological Sci
Estes, J. E.		

**NSG 5170 University of California - Santa Barbara 1655**  
Field sampling and data analysis for radar soil moisture test

<i>Period</i>	<i>Obligations</i>	
03/04/77-04/03/79	FY79:	TOTAL: \$54,838
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Estes, J. E.	GSFC/Chang, A. T.	32-Geological Sci
Simonett, D. S.		

**NSG 5262 University of California - Santa Barbara 1656**  
Calibration of satellite data for input to distributed parameter hydrologic models

<i>Period</i>	<i>Obligations</i>	
04/01/78-05/31/80	FY79: \$65,000	TOTAL: \$154,974
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dozier, J.	GSFC/Rango, A.	39-Env Sci, NEC
	GSFC/Salomonson, V. V.	

**NSG 7586 University of California - Santa Barbara 1657**  
Magnetization of lunar samples

<i>Period</i>	<i>Obligations</i>	
05/01/79-01/31/80	FY79: \$20,000	TOTAL: \$20,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fuller, M. D.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. M.	

**NSG 9020 University of California - Santa Barbara 1658**  
Remanent magnetization of lunar samples

<i>Period</i>	<i>Obligations</i>	
10/31/74-01/31/81	FY79:	TOTAL: \$401,356
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fuller, M. D.	JSC/Harris, J. W.	19-Phys Sci, NEC

**NAS 8-33347 University of California - Santa Cruz 1659**  
Correlative study of optical and X-ray observations of Seyfert galaxy nuclei

<i>Period</i>	<i>Obligations</i>	
03/26/79-03/25/80	FY79: \$1,400	TOTAL: \$1,400
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Davies, R. L.	MSFC/Jones, J. B., Jr.	11-Astronomy

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**NGR 05-061-015** University of California - Santa Cruz **1660**  
Infrared instrumentation

Period	Obligations	
07/06/72-02/28/80	FY79:	TOTAL: \$193,385
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rank, D. M.	HQ-SC/Bogges, N. W.	11-Astronomy
	HQ-SC/Roman, N. G.	

**NAS 9-15152** University of San Francisco **1667**  
Automated analysis system for haze particle trace dosimeters

Period	Obligations	
02/01/77-12/31/81	FY79: \$30,000	TOTAL: \$248,607
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Benton, E. V.	JSC/Rundel, R.	56-Medical Sciences

**NSG 5361** University of California - Santa Cruz **1661**  
Ultraviolet spectroscopy of Tauri stars

Period	Obligations	
06/01/79-05/31/80	FY79: \$5,400	TOTAL: \$5,400
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Herbig, G. H.	GSFC/Bogges, A.	11-Astronomy

**NAS 9-15337** University of San Francisco **1668**  
Definition of Spacelab I experiment on high energy particle dosimetry

Period	Obligations	
04/01/77-12/31/81	FY79:	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Benton, E. V.	JSC/Thirolf, R. G.	13-Physics
	JSC/Huffstetler, W. J.	

**NSG 7503** University of California - Santa Cruz **1662**  
Astronomical applications of charged coupled device technology

Period	Obligations	
11/01/78-04/30/80	FY79: \$38,559	TOTAL: \$38,559
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miller, J. S.	HQ-SC/Roman, N. G.	11-Astronomy
	HQ-SC/Weiler, E. J.	

**NCA 2-670902** University of San Francisco **1669**  
The evaluation of structural and chemical alterations of bone and red blood cells in the restrained monkey model

Period	Obligations	
07/01/79-06/30/81	FY79: \$15,000	TOTAL: \$15,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Furst, A.	ARC/Young, D. R.	51-Biological Sci
	ARC/Leon, H. A.	

**NAS 2-9504** University of San Francisco **1663**  
Radiation dosimetry experiment on U.S.S.R./U.S. Kosmos 77 flight

Period	Obligations	
02/16/77-08/15/79	FY79:	TOTAL: \$138,300
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Benton, E. V.	ARC/Souza, K. A.	13-Physics

**NSG 2063** University of San Francisco **1670**  
Effects of heavy particle radiation of the mammalian brain and related tissues

Period	Obligations	
01/01/75-10/31/79	FY79: \$93,000	TOTAL: \$460,986
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Benton, E. V.	ARC/Miquel, J.	51-Biological Sci

**NAS 2-9845** University of San Francisco **1664**  
General development of haze particle dosimetry

Period	Obligations	
02/01/78-01/15/80	FY79: \$45,000	TOTAL: \$90,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Benton, E. V.	ARC/Philpott, D. E.	59-Life Sci, NEC

**NSG 2304** University of San Francisco **1671**  
Histopathological changes in rodents caused by haze particle irradiation

Period	Obligations	
03/01/78-12/31/79	FY79: \$13,000	TOTAL: \$24,124
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Benton, E. V.	ARC/Kraft, L. M.	51-Biological Sci
	ARC/Kennard, J.	

**NAS 2-10161** University of San Francisco **1665**  
US/USSR radiation protection studies

Period	Obligations	
02/01/79-07/31/80	FY79: \$76,789	TOTAL: \$76,789
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Benton, E. V.	ARC/Souza, K. A.	59-Life Sci, NEC

**NAS 2-9967** University of Santa Clara **1672**  
Study of evaporative heat loss comparisons between direct calorimetry and local hygrometer techniques

Period	Obligations	
06/06/78-12/01/79	FY79:	TOTAL: \$14,300
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pefley, R. K.	ARC/Greenleaf, J. E.	59-Life Sci, NEC

**NAS 8-26758** University of San Francisco **1666**  
Study for heavy particle, passive, personnel dosimetry using etched particles

Period	Obligations	
01/21/71-12/31/80	FY79: \$20,000	TOTAL: \$127,704
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Benton, E. V.	MSFC/Parnell, T. A.	13-Physics
	MSFC/Watts, J. W., Jr.	

**NCA 2-685805** University of Santa Clara **1673**  
A comprehensive analysis of human performance requirements for future space flight

Period	Obligations	
04/01/78-09/30/79	FY79: \$20,363	TOTAL: \$31,343
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Akins, F.	ARC/Connors, M. M.	62-Social Aspects

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NCA 2-685806** University of Santa Clara 1674  
Peptide and polynucleotide catalysis of amino acid condensation on hypohydrous clay surfaces

<i>Period</i>	<i>Obligations</i>	
06/01/78-12/31/79	FY79: \$10,851	TOTAL: \$15,851
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
White, D. H.	ARC/Chang, S.	12-Chemistry

**NCA 2-685907** University of Santa Clara 1681  
A study of the transportability characteristics of the MINI-VICAR image analysis system

<i>Period</i>	<i>Obligations</i>	
06/11/79-12/31/79	FY79: \$8,384	TOTAL: \$8,385
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Danielson, R. L.	ARC/Hofman, L. B.	21-Mathematics

**NCA 2-685808** University of Santa Clara 1675  
Bacterial denitrification and steady state growth: A putative model for the study of mixed cultures

<i>Period</i>	<i>Obligations</i>	
05/01/78-12/31/79	FY79: \$24,264	TOTAL: \$40,748
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tomlinson, G. A.	ARC/Hochstein, L. I.	51-Biological Sci

**NCA 2-685908** University of Santa Clara 1682  
Effects of turbulence on image quality in airborne telescopes

<i>Period</i>	<i>Obligations</i>	
07/27/79-12/31/79	FY79: \$3,058	TOTAL: \$3,058
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fraser, G.	ARC/Erickson, E. F.	11-Astronomy

**NCA 2-685812** University of Santa Clara 1676  
Effects of immunologically-induced growth hormone deficiency on body composition, metabolism, and brain development

<i>Period</i>	<i>Obligations</i>	
07/15/78-09/30/79	FY79: \$18,494	TOTAL: \$21,149
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fast, T.	ARC/Grindeland, R.	51-Biological Sci
	ARC/Mehler, W. R.	

**NCA 2-685909** University of Santa Clara 1683  
Deduction of impulse signal from the response function in the ionosphere

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/01/80	FY79: \$5,655	TOTAL: \$5,655
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Barker, W. A.	ARC/Dyal, P.	11-Astronomy

**NCA 2-685813** University of Santa Clara 1677  
The effects of simulated weightlessness (or hypokinesia) on the humoral immune response in rats

<i>Period</i>	<i>Obligations</i>	
07/01/78-09/30/79	FY79:	TOTAL: \$5,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Caren, L. D.	ARC/Mandel, A. D.	51-Biological Sci

**NCC 2 16** University of Santa Clara 1684  
The effect of boundary conditions on finite difference solutions of fluid flow problems

<i>Period</i>	<i>Obligations</i>	
07/01/79-12/31/79	FY79: \$18,000	TOTAL: \$18,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Vinokur, M.	ARC/Lomax, H.	41-Aero Engr

**NCA 2-685903** University of Santa Clara 1678  
Adsorption of biomonomers on selected transition metal clays

<i>Period</i>	<i>Obligations</i>	
12/01/78-11/30/79	FY79: \$14,473	TOTAL: \$14,473
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sweeney, M. A.	ARC/Lawless, J. G.	12-Chemistry

**NGT 05-017-998** University of Santa Clara 1685  
Summer faculty fellowship program in engineering systems design

<i>Period</i>	<i>Obligations</i>	
01/01/79-03/31/80	FY79: \$136,096	TOTAL: \$136,096
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Healy, T. J.	HQ-LU/Carter, C. H.	49-Engr. NEC

**NCA 2-685905** University of Santa Clara 1679  
Real-time hardware design for adaptive digital video bandwidth compression

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/79	FY79: \$6,963	TOTAL: \$6,963
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Danielson, R. L.	ARC/Knauer, S.C.	22-Computer Science

**NSG 2275** University of Santa Clara 1686  
Studies in planetary impact cratering and geomorphology

<i>Period</i>	<i>Obligations</i>	
12/01/77-09/30/79	FY79:	TOTAL: \$24,275
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Aggarwal, H. R.	ARC/Oberbeck, V. R.	32-Geological Sci

**NCA 2-685906** University of Santa Clara 1680  
Applications of the two-dimensional model of the Venus ionosphere

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/80	FY79: \$17,381	TOTAL: \$17,381
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McCormick, P. T.	ARC/Whitten, R. C.	13-Physics

**NSG 2286** University of Santa Clara 1687  
Wind tunnel simulations of Martian sand storms

<i>Period</i>	<i>Obligations</i>	
12/01/77-01/31/80	FY79: \$50,400	TOTAL: \$95,128
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Greeley, R.	ARC/Margozzi, A. P.	99-Multi-Discip
Leach, R.		



**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NSG 3248**      **University of Southern California**      **1702**  
 Workshop on fundamentals of turbojet combustion  
 Period Obligations  
 02/01/79-05/01/79      FY79: \$19,988      TOTAL: \$19,988  
 Prin Invest      NASA Tech Officer      CASE Category  
 Gerstein, M.      LERC/Diehl, L. A.      46-Mech Engr

**NSG 5108**      **University of Southern California**      **1703**  
 Rocket experiments to measure the solar intensity and profile  
 Period Obligations  
 04/01/76-07/08/80      FY79: \$116,851      TOTAL: \$328,228  
 Prin Invest      NASA Tech Officer      CASE Category  
 Judge, D. L.      GSFC/Bissell, E. E.      13-Physics  
 Carlson, R. W.      HQ-SL/Murphy, R. E.

**NSG 5356**      **University of Southern California**      **1704**  
 Study of the nature of shells in stars  
 Period Obligations  
 06/01/79-05/31/80      FY79: \$4,000      TOTAL: \$4,000  
 Prin Invest      NASA Tech Officer      CASE Category  
 Peters, G. J.      GSFC/Kupperian, J. E., Jr.      11-Astronomy

**NSG 7367**      **University of Southern California**      **1705**  
 Complementary pairing of amino acids, Schiff bases and a reverse translation mechanism for the origin of the genetic code under pre-biotic conditions  
 Period Obligations  
 10/01/77-09/30/79      FY79: \$63,550      TOTAL: \$127,103  
 Prin Invest      NASA Tech Officer      CASE Category  
 Strehler, B. L.      HQ-SB/Young, R. S.      51-Biological Sci

**NSG 7535**      **University of Southern California**      **1706**  
 Development of room temperature mercuric X-ray detectors for in-site analysis of extraterrestrial objects  
 Period Obligations  
 01/26/79-02/27/80      FY79: \$56,453      TOTAL: \$56,453  
 Prin Invest      NASA Tech Officer      CASE Category  
 Huth, G. C.      HQ-SL/Quaide, W. L.      32-Geological Sci  
 HQ-SL/French, B. M.

**NSG 7595**      **University of Southern California**      **1707**  
 A study of atmospheric development of exospheric planetary bodies  
 Period Obligations  
 05/01/79-04/30/80      FY79: \$42,871      TOTAL: \$42,871  
 Prin Invest      NASA Tech Officer      CASE Category  
 Shemansky, D. E.      HQ-SL/Murphy, R. E.      31-Atmos Sci  
 HQ-SL/Brunk, W. E.

**COLORADO**

**NSG 3122**      **Colorado School of Mines**      **1708**  
 Determination of the mechanism of influence of organic compounds on the thermal instability of fuels  
 Period Obligations  
 11/01/76-10/31/80      FY79: \$32,926      TOTAL: \$107,560  
 Prin Invest      NASA Tech Officer      CASE Category  
 Daniel, S. R.      LERC/Antoine, A. C      12-Chemistry  
 Gary, J. H.

**NAS 1-15580**      **Colorado State University**      **1709**  
 Satellite cloud digital data tapes (GOES)  
 Period Obligations  
 03/13/79-03/12/80      FY79: \$64,000      TOTAL: \$64,000  
 Prin Invest      NASA Tech Officer      CASE Category  
 VonderHaar, T. H.      LARC/Harrison, E. F.      31-Atmos Sci  
 LARC/Cooper, J. E.

**NAS 1-15925**      **Colorado State University**      **1710**  
 Study of building effects on exhaust plume  
 Period Obligations  
 09/05/79-01/04/80      FY79: \$15,000      TOTAL: \$15,000  
 Prin Invest      NASA Tech Officer      CASE Category  
 Meroney, R. N.      LARC/Lassiter, W. S.      31-Atmos Sci  
 LARC/Lovell, J. B.

**NAS 5-22959**      **Colorado State University**      **1711**  
 Earth radiation budget sensor support  
 Period Obligations  
 01/23/76-10/01/80      FY79: \$98,000      TOTAL: \$196,000  
 Prin Invest      NASA Tech Officer      CASE Category  
 VonderHaar, T. H.      GSFC/Nelsen, E. D.      39-Env Sci, NEC

**NAS 5-25081**      **Colorado State University**      **1712**  
 Develop methods for monitoring drought impact from LANDSAT  
 Period Obligations  
 05/08/78-11/07/79      FY79: \$59,986      TOTAL: \$134,986  
 Prin Invest      NASA Tech Officer      CASE Category  
 Maxwell, E. L.      GSFC/Tucker, C. J.      39-Env Sci, NEC

**NAS 5-25696**      **Colorado State University**      **1713**  
 Processing of LANDSAT data for change detection research  
 Period Obligations  
 06/06/79-06/06/80      FY79: \$5,100      TOTAL: \$5,100  
 Prin Invest      NASA Tech Officer      CASE Category  
 Maxwell, E. L.      GSFC/Toll, D.      39-Env Sci, NEC

**NAS 5-25760**      **Colorado State University**      **1714**  
 Software and hardware design fabrication testing and documentation of micro communication system  
 Period Obligations  
 09/18/79-03/17/80      FY79: \$15,000      TOTAL: \$15,000  
 Prin Invest      NASA Tech Officer      CASE Category  
 McIver, J. L.      GSFC/Schnetzler, C. C.      31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
COLORADO (Continued)**

**NAS 8-31673** Colorado State University 1715  
Zero-gravity aerosol behavior  
*Period* Obligations  
09/08/75-01/08/78 FY79: TOTAL: \$49,878  
*Prin. Invest.* NASA Tech Officer CASE Category  
Edwards, H. W. MSFC/Fichtl, G. H. 46-Mech Engr  
MSFC/Morgan, S. H.

**NCA 2-165901** Colorado State University 1716  
Applications of Gaussian collocation to the solution of the compressible Navier/Stokes equations  
*Period* Obligations  
10/01/78-09/30/80 FY79: \$12,000 TOTAL: \$22,000  
*Prin Invest* NASA Tech Officer CASE Category  
Prenter, P. M. ARC/Murphy, J. D. 21-Mathematics

**NGR 06-002-095** Colorado State University 1717  
Combustion instability with partial length acoustic lines  
*Period* Obligations  
12/02/69-12/14/79 FY79: \$14,379 TOTAL: \$349,139  
*Prin Invest.* NASA Tech Officer CASE Category  
Mitchell, C. E. LERC/Priem, R. J. 42-Astro Engr

**NGR 06-002-098** Colorado State University 1718  
Atmospheric transport processes as evaluated from Nimbus III satellite data  
*Period* Obligations  
04/13/70-11/30/78 FY79: TOTAL: \$349,856  
*Prin. Invest* NASA Tech Officer CASE Category  
Reiter, W. R. GSFC/Theon, J. S. 31-Atmos Sci

**NGR 06-002-112** Colorado State University 1719  
An experimental investigation of hollow cathode discharge start-up and operation  
*Period* Obligations  
12/21/70-11/30/79 FY79: \$85,339 TOTAL: \$547,744  
*Prin Invest* NASA Tech Officer CASE Category  
Wilbur, P. J. LERC/Kerslake, W. R. 46-Mech Engr

**NGR 06-002-159** Colorado State University 1720  
Bulk properties of atomic triplet hydrogen & high pressure equation of state for solid hydrogen  
*Period* Obligations  
12/04/72-04/30/80 FY79: \$43,327 TOTAL: \$192,731  
*Prin Invest.* NASA Tech Officer CASE Category  
Etters, R. D. HQ-RT/Schwenk, F. C. 13-Physics

**NGR 06-002-191** Colorado State University 1721  
Impact studies on computer needs for a whole earth dynamical model  
*Period* Obligations  
05/01/74-05/31/79 FY79: TOTAL: \$119,440  
*Prin Invest* NASA Tech Officer CASE Category  
Thompson, E. G. GSFC/Carpenter, L. H.  
Young, C. 32-Geological Sci

**NSG 1594** Colorado State University 1722  
Approaching the ultimate velocimeter: Laser techniques for measuring molecular flows  
*Period* Obligations  
02/01/79-01/31/80 FY79: \$21,936 TOTAL: \$21,936  
*Prin Invest.* NASA Tech Officer CASE Category  
She, C. Y. LARC/Exton, R. J. 13-Physics  
Fairbanks, W. M., Jr.

**NSG 2232** Colorado State University 1723  
Effects of the hypokinetic state on bioenergetic balance using the rat as a model mammalian system  
*Period* Obligations  
05/01/77-04/30/80 FY79: \$25,000 TOTAL: \$75,000  
*Prin Invest* NASA Tech Officer CASE Category  
Jordan, J. P. ARC/Holton, E. M. 51-Biological Sci

**NSG 2287** Colorado State University 1724  
Velocity measurements by laser resonance fluorescence from a single atom  
*Period* Obligations  
12/01/77-01/31/80 FY79: \$22,000 TOTAL: \$59,000  
*Prin Invest* NASA Tech Officer CASE Category  
She, C. Y. ARC/McKenzie, R. L. 13-Physics  
Fairbanks, W. M., Jr.

**NSG 3011** Colorado State University 1725  
Experimental investigations of argon and xenon ion sources  
*Period* Obligations  
07/01/74-10/30/79 FY79: \$64,966 TOTAL: \$265,926  
*Prin Invest* NASA Tech Officer CASE Category  
Kaufman, H. R. LERC/Rawlin, V. K. 42-Astro Engr  
Wilbur, P. J. LERC/Byers, D. C.  
Robinson, R. S.

**NSG 3060** Colorado State University 1726  
Experimental measurement of thermal energy charge-transfer cross-sections of interest in rare-gas metal-vapor lasers  
*Period* Obligations  
03/01/75-09/30/78 FY79: TOTAL: \$87,805  
*Prin Invest* NASA Tech Officer CASE Category  
Collins, G. J. LERC/Chubb, D. L. 13-Physics  
LERC/Michels, C. J.

**NSG 3086** Colorado State University 1727  
Industrial ion source technology  
*Period* Obligations  
11/15/75-12/14/79 FY79: \$34,982 TOTAL: \$180,247  
*Prin. Invest* NASA Tech Officer CASE Category  
Kaufman, H. R. LERC/Mirtich, M. J. 13-Physics  
Wilbur, P. J. LERC/Banks, B. A.



**NASA'S UNIVERSITY PROGRAM  
COLORADO (Continued)**

**NSG 3127** Colorado State University 1728  
Effects of turbulence on laminar separation on aerodynamic  
surfaces such as airfoils blading  
*Period* *Obligations*  
10/01/76-01/15/80 FY79: \$68,999 TOTAL: \$188,231  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Sadeh, W. Z. LERC/Sockol, P. M. 41-Aero Engr

**NSG 3145** Colorado State University 1729  
Laboratory simulation of irradiation induced dielectric breakdown  
in spacecraft charging  
*Period* *Obligations*  
04/01/77-09/30/79 FY79: TOTAL: \$95,490  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Yadlowsky, E. J. LERC/Aron, P. R. 13-Physics  
Churchill, R. J.

**NSG 3167** Colorado State University 1730  
Amorphous silicon by neutralized ion beam sputtering  
*Period* *Obligations*  
11/01/77-05/01/79 FY79: TOTAL: \$32,380  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Sites, J. R. LERC/Sater, B. L. 13-Physics  
Greenberg, A. S. LERC/Banks, B. A.

**NSG 3196** Colorado State University 1731  
Space environmental effects on high voltage solar arrays  
*Period* *Obligations*  
05/15/78-05/14/80 FY79: \$39,978 TOTAL: \$79,309  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Kaufman, H. R. LERC/Grier, N. T. 13-Physics  
Yadlowsky, E. J. LERC/Stevens, N. J.

**NSG 5073** Colorado State University 1732  
Project NOWCAST (short term forecasting of weather)  
*Period* *Obligations*  
12/01/75-12/31/78 FY79: TOTAL: \$157,648  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Marlatt, W. E. GSFC/Neil, E. A. 31-Atmos Sci

**NSG 5258** Colorado State University 1733  
Tropical cyclone intensities from satellite microwave data  
*Period* *Obligations*  
04/01/78-03/31/80 FY79: \$42,083 TOTAL: \$56,897  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
VonderHaar, T. H. GSFC/Rodgers, E. B. 31-Atmos Sci  
Kidder, S. Q.

**NSG 5259** Colorado State University 1734  
Numerical simulation of Vertical Temperature Profile Radiometer  
(VTPR) temperature retrievals in a severe storm environment  
*Period* *Obligations*  
04/01/78-03/31/79 FY79: TOTAL: \$31,914  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
VonderHaar, T. H. GSFC/Arking, A. 31-Atmos Sci  
Hillger, D. W.

**NSG 5340** Colorado State University 1735  
Atmospheric variability and air-sea interaction  
*Period* *Obligations*  
04/01/79-03/31/80 FY79: \$20,000 TOTAL: \$20,000  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Reiter, E. R. GSFC/Arking, A. 31-Atmos Sci  
GSFC/Weinman, J. A.

**NSG 5341** Colorado State University 1736  
Research of satellite inferences of convective storm intensity  
*Period* *Obligations*  
05/01/79-04/30/80 FY79: \$65,921 TOTAL: \$65,921  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Cotton, W. R. GSFC/Heymfield, G. M. 31-Atmos Sci  
Tripoli, G. J.  
Reynolds, D. W.

**NSG 5352** Colorado State University 1737  
Study of the global positioning system for maritime concepts  
*Period* *Obligations*  
06/01/79-05/31/80 FY79: \$54,910 TOTAL: \$54,910  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Parkenson, B. W. GSFC/Taylor, R. E. 45-Elec Engr  
Winn, C. B.

**NSG 5357** Colorado State University 1738  
Initial studies of middle and upper tropospheric stratiform  
clouds  
*Period* *Obligations*  
06/01/79-05/31/80 FY79: \$63,649 TOTAL: \$63,649  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Cox, S. K. GSFC/Curran, R. J. 31-Atmos Sci

**NSG 9045** Colorado State University 1739  
Effects of heavy ions on optic tissues  
*Period* *Obligations*  
10/01/76-12/31/79 FY79: \$49,500 TOTAL: \$174,500  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Lett, J. T. JSC/Hoffman, R. A. 59-Life Sci, NEC

**NAS 9-15276** Fort Lewis College 1740  
Development of a winter wheat adjustable calendar model  
*Period* *Obligations*  
02/15/77-12/31/79 FY79: TOTAL: \$51,653  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Baker, J. R. JSC/Browne, I. D. 13-Physics

**NAS 2-9477** University of Colorado - Boulder 1741  
Pioneer/Venus data analysis of the orbiter ultraviolet spectrometer  
experiment  
*Period* *Obligations*  
08/30/77-11/30/79 FY79: \$290,000 TOTAL: \$443,154  
*Prin Invest.* *NASA Tech Officer* *CASE Category*  
Stewart, I. A. ARC/Hall, C. F. 19-Phys Sci, NEC  
Barth, C. A. ARC/Porter, D. L.  
Hord, C. W.

**NASA'S UNIVERSITY PROGRAM  
COLORADO (Continued)**

**NAS 5-11405** University of Colorado - Boulder 1742  
University of Colorado ultraviolet nitric oxide experiment for  
atmosphere Explorer

<i>Period</i>	<i>Obligations</i>	
03/17/71-09/30/80	FY79: \$14,857	TOTAL: \$1,065,642
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Barth, C. A.	GSFC/Rice, C. F.	31-Atmos Sci

**NAS 5-22409** University of Colorado - Boulder 1743  
Reduction and analysis of data from the OSO-1 high resolution  
ultraviolet spectrometer experiment

<i>Period</i>	<i>Obligations</i>	
06/26/75-06/30/80	FY79: \$348,091	TOTAL: \$1,865,338
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Barth, C. A.	GSFC/Gemmell, J. D.	31-Atmos Sci

**NAS 5-22833** University of Colorado - Boulder 1744  
Theoretical calculations of spectral features in the expanding  
envelopes of early-type stars

<i>Period</i>	<i>Obligations</i>	
11/03/75-07/01/80	FY79: \$16,600	TOTAL: \$83,380
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Conti, P. S.	GSFC/Bogges, A.	11-Astronomy

**NAS 5-23274** University of Colorado - Boulder 1745  
Development of models for physical properties of stellar  
chromospheres

<i>Period</i>	<i>Obligations</i>	
08/01/73-09/30/80	FY79: \$40,225	TOTAL: \$129,753
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Linsky, J. L.	GSFC/Bogges, A.	11-Astronomy

**NAS 5-23808** University of Colorado - Boulder 1746  
AE-E backscatter ultraviolet experiment short term data reduction  
and analysis

<i>Period</i>	<i>Obligations</i>	
11/22/76-09/30/79	FY79:	TOTAL: \$92,656
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stewart, A. I.	GSFC/Rice, C. F.	31-Atmos Sci
	GSFC/Kupperian, J. E., Jr.	

**NAS 5-25887** University of Colorado - Boulder 1747  
Nutation and polar motion of the earth LAGEOS number three

<i>Period</i>	<i>Obligations</i>	
09/25/79-12/24/80	FY79: \$26,745	TOTAL: \$26,745
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, M. L.	GSFC/Stephanides, C. C.	31-Atmos Sci

**NAS 8-31958** University of Colorado - Boulder 1748  
Study of geophysical fluid dynamics with electro-hydrodynamics  
polarization forces

<i>Period</i>	<i>Obligations</i>	
03/26/76-08/31/81	FY79: \$65,000	TOTAL: \$230,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Toomre, D. J.	MSFC/Jones, C. T.	39-Env Sci, NEC
Hart, J. F.	MSFC/Smith, J. M.	

**NAS 8-33084** University of Colorado - Boulder 1749  
A study of stellar coronae using the HEAO-A spacecraft

<i>Period</i>	<i>Obligations</i>	
06/16/78-06/15/79	FY79:	TOTAL: \$9,900
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Linsky, J. L.	MSFC/Dailey, C. C.	11-Astronomy
Ayres, T. R.		

**NAS 8-33333** University of Colorado - Boulder 1750  
A coordinated X-ray, optical and microwave study of the flare  
stars Proxima Centauri, YZ Canis Minoris and UV Ceti

<i>Period</i>	<i>Obligations</i>	
02/15/79-08/14/80	FY79: \$5,440	TOTAL: \$5,440
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Haisch, B. M.	MSFC/Jones, J. B., Jr.	11-Astronomy
Linsky, J. L.		
Slec, O. B.		

**NAS 8-33338** University of Colorado - Boulder 1751  
Soft X-ray spectroscopy of Hercules X-1

<i>Period</i>	<i>Obligations</i>	
02/16/79-02/15/80	FY79: \$9,000	TOTAL: \$9,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McCray, R.	MSFC/Jones, J. B., Jr.	11-Astronomy
Boynton, P.		
Shull, J. M.		

**NAS 8-33342** University of Colorado - Boulder 1752  
A coordinated X-ray and ultraviolet study of stellar coronae,  
transition regions and chromospheres

<i>Period</i>	<i>Obligations</i>	
02/16/79-02/15/80	FY79: \$6,560	TOTAL: \$6,560
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ayres, T. R.	MSFC/Jones, J. B., Jr.	11-Astronomy
Linsky, J. L.		

**NASW 3103** University of Colorado - Boulder 1753  
Earth dynamics summer workshop on the application of space  
techniques to geodynamics

<i>Period</i>	<i>Obligations</i>	
09/27/77-12/01/77	FY79:	TOTAL: \$18,254
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wyss, M.	HQ-ER/Murphy, J. P.	32-Geological Sci
Smith, M. L.		

**NGL 06-003-052** University of Colorado - Boulder 1754  
Theoretical and experimental research program in physics of  
planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
06/28/66-06/30/80	FY79:	TOTAL: \$4,248,467
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Barth, C. A.	HQ-SL/Brunk, W. E.	31-Atmos Sci
	HQ-SL/Quaide, W. L.	

**NASA'S UNIVERSITY PROGRAM  
COLORADO (Continued)**

**NGL 06-003-057** University of Colorado - Boulder 1755  
Basic research in solar physics

<i>Period</i>	<i>Obligations</i>	
09/05/67-09/30/79	FY79: \$70,000	TOTAL: \$1,063,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Linsky, J. L.	HQ-ST/Bohlin, J. D.	13-Physics

**NGL 06-003-200** University of Colorado - Boulder 1756  
Application of space technology to practical problems such as those currently facing the mountain sections of the State of Colorado

<i>Period</i>	<i>Obligations</i>	
07/11/72-04/30/82	FY79: \$100,000	TOTAL: \$825,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ives, J. D.	HQ-ET/Vitale, J. A.	39-Env Sci, NEC

**NGR 06-003-127** University of Colorado - Boulder 1757  
Data reduction-coordinated experiments

<i>Period</i>	<i>Obligations</i>	
08/18/69-09/30/80	FY79:	TOTAL: \$996,906
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Barth, C. A.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-ET/Boyce, J. M.	

**NGR 06-003-176** University of Colorado - Boulder 1758  
Rocket research program in stellar ultraviolet astronomy

<i>Period</i>	<i>Obligations</i>	
12/29/71-06/30/79	FY79:	TOTAL: \$353,246
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lillie, C. F.	GSFC/Bissell, E. E.	11-Astronomy
	HQ-SC/Rosendhal, J. D.	

**NGR 06-003-179** University of Colorado - Boulder 1759  
OAO-II data analysis program

<i>Period</i>	<i>Obligations</i>	
06/07/71-09/30/78	FY79:	TOTAL: \$55,600
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lillie, C. F.	HQ-SC/Roman, N. G.	11-Astronomy

**NSG 1489** University of Colorado - Boulder 1760  
Research in models covering microprocessor arrays for finite element structural analysis

<i>Period</i>	<i>Obligations</i>	
01/15/78-01/15/80	FY79: \$70,000	TOTAL: \$124,485
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jordan, H. . .	LARC/Loendorf, D. D.	49-Engr, NEC

**NSG 1638** University of Colorado - Boulder 1761  
Flight software requirements and design support system

<i>Period</i>	<i>Obligations</i>	
07/18/79-01/17/80	FY79: \$20,987	TOTAL: \$20,987
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Riddle, W. E.	LARC/Senn, E. H.	41-Aero Engr
Osterweil, L. J.	LARC/Voigt, S. J.	

**NSG 2248** University of Colorado - Boulder 1762  
Heterogeneous chemistry: Association reactions, cluster formation, and surface phenomena

<i>Period</i>	<i>Obligations</i>	
07/01/77-06/30/80	FY79: \$52,000	TOTAL: \$130,595
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Castleman, A. W.	ARC/Whitten, R. C.	12-Chemistry

**NSG 3181** University of Colorado - Boulder 1763  
Effect of contraction on turbulence

<i>Period</i>	<i>Obligations</i>	
01/16/78-03/20/80	FY79: \$40,000	TOTAL: \$80,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Uberoi, M. S.	LERC/Groeneweg, J. F.	41-Aero Engr

**NSG 5103** University of Colorado - Boulder 1764  
Rocket research in the ultraviolet airglow and aurora of planetary atmosphere:

<i>Period</i>	<i>Obligations</i>	
02/01/76-03/31/80	FY79: \$199,825	TOTAL: \$749,811
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Barth, C. A.	GSFC/Bissell, E. E.	19-Phys Sci, NEC
	HQ-SL/Murphy, R. E.	

**NSG 5153** University of Colorado - Boulder 1765  
Research of observed and theoretical variations of atmospheric ozone

<i>Period</i>	<i>Obligations</i>	
01/17/77-01/31/80	FY79: \$70,280	TOTAL: \$206,165
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
London, J.	GSFC/Reber, C. A.	31-Atmos Sci

**NSG 5178** University of Colorado - Boulder 1766  
Rocket research in solar ultraviolet spectroscopy

<i>Period</i>	<i>Obligations</i>	
06/01/77-12/10/79	FY79: \$148,113	TOTAL: \$388,590
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rottman, G. T.	GSFC/Bissell, E. E.	13-Physics
Chipman, E. G.	HQ-ST/Bohlin, J. D.	
Orrall, F. Q.		

**NSG 5211** University of Colorado - Boulder 1767  
A study of the flare star Proxima Centauri

<i>Period</i>	<i>Obligations</i>	
10/01/77-09/30/78	FY79:	TOTAL: \$1,100
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Linsky, J. L.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

**NSG 5246** University of Colorado - Boulder 1768  
Analysis of ultraviolet spectrometric data from Copernicus

<i>Period</i>	<i>Obligations</i>	
03/01/78-02/28/79	FY79:	TOTAL: \$13,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Snow, T. P., Jr.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
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**NSG 5300** University of Colorado - Boulder 1769  
Research of stellar wind velocity in alpha cam using ultraviolet data from the International Ultraviolet Explorer (IUE)

Period	Obligations	
09/15/78-10/31/79	FY79: \$4,000	TOTAL: \$9,997
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Snow, T. P., Jr.	GSFC/Bogges, A.	11-Astronomy

**NSG 5303** University of Colorado - Boulder 1770  
Ultraviolet measurements with high spectral resolution

Period	Obligations	
09/15/78-09/14/80	FY79: \$259,809	TOTAL: \$260,436
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Snow, T. P., Jr.	GSFC/Bissell, E. E.	11-Astronomy
McClintock, W. E.	HQ-SC/R sendhal, J. D.	

**NSG 5318** University of Colorado - Boulder 1771  
Supergranulation velocity fields and their relation to magnetically active regions

Period	Obligations	
01/15/79-01/14/80	FY79: \$4,561	TOTAL: \$4,561
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Gebbie, K. B.	GSFC/Donley, J. L.	31-Atmos Sci
Toomre, D. J.		
Simon, G. W.		

**NSG 5355** University of Colorado - Boulder 1772  
Analysis of interstellar and circumstellar absorption line profiles

Period	Obligations	
06/01/79-05/31/80	FY79: \$14,605	TOTAL: \$14,605
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Snow, T. P., Jr.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

**NSG 5365** University of Colorado - Boulder 1773  
Studies for atomic intersystem lines in interstellar gas and stellar winds

Period	Obligations	
06/01/79-05/31/80	FY79: \$3,580	TOTAL: \$3,580
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Shull, J. M.	GSFC/Bogges, A.	11-Astronomy

**NSG 5372** University of Colorado - Boulder 1774  
Theoretical studies of odd nitrogen in the mesosphere and lower thermosphere

Period	Obligations	
06/01/79-02/29/80	FY79: \$28,000	TOTAL: \$28,000
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Rusch, D. W.	GSFC/Reed, E. I.	31-Atmos Sci

**NSG 7128** University of Colorado - Boulder 1775  
Studies of X-ray ultraviolet and optical emission from galactic X-ray sources

Period	Obligations	
03/01/75-05/31/80	FY79: \$76,000	TOTAL: \$139,000
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
McCray, R.	HQ-SC/Kaluzienski, L. J.	11-Astronomy
	HQ-SC/Opp, A. G.	

**NSG 7130** University of Colorado - Boulder 1776  
OSO-I guest investigator program

Period	Obligations	
04/01/75-09/30/79	FY79: \$10,000	TOTAL: \$166,286
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Hansen, E. R.	HQ-ST/Bohlin, J. D.	13-Physics

**NSG 7165** University of Colorado - Boulder 1777  
Theoretical studies of the solar corona and chromosphere

Period	Obligations	
07/01/75-09/30/79	FY79:	TOTAL: \$128,987
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Chipman, E. G.	HQ-ST/Bohlin, J. D.	13-Physics

**NSG 7231** University of Colorado - Boulder 1778  
A rocket program to measure minor neutral species in the earth's atmosphere from 30 km to 110 km

Period	Obligations	
04/01/76-08/31/79	FY79: \$99,999	TOTAL: \$300,006
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Thomas, R. J.	HQ-ST/Kakar, R. K.	31-Atmos Sci
	HQ-ST/Tilford, S. G.	

**NSG 7287** University of Colorado - Boulder 1779  
Study of the solar corona using radio observation

Period	Obligations	
07/01/76-09/30/79	FY79: \$48,000	TOTAL: \$92,000
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Dulk, G. A.	HQ-ST/Bohlin, J. D.	13-Physics

**NSG 7291** University of Colorado - Boulder 1780  
Research in solar physics with emphasis on empirical non-equilibrium thermodynamics

Period	Obligations	
09/01/76-12/31/79	FY79: \$26,000	TOTAL: \$76,000
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Thomas, R. N.	HQ-ST/Bohlin, J. D.	13-Physics

**NSG 7319** University of Colorado - Boulder 1781  
Nutation and polar motion of the earth

Period	Obligations	
03/01/77-09/30/79	FY79:	TOTAL: \$84,610
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Smith, M. L.	HQ-SL/Flinn, E. A.	32-Geological Sci

**NSG 7344** University of Colorado - Boulder 1782  
Construction of a three-wavelength electromagnetic distance-measuring system

Period	Obligations	
05/01/77-04/30/79	FY79:	TOTAL: \$100,000
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Levine, J.	HQ-SL/Strickland, A. T.	13-Physics

**NASA'S UNIVERSITY PROGRAM  
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**NSG 7430** University of Colorado - Boulder 1783  
Theoretical calculations of spectral features in the expanding envelopes of early-type stars

<i>Period</i>	<i>Obligations</i>	
03/01/78-02/29/80	FY79: TOTAL: \$21,646	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CFSE Category</i>
Conti, P. S.	HQ-SC/Roman, N. G.	11-Astronomy
	HQ-SC/Rosendhal, J. D.	

**NSG 7584** University of Colorado - Boulder 1790  
Mechanisms of deformation and failure appropriate to lunar conditions

<i>Period</i>	<i>Obligations</i>	
05/01/79-01/31/80	FY79 \$75,000 TOTAL: \$75,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CFSE Category</i>
Spetzler, H. A.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, D. M.	

**NSG 7459** University of Colorado - Boulder 1784  
Development and test of multi-anode microchannel array detector system

<i>Period</i>	<i>Obligations</i>	
06/01/78-05/30/80	FY79: \$291,515 TOTAL: \$497,659	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CFSE Category</i>
Timothy, J. G.	HQ-SC/Roman, N. G.	13-Physics
	HQ-SC/Weiler, E. J.	

**NSG 7626** University of Colorado - Boulder 1791  
High resolution spectrophotometric observations of interstellar absorption lines

<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/80	FY79 \$25,909 TOTAL \$25,909	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CFSE Category</i>
Snow, T. P., Jr.	HQ-SC/Weiler, E. J.	11-Astronomy
	HQ-SC/Roman, N. G.	

**NSG 7460** University of Colorado - Boulder 1785  
Basic research in stellar & solar physics

<i>Period</i>	<i>Obligations</i>	
06/21/78-06/20/79	FY79: TOTAL \$14,760	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CFSE Category</i>
Thomas, R.	HQ-SC/Rosendhal, J. D.	13-Physics

**NSG 7637** University of Colorado - Boulder 1792  
Accuracy of gravitational physics tests using ranges to the inner planets

<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/80	FY79 \$17,302 TOTAL \$17,302	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CFSE Category</i>
Ashby, N.	HQ-SL/Roman, N. G.	11-Astronomy
	HQ-SL/Weiler, E. J.	

**NSG 7477** University of Colorado - Boulder 1786  
High-resolution spectrophotometric observations of interstellar absorption lines

<i>Period</i>	<i>Obligations</i>	
07/01/78-06/31/79	FY79: TOTAL \$24,413	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CFSE Category</i>
Snow, T. P., Jr.	HQ-SC/Roman, N. G.	11-Astronomy
	HQ-SC/Rosendhal, J. D.	

**NSG 9036** University of Colorado - Boulder 1793  
Correlation of strength with gravity and velocity in lunar rock under simulated conditions

<i>Period</i>	<i>Obligations</i>	
11/01/75-09/30/79	FY79 \$25,000 TOTAL \$289,464	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CFSE Category</i>
Spetzler, H. A.	JSC/Harris, J. W.	32-Geological Sci

**NSG 7507** University of Colorado - Boulder 1787  
X-ray emission, electron acceleration, and related flare problems

<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/79	FY79: \$45,000 TOTAL \$45,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CFSE Category</i>
Smith, D. F.	HQ-ST/Bohlin, J. D.	13-Physics

**NAS 1-15775** University of Colorado - Denver 1794  
Perform computation of postbuckling loads and deflections in shell structures

<i>Period</i>	<i>Obligations</i>	
04/16/79-05/30/80	FY79: \$19,880 TOTAL \$19,880	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CFSE Category</i>
Thurston, G. A.	LARC/Housner, J. M.	41-Aero Engr
	LARC/Anderson, M. S.	

**NSG 7511** University of Colorado - Boulder 1788  
Basic research in solar physics. Energy transport in the solar envelope and atmosphere

<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/79	FY79: \$50,000 TOTAL: \$50,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CFSE Category</i>
Gebbie, K. B.	HQ-ST/Bohlin, J. D.	13-Physics

**NSG 5394** University of Colorado - Denver 1795  
International ultraviolet experiment observations of Mars

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79 \$7,600 TOTAL \$7,600	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CFSE Category</i>
Lane, A. L.	GSFC/Boggett, A.	11-Astronomy

**NSG 7559** University of Colorado - Boulder 1789  
Measurement of solar spectral irradiances at wavelengths between 40 and 3100 angstroms

<i>Period</i>	<i>Obligations</i>	
03/01/79-12/31/79	FY79: \$50,000 TOTAL: \$50,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CFSE Category</i>
Timothy, J. G.	HQ-ST/Kakar, R. K.	31-Atmos Sci
	HQ-ST/Seals, R. K., Jr.	

**NAS 1-14929** University of Denver 1796  
Stratospheric aerosol and gas experiment

<i>Period</i>	<i>Obligations</i>	
07/18/77-09/30/79	FY79 \$20,000 TOTAL \$65,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CFSE Category</i>
Murcay, D. G.	LARC/McMaster, L. R.	31-Atmos Sci
	LARC/McCormick, M. P.	

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COLORADO (Continued)**

<b>NAS 2-10158</b>	<b>University of Denver</b>	<b>1797</b>
Airborne measurements of minor gas constituents of the stratosphere		
<i>Period</i>	<i>Obligations</i>	
02/01/79-01/31/82	FY79: \$143,700	TOTAL: \$143,700
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Murcay, D. G.	ARC/Munoz, R. M.	31-Atmos Sci
Goldman, A.	ARC/Margozzi, A. P.	
Williams, W. J.		
<b>NAS 5-25097</b>	<b>University of Denver</b>	<b>1798</b>
Stratospheric molecular spectral parameter study		
<i>Period</i>	<i>Obligations</i>	
06/21/78-06/20/80	FY79: \$21,965	TOTAL: \$46,965
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goldman, A.	GSFC/Kunde, V. G.	31-Atmos Sci
<b>NAS 5-25862</b>	<b>University of Denver</b>	<b>1799</b>
Measurement of X-rays in the mesosphere		
<i>Period</i>	<i>Obligations</i>	
09/19/79-03/02/81	FY79: \$23,895	TOTAL: \$23,895
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Barcus, J.	GSFC/Goldberg, R.	13-Physics
Sutton, J.		
<b>NAS 9-15469</b>	<b>University of Denver</b>	<b>1800</b>
Operational bioinstrumentation system		
<i>Period</i>	<i>Obligations</i>	
01/01/78-01/01/80	FY79: \$19,913	TOTAL: \$221,390
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Venditti, F. P.	JSC/. . .czkowski, S. M.	46-Mech Engr
<b>NASW 3113</b>	<b>University of Denver</b>	<b>1801</b>
Collection and analysis of information relating to technology transfer and application		
<i>Period</i>	<i>Obligations</i>	
02/01/78-04/30/79	FY79: \$105,000	TOTAL: \$430,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Johnson, F. D.	HQ-ET/Ault, L. A.	99-Multi-Discip
<b>NCA 2-205901</b>	<b>University of Denver</b>	<b>1802</b>
Spectroscopy of minor constituents in the earth's stratosphere		
<i>Period</i>	<i>Obligations</i>	
03/01/79-02/29/80	FY79: \$6,270	TOTAL: \$6,270
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bonomo, F.	ARC/Valero, F. P.	12-Chemistry
<b>NSG 1405</b>	<b>University of Denver</b>	<b>1803</b>
Theoretical simulations of solar spectra in the middle ultraviolet and visible for atmospheric trace constituents measurements		
<i>Period</i>	<i>Obligations</i>	
03/15/77-05/14/80	FY79: \$36,494	TOTAL: \$114,517
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goldman, A.	LARC/Goad, J. H., Jr.	31-Atmos Sci
Murcay, D. G.	LARC/McCormick, M. P.	
<b>NSG 1432</b>	<b>University of Denver</b>	<b>1804</b>
Ground monitoring of atmospheric constituents by high resolution infrared solar spectroscopy		
<i>Period</i>	<i>Obligations</i>	
07/11/77-11/10/79	FY79:	TOTAL: \$159,874
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Murcay, D. G.	LARC/Orr, H. D., III	39-Env Sci, NEC
	LARC/Russell, J. M., III	
<b>NSG 1439</b>	<b>University of Denver</b>	<b>1805</b>
An attempt to measure stratospheric constituents by means of solar occultation measurements in region 0.300um-0.310um		
<i>Period</i>	<i>Obligations</i>	
07/21/77-07/20/79	FY79:	TOTAL: \$35,452
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Murcay, D. G.	LARC/McCormick, M. P.	31-Atmos Sci
	LARC/Goad, J. H., Jr.	
<b>NSG 1557</b>	<b>University of Denver</b>	<b>1806</b>
Balloon-borne spectrometer measurements of UV-visible solar limb extinction		
<i>Period</i>	<i>Obligations</i>	
08/15/78-11/14/79	FY79:	TOTAL: \$20,018
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Murcay, D. G.	LARC/Goad, J. H., Jr.	31-Atmos Sci
Goldman, A.		
Williams, W. J.		
<b>NSG 5135</b>	<b>University of Denver</b>	<b>1807</b>
Research of ultraviolet light and spectrum variations of twelve and sixteen lacertae		
<i>Period</i>	<i>Obligations</i>	
11/15/76-11/14/77	FY79:	TOTAL: \$9,908
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Everhart, E.	GSFC/Kupperian, J. E., Jr.	11-Astronomy
<b>NSG 5367</b>	<b>University of Denver</b>	<b>1808</b>
Velocity fields and spectrum peculiarities in Beta Cephei stars		
<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/80	FY79: \$16,100	TOTAL: \$16,100
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lesh, J. R.	GSFC/Bogges, A.	11-Astronomy
<b>NSG 7271</b>	<b>University of Denver</b>	<b>1809</b>
An investigation of the variability in the stratospheric dust layer as related to the Fuego volcanic event		
<i>Period</i>	<i>Obligations</i>	
09/01/76-09/30/79	FY79:	TOTAL: \$94,094
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Murcay, D. G.	HQ-ST/Kakar, R. K	31-Atmos Sci
	HQ-ST/Tilford, S. G.	

**NASA'S UNIVERSITY PROGRAM  
COLORADO (Continued)**

**NSG 806** University of Southern Colorado 1810  
Environmental stress cracking of polymers

<i>Period</i>	<i>Obligations</i>	
10/01/76-02/16/80	FY79:	TOTAL: \$47,863
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mahan, K. I.	KSC/Bryan, C. J.	12-Chemistry

**NSG 2048** University of Southern Colorado 1811  
Technology research for strapdown inertial experiments

<i>Period</i>	<i>Obligations</i>	
09/15/74-10/31/79	FY79: \$49,900	TOTAL: \$310,399
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jenkins, R. Carestia, R. A.	ARC/Hruby, R. J.	41-Aero Engr

**NSG 9051** University of Southern Colorado 1812  
Electron microprobe study of lunar and planetary zoned plagioclase feldspars

<i>Period</i>	<i>Obligations</i>	
02/01/77-03/31/80	FY79: \$25,441	TOTAL: \$76,529
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, R. K.	JSC/Lofgren, G.	19-Phys Sci, NEC

**CONNECTICUT**

**NCC 5 6** Fairfield University 1813  
Measurement of hydroxyl temperature in the upper atmosphere

<i>Period</i>	<i>Obligations</i>	
09/01/79-03/31/80	FY79: \$8,000	TOTAL: \$8,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McElaney, J. H.	GSFC/Heath, D. F.	31-Atmos Sci

**NGR 07-010-002** Fairfield University 1814  
Investigation of energy deposition processes in the upper atmosphere, and the interaction between the mesosphere and the thermosphere

<i>Period</i>	<i>Obligations</i>	
04/24/68-03/31/79	FY79:	TOTAL: \$64,431
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McElaney, J. H. Khadgavi, A.	GSFC/Heath, D. F.	31-Atmos Sci

**NASW 3191** University of Connecticut 1815  
Operation of an industrial applications center

<i>Period</i>	<i>Obligations</i>	
01/01/78-12/31/79	FY79: \$354,762	TOTAL: \$724,762
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Unavailable	HQ-ET/Bivins, R. J.	99-Multi-Discip

**NSG 3238** University of Connecticut 1816  
Turbine endwall two-cylinder program

<i>Period</i>	<i>Obligations</i>	
01/02/79-01/01/82	FY79: \$99,410	TOTAL: \$99,410
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Langston, L. S.	LERC/Goldman, L. J.	46-Mech Engr

**NSG 5075** University of Connecticut 1817  
Modeling the terrestrial hydrology of the global atmosphere

<i>Period</i>	<i>Obligations</i>	
08/17/75-02/29/80	FY79: \$66,052	TOTAL: \$217,860
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cooper, A. R. Lin, J. D.	GSFC/Halem, M.	31-Atmos Sci

**NSG 5346** University of Connecticut 1818  
Hydro-meteorological modeling of soil moisture and interactive moisture transport processes

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY79: \$40,340	TOTAL: \$40,340
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lin, J. D. Bock, P.	GSFC/Halem, M.	31-Atmos Sci

**NSG 7450** University of Connecticut 1819  
Factors affecting assimilatory nitrate reduction by prokaryotes

<i>Period</i>	<i>Obligations</i>	
06/01/78-06/30/80	FY79: \$37,862	TOTAL: \$72,251
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Leadbetter, E. R.	HQ-SB/Young, R. S.	51-Biological Sci

**NAS 2-10338** Yale University 1820  
Cosmos 1979 experiment: Bone modeling/remodeling in the rat mandible

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/80	FY79: \$5,000	TOTAL: \$5,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Baron, R.	ARC/Souza, K. A. ARC/Heinrich, M. R.	56-Medical Science

**NAS 8-33572** Yale University 1821  
Experimental test for violations of the equivalence principle by weak interactions

<i>Period</i>	<i>Obligations</i>	
09/05/79-03/04/80	FY79: \$7,849	TOTAL: \$7,849
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Parker, P. D.	MSFC/Eby, P. B.	11-Astronomy

**NGL 07-004-005** Yale University 1822  
Low-power, low-speed data storage and processing equipment

<i>Period</i>	<i>Obligations</i>	
01/01/71-11/30/81	FY79: \$60,120	TOTAL: \$896,619
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Barker, R. C.	GSFC/Pritchard, J. A.	45-Elec Engr

**NGL 07-004-043** Yale University 1823  
Chemical reactions in the electron-volt region

<i>Period</i>	<i>Obligations</i>	
10/26/65-09/30/79	FY79: \$4,000	TOTAL: \$501,744
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cross, R. J., Jr.	HQ-SL/Murphy, R. E. HQ-SL/Brunk, W. E.	31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
CONNECTICUT (Continued)**

**NSG 1612** **Yale University** **1824**  
Study of experiments on condensation of nitrogen by homogeneous nucleation at states modeling those of the national transonic facility

<i>Period</i>	<i>Obligations</i>	
05/15/79-02/14/80	FY79: \$13,000	TOTAL: \$13,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wegener, P. P.	LARC/Hall, R. M.	41-Aero Engr

**NSG 2185** **Yale University** **1825**  
Early detection of acute respiratory infections

<i>Period</i>	<i>Obligations</i>	
10/01/76-11/30/79	FY79: \$30,000	TOTAL: \$95,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Evans, A. S.	ARC/Mandel, A.D.	56-Medical Sciences
Kraus, G.		

**NSG 3107** **Yale University** **1826**  
Deposition of condensible impurities on surfaces immersed in hot gases

<i>Period</i>	<i>Obligations</i>	
07/15/76-07/14/80	FY79: \$30,000	TOTAL: \$119,985
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rosner, D. E.	LERC/Fryburg, G. C.	47-Materials Engr
	LERC/Kohl, F. J.	

**NSG 3169** **Yale University** **1827**  
Experimentation studies of the formation/deposition of sodium sulfate in/from combustion gases

<i>Period</i>	<i>Obligations</i>	
11/15/77-11/15/79	FY79:	TOTAL: \$94,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rosner, D. E.	LERC/Fryburg, G. C.	12-Chemistry
	LERC/Kohl, F. J.	

**NSG 7290** **Yale University** **1828**  
Membranes and circadian rhythms in plants

<i>Period</i>	<i>Obligations</i>	
10/01/76-09/30/79	FY79: \$50,000	TOTAL: \$139,420
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Galston, A. W.	HQ-SB/Halstead, T. W.	51-Biological Sci
	HQ-SB/Geib, D. S.	

**DELAWARE**

**NAS 6-2820** **University of Delaware** **1829**  
Measurement of ocean surface microstructure in a wind generated wave field

<i>Period</i>	<i>Obligations</i>	
03/28/77-11/27/78	FY79:	TOTAL: \$13,999
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wu, J.	WFC/Huang, N. E.	33-Oceanography
	WFC/Parson, C. L.	

**NSG 1304** **University of Delaware** **1830**  
Damage repair technology in composite materials

<i>Period</i>	<i>Obligations</i>	
05/01/76-04/30/80	FY79: \$64,681	TOTAL: \$221,656
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pipes, R. B.	LARC/Deaton, J. W.	46-Mech Engr
Wilson, D. W.	LARC/Hoffman, E. L.	

**NSG 1409** **University of Delaware** **1831**  
Elevated temperature bolted joint test technology in composite materials

<i>Period</i>	<i>Obligations</i>	
04/01/77-05/31/80	FY79: \$43,176	TOTAL: \$115,040
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pipes, R. B.	LARC/Garcia, R.	42-Astro Engr
Wilson, D. W.	LARC/Cooper, P. A.	

**NSG 1433** **University of Delaware** **1832**  
Satellite surveillance of coastal environment and monitoring of sludge dump sites

<i>Period</i>	<i>Obligations</i>	
09/01/77-07/31/79	FY79:	TOTAL: \$19,892
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Klemas, V.	LARC/Bowker, D. E.	39-Env Sci, NEC
Philpot, W.	LARC/Pearson, A. O.	

**NSG 1488** **University of Delaware** **1833**  
Structural optimization of hat-stiffened panels of composite materials subjected to thermal and in-plane mechanical loads

<i>Period</i>	<i>Obligations</i>	
02/01/78-06/30/79	FY79:	TOTAL: \$25,680
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Vinson, J. R.	LARC/McWithey, R. R.	42-Astro Engr
	LARC/Cooper, P. A.	

**NSG 1513** **University of Delaware** **1834**  
Investigation of a vortex model of the turbulent boundary layer burst phenomena

<i>Period</i>	<i>Obligations</i>	
04/01/78-09/30/79	FY79:	TOTAL: \$15,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Danberg, J. E.	LARC/Bushnell, D. M.	41-Aero Engr
	LARC/Cary, A. M., Jr.	

**NSG 3184** **University of Delaware** **1835**  
Heat storage in alloy transformation

<i>Period</i>	<i>Obligations</i>	
07/01/78-08/31/80	FY79: \$92,711	TOTAL: \$183,783
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Birchenall, C. E.	LERC/Vernon, R. W.	47-Materials Engr
Harrison, A. J.		

**NSG 3189** **University of Delaware** **1836**  
Inlet flow distortion in turbomachinery

<i>Period</i>	<i>Obligations</i>	
04/01/78-11/31/78	FY79:	TOTAL: \$25,154
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Seidel, B. S.	LERC/Adamczyk, J. J.	41-Aero Engr



## NASA'S UNIVERSITY PROGRAM DELAWARE (Continued)

NSG 3270	University of Delaware	1837
Effects of distorted inflow entering a fan in a tilt nacelle		
<i>Period</i>	<i>Obligations</i>	
05/01/79-05/01/80	FY79: \$29,547	TOTAL: \$29,547
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Seidel, B. S.	LERC/Farrell, C. A., Jr.	41-Aero Engr
	LERC/Adamczyk, J. J.	

NSG 7422	The Catholic University of America	1843
Expansion of the solar wind from coronal holes		
<i>Period</i>	<i>Obligations</i>	
04/01/78-03/31/80	FY79: \$40,000	TOTAL: \$80,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Whang, Y. C.	HQ-ST/Bohlin, J. D.	13-Physics

NSG 5144	University of Delaware	1838
Ultraviolet studies of heavy-element abundances in stars		
<i>Period</i>	<i>Obligations</i>	
12/01/76-11/30/79	FY79:	TOTAL: \$1,900
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shipman, H. L.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NAS I-14605	George Washington University	1844
Experimental and analytical engineering and applied science support of Langley Research Center programs		
<i>Period</i>	<i>Obligations</i>	
09/02/76-09/01/81	FY79: \$43,805	TOTAL: \$173,133
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Duberg, J. E.	41-Aero Engr
Whitesides, J. L.	LARC/Erickson, W. D.	

NAS 5-24431	George Washington University	1845
Concatenated coding system		
<i>Period</i>	<i>Obligations</i>	
02/22/78-08/31/79	FY79:	TOTAL: \$21,658
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Helgert, H. J.	GSFC/Rende, J. V.	45-Elec Engr
	GSFC/Laios, S. C.	

## DISTRICT OF COLUMBIA

NGR 09-005-063	The Catholic University of America	1839
Interaction of the solar wind with the moon		
<i>Period</i>	<i>Obligations</i>	
04/15/69-05/31/80	FY79: \$33,000	TOTAL: \$267,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Whang, Y. C.	HQ-ST/Wiskerchen, M. J.	13-Physics
	HQ-ST/Schmerling, E. R.	

NASW 3165	George Washington University	1846
Scientific communication in planetary biology and bioscience		
<i>Period</i>	<i>Obligations</i>	
04/17/78-06/15/80	FY79: \$49,900	TOTAL: \$97,977
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Waters, E.	HQ-SB/Halstead, T. W.	59-Life Sci, NEC

NSG 5066	The Catholic University of America	1840
Research of solar hard X-rays and gamma-rays		
<i>Period</i>	<i>Obligations</i>	
05/01/75-06/30/80	FY79: \$15,181	TOTAL: \$88,594
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Werntz, C.	GSFC/Dennis, B. R.	13-Physics

NCC I 1	George Washington University	1847
Data reduction techniques for a Pressure Modulator Radiometer (PMR)		
<i>Period</i>	<i>Obligations</i>	
04/01/79-03/31/80	FY79: \$52,952	TOTAL: \$52,952
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Jr., H. D., III	31-Atmos Sci
Barkstrom, B. R.	LARC/Reichle, H. G., Jr.	

NSG 5111	The Catholic University of America	1841
Research of properties of material in the submillimeter wave region		
<i>Period</i>	<i>Obligations</i>	
09/01/76-08/31/80	FY79:	TOTAL: \$70,647
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kelley, G. L.	GSFC/McAvoy, N.	13-Physics
Meister, R.	GSFC/McElroy, J. H.	

NCC I 14	George Washington University	1848
Aeroacoustics research program in Joint Institute for Advancement of Flight Services (JIAFS)		
<i>Period</i>	<i>Obligations</i>	
05/15/79-05/14/80	FY79: \$89,211	TOTAL: \$89,211
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Margolis, K.	41-Aero Engr

NSG 5173	The Catholic University of America	1842
Atom-molecule reactions of chemical importance in the stratosphere		
<i>Period</i>	<i>Obligations</i>	
06/01/77-05/31/80	FY79: \$56,210	TOTAL: \$124,186
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hunt, J. B.	GSFC/Payne, W. A.	12-Chemistry
Michael, J. V.		

NCC I 19	George Washington University	1849
A research program in atmospheric science		
<i>Period</i>	<i>Obligations</i>	
07/01/79-05/31/80	FY79: \$93,095	TOTAL: \$93,095
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Callis, L. B., Jr.	31-Atmos Sci
	LARC/Tolson, R. H.	

**NASA'S UNIVERSITY PROGRAM  
DISTRICT OF COLUMBIA (Continued)**

**NCC 1 24** George Washington University **1850**  
Programs of research in flight sciences

<i>Period</i>	<i>Obligations</i>	
08/15/79-08/14/80	FY79: \$118,791	TOTAL: \$118,791
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Bobbitt, P. J.	41-Aero Engr
	LARC/Pierpont, P. K.	

**NSG 1026** George Washington University **1857**  
A graduate research program in environmental modeling

<i>Period</i>	<i>Obligations</i>	
03/21/74-12/31/79	FY79: \$81,584	TOTAL: \$629,374
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Rogerson, A. C.	LARC/Callis, L. B., Jr.	31-Atmos Sci
Brown, N. B., Jr.	LARC/Tolson, R. H.	

**NCC 1 27** George Washington University **1851**  
Cooperative graduate program in the flight sciences

<i>Period</i>	<i>Obligations</i>	
08/15/79-08/14/80	FY79: \$53,319	TOTAL: \$53,319
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Erickson, W. D.	41-Aero Engr

**NSG 1110** George Washington University **1858**  
Antenna and wave propagation applied to avionics systems

<i>Period</i>	<i>Obligations</i>	
10/01/74-12/31/79	FY79: \$10,463	TOTAL: \$159,194
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Croswell, W. F.	45-Elec Engr
	LARC/Gilreath, M. C.	

**NGL 09-010-053** George Washington University **1852**  
Research in space-related areas in engineering and applied science

<i>Period</i>	<i>Obligations</i>	
12/18/68-08/31/79	FY79:	TOTAL: \$1,150,000
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Duberg, J. E.	49-Engr, NEC
	LARC/Erickson, W. D.	

**NSG 1155** George Washington University **1859**  
Studies related to materials flight sciences

<i>Period</i>	<i>Obligations</i>	
03/03/75-12/31/79	FY79: \$146,309	TOTAL: \$638,433
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Swann, R. T.	47-Materials Engr
Esterling, D. M.		

**NGR 09-010-074** George Washington University **1853**  
Programs of research in flight sciences

<i>Period</i>	<i>Obligations</i>	
04/01/71-07/31/80	FY79:	TOTAL: \$1,187,084
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Bobbitt, P. J.	41-Aero Engr
	LARC/Mulac, R. W.	

**NSG 1161** George Washington University **1860**  
Research in flight dynamics

<i>Period</i>	<i>Obligations</i>	
06/01/75-11/30/79	FY79: \$44,996	TOTAL: \$169,981
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Suit, W. T.	41-Aero Engr
	LARC/Queijo, M. J.	

**NGR 09-010-078** George Washington University **1854**  
Research programs in structures and dynamics

<i>Period</i>	<i>Obligations</i>	
01/06/72-11/30/79	FY79: \$171,000	TOTAL: \$1,302,423
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Anderson, R. A.	41-Aero Engr
	LARC/McComb, H. G., Jr.	

**NSG 1216** George Washington University **1861**  
Research in atmospheric science

<i>Period</i>	<i>Obligations</i>	
09/01/75-06/15/79	FY79:	TOTAL: \$151,585
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Callis, L. B., Jr.	31-Atmos Sci

**NGR 09-010-085** George Washington University **1855**  
Aircraft noise reduction research

<i>Period</i>	<i>Obligations</i>	
02/21/73-12/31/79	FY79: \$119,222	TOTAL: \$690,128
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Margeolis, K.	41-Aero Engr
	LARC/Morgan, H. G.	

**NSG 1251** George Washington University **1862**  
Severe storms research

<i>Period</i>	<i>Obligations</i>	
10/01/75-12/31/79	FY79:	TOTAL: \$138,512
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Rogerson, A. C.	LARC/Costen, R. C.	31-Atmos Sci
Brown, N. B., Jr.	LARC/Young, G. R.	

**NGR 09-010-096** George Washington University **1856**  
Research program in microwave remote sensing

<i>Period</i>	<i>Obligations</i>	
09/01/73-11/30/79	FY79: \$8,584	TOTAL: \$174,639
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Croswell, W. F.	45-Elec Engr
	LARC/Schrader, J. H.	

**NSG 1289** George Washington University **1863**  
Research program in improved fracture toughness determination for aircraft structural materials

<i>Period</i>	<i>Obligations</i>	
03/01/76-12/31/80	FY79: \$69,486	TOTAL: \$214,464
<i>Prin Invest</i>	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Roderick, G. L.	
Jones, D. L.		47-Materials Engr
	LARC/Whitcomb, J. D.	

**NASA'S UNIVERSITY PROGRAM  
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**NSG 1449**                      **George Washington University**                      **1864**  
 Analysis of three-dimensional stresses near fastener holes in laminated composites

<i>Period</i>	<i>Obligations</i>	
09/01/77-11/13/79	FY79: TOTAL: \$73,672	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Crews, J. H., Jr.	47-Materials Engr
	LARC/Everett, R. A., Jr.	

**NSG 1604**                      **George Washington University**                      **1870**  
 Determination of load sequence effects on the degradation and failure of composite materials

<i>Period</i>	<i>Obligations</i>	
03/16/79-03/15/80	FY79: \$49,997 TOTAL: \$49,997	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Yang, J. N.	LARC/O'Brien, T. K.	47-Materials Engr
Jones, D. L.	LARC/Roderick, G. L.	

**NSG 1474**                      **George Washington University**                      **1865**  
 Acoustic analysis of the propfan

<i>Period</i>	<i>Obligations</i>	
12/01/77-11/30/79	FY79: \$38,237 TOTAL: \$67,684	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Greene, G. C.	13-Physics
Fasassat, F.		

**NSG 3130**                      **George Washington University**                      **1871**  
 Videoconferencing for Congress: An experimental application of the communications technology satellite

<i>Period</i>	<i>Obligations</i>	
11/01/76-06/01/79	FY79: TOTAL: \$146,048	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wood, F. B.	LERC/Jackson, H. D.	99-Multi-Discip
Coates, V. T.		

**NSG 1508**                      **George Washington University**                      **1866**  
 Core graphics system for raster graphics displays

<i>Period</i>	<i>Obligations</i>	
03/15/78-03/31/80	FY79: \$41,281 TOTAL: \$59,011	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Foley, J. D.	LARC/Harris, J. L.	21-Mathematics

**NSG 5109**                      **George Washington University**                      **1872**  
 Decoding and performance of error correcting codes

<i>Period</i>	<i>Obligations</i>	
07/16/76-08/31/89	FY79: \$29,960 TOTAL: \$102,414	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Helgert, H. J.	GSFC/Morakis, J. C.	49-Engr, NEC

**NSG 1555**                      **George Washington University**                      **1867**  
 Studies of radiative transfer in the earth's atmosphere with emphasis on the inference of the radiation budget

<i>Period</i>	<i>Obligations</i>	
08/01/78-07/31/80	FY79: \$41,868 TOTAL: \$64,931	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Smith, G. L.	31-Atmos Sci
Barkstrom, B. R.	LARC/Suttles, J. T.	

**NSG 5288**                      **George Washington University**                      **1873**  
 Comparison of passive and active microwave remote sensing

<i>Period</i>	<i>Obligations</i>	
08/01/78-12/31/79	FY79: TOTAL: \$20,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lang, R. H.	GSFC/LeVine, D. M.	45-Elec Engr

**NSG 1556**                      **George Washington University**                      **1868**  
 Graphite fiber risk assessment

<i>Period</i>	<i>Obligations</i>	
08/04/78-06/30/80	FY79: \$99,359 TOTAL: \$198,418	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gross, D.	LARC/Elber, W.	21-Mathematics
Soland, R. M.	LARC/Huston, R. J.	
Miller, D. R.		

**NASW 3152**                      **Georgetown University**                      **1874**  
 Potential impacts of space utilization

<i>Period</i>	<i>Obligations</i>	
04/01/78-05/01/79	FY79: TOTAL: \$15,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cheston, P. S.	HQ-MT/Puttkamer, J.	99-Multi-Discip

**NSG 1585**                      **George Washington University**                      **1869**  
 Research program in laminar flow control

<i>Period</i>	<i>Obligations</i>	
11/15/78-11/14/79	FY79: \$62,863 TOTAL: \$62,863	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Kemp, W. B., Jr.	41-Aero Engr
	LARC/Bobbitt, P. J.	

**NAS 5-23799**                      **Howard University**                      **1875**  
 Quality assurance system in clinical practice settings

<i>Period</i>	<i>Obligations</i>	
12/07/76-02/07/80	FY79: \$54,300 TOTAL: \$89,300	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chang, P.	GSFC/Alterescu, S.	56-Medical Sciences
	KSC/Chang, P.	

**NAS 5-24242**                      **Howard University**                      **1876**  
 Study of aerodynamics for sounding rockets

<i>Period</i>	<i>Obligations</i>	
07/01/77-09/01/80	FY79: \$40,000 TOTAL: \$117,877	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McElroy, M. B.	GSFC/Barrowman, J. S.	41-Aero Engr
	GSFC/Mayo, E. E.	

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<b>NAS 5-24251</b>	<b>Howard University</b>	<b>1877</b>			
Study of flexible body interaction					
<i>Period</i>		<i>Obligations</i>			
08/08/77-04/08/80	FY79:	TOTAL: \$19,980			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Choudhury, A. K.	GSFC/Hui, P. S.	49-Engr, NEC			
<b>NGR 09-011-057</b>	<b>Howard University</b>	<b>1884</b>			
Electron spectroscopy					
<i>Period</i>		<i>Obligations</i>			
04/01/74-04/30/80	FY79: \$2,600	TOTAL: \$34,840			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Tsang, T.	GSFC/Nava, D. F.	13 Physics			
<b>NAS 5-24422</b>	<b>Howard University</b>	<b>1878</b>			
Recorder tape guidance and drive mechanism analysis					
<i>Period</i>		<i>Obligations</i>			
01/16/78-08/31/79	FY79:	TOTAL: \$24,662			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Bords, G.	GSFC/Hayes, J. M. GSFC/Paroby, W.	46-Mech Engr			
<b>NGT 09-011-060</b>	<b>Howard University</b>	<b>1885</b>			
Summer faculty fellowship program in research					
<i>Period</i>		<i>Obligations</i>			
01/01/78-03/31/79	FY79:	TOTAL: \$139,450			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Fan, D. N.	HQ-LU/Carter, C. H.	99-Multi-Discip			
<b>NAS 5-25185</b>	<b>Howard University</b>	<b>1879</b>			
Study of tektites and other space related glasses					
<i>Period</i>		<i>Obligations</i>			
08/17/78-01/17/80	FY79:	TOTAL: \$50,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Thorpe, A. M.	GSFC/O'Keefe, J. A.	39-Env Sci, NEC			
<b>NGS 1320</b>	<b>Howard University</b>	<b>1886</b>			
Graduate research program in advanced aerospace structures					
<i>Period</i>		<i>Obligations</i>			
06/29/76-04/30/80	FY79: \$48,500	TOTAL: \$111,700			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Jones, I. W.	LARC/Horner, G. C. LARC/Card, M. F.	42-Astro Engr			
<b>NCA 5-29</b>	<b>Howard University</b>	<b>1880</b>			
Goddard introduction to engineering careers					
<i>Period</i>		<i>Obligations</i>			
06/01/78-06/30/80	FY79: \$27,180	TOTAL: \$27,180			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Cox, E. L.	GSFC/Chapman, J. W.	49-Engr, NEC			
<b>NCA 5-91</b>	<b>Howard University</b>	<b>1881</b>			
Prefreshmen and cooperative education program					
<i>Period</i>		<i>Obligations</i>			
06/01/78-06/30/80	FY79: \$50,000	TOTAL: \$50,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Cox, E. L.	GSFC/Chapman, J. W.	49-Engr, NEC			
<b>NGL 09-011-017</b>	<b>Howard University</b>	<b>1882</b>			
Study of neurohumoral control systems operations in adjustment of ventricular performance					
<i>Period</i>		<i>Obligations</i>			
04/25/68-01/14/81	FY79: \$25,000	TOTAL: \$967,398			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Cothran, L. N.	ARC/Sandler, H.	56-Medical Sciences			
<b>NGL 09-011-046</b>	<b>Howard University</b>	<b>1883</b>			
Investigation of radiation detectors for environmental trace elements					
<i>Period</i>		<i>Obligations</i>			
04/25/72-03/31/78	FY79:	TOTAL: \$33,131			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Ferguson, G. A.	HQ-LU/Pohly, J. G.	39-Env Sci, NEC			
<b>NGS 1414</b>	<b>Howard University</b>	<b>1887</b>			
The dynamics and control of large flexible space structures					
<i>Period</i>		<i>Obligations</i>			
05/16/77-05/15/80	FY79: \$57,244	TOTAL: \$142,676			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Bainum, P. M. James, P. K. Reddy, A. S.	LARC/Hammer, H. A. LARC/Schy, A. A.	49-Engr, NEC			
<b>NSG 5071</b>	<b>Howard University</b>	<b>1888</b>			
Laser induced photoluminescence studies of primary photochemical production processes of cometary radicals					
<i>Period</i>		<i>Obligations</i>			
08/01/75-03/31/80	FY79: \$86,647	TOTAL: \$231,625			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Jackson, W. M.	HQ-SL/Murphy, R. E. HQ-SL/Brunk, W. E.	12-Chemistry			
<b>NSG 5127</b>	<b>Howard University</b>	<b>1889</b>			
Recognition and treatment of coronary heart attacks					
<i>Period</i>		<i>Obligations</i>			
10/01/76-01/31/78	FY79:	TOTAL: \$28,900			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Fischmann, E. J.	GSFC/Friedman, D. S. GSFC/Chen, W.	56-Medical Sciences			
<b>NSG 5158</b>	<b>Howard University</b>	<b>1890</b>			
Research of microwave semiconductor devices					
<i>Period</i>		<i>Obligations</i>			
02/01/77-01/31/80	FY79: \$150,000	TOTAL: \$449,800			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Cooper, A. R. Bhar, T. N. Chawdhary, R.	GSFC/Alcorn, G. E. GSFC/Lamb, G. M.	13-Physics			

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**NSG 5186**                      **Howard University**                      **1891**  
 Research in space sciences  
*Period*    *Obligations*  
 07/01/77-11/30/79                      **FY79:**                      **TOTAL: \$150,000**  
*Prin Invest*                      *NASA Tech Officer*                      *CASE Category*  
 Wallace, W. J.                      GSFC/O'Keefe, J. A.                      13-Physics  
 Chung, D.  
 Tsang, T.

**NSG 9010**                      **Howard University**                      **1898**  
 Theoretical evaluation of linear Kalman filtering techniques for advanced mission state determination  
*Period*    *Obligations*  
 07/01/74-01/31/80                      **FY79:**                      **TOTAL: \$30,960**  
*Prin Invest*                      *NASA Tech Officer*                      *CASE Category*  
 Choudhury, A. K.                      JSC/Savely, R. T.                      45-Elec Engr

**NSG 5268**                      **Howard University**                      **1892**  
 Characterization of low intensity X-ray imaging devices  
*Period*    *Obligations*  
 04/15/78-06/14/80                      **FY79: \$25,015**                      **TOTAL: \$48,694**  
*Prin Invest*                      *NASA Tech Officer*                      *CASE Category*  
 Ferguson, G. A.                      GSFC/Yin, L. I.                      56-Medical Sciences  
 GSFC/Trombka, J. I.

**NGR 09-053-003**                      **Univ of District of Columbia-Harvard Ga**                      **1899**  
 Investigation of problems associated with solid encapsulation of high voltage electronic assemblies  
*Period*    *Obligations*  
 04/15/74-08/31/80                      **FY79:**                      **TOTAL: \$111,474**  
*Prin Invest*                      *NASA Tech Officer*                      *CASE Category*  
 Walker, E. L.                      GSFC/Ruitberg, A. P.                      39-Env Sci, NEC  
 GSFC/Bever, R. S.

**NSG 5295**                      **Howard University**                      **1893**  
 Test for diurnal rainfall variation using Nimbus 5 data  
*Period*    *Obligations*  
 08/01/78-01/31/80                      **FY79:**                      **TOTAL: \$45,826**  
*Prin Invest*                      *NASA Tech Officer*                      *CASE Category*  
 Gill, T. L.                      GSFC/Laughlin, C. R.                      21-Mathematics

**NGR 09-050-003**                      **Univ of District of Columbia-Mt Vernon**                      **1900**  
 Fundamental and analytical investigations of mechanisms and phenomena related to spacecraft electrochemical devices  
*Period*    *Obligations*  
 10/07/69-08/31/80                      **FY79:**                      **TOTAL: \$144,472**  
*Prin Invest*                      *NASA Tech Officer*                      *CASE Category*  
 Nottingham, W. C.                      GSFC/Webster, W. H., Jr.                      11-Astronomy  
 GSFC/Ford, F. E.

**NSG 5336**                      **Howard University**                      **1894**  
 Low cost terminals using remotely generated cross-correlation references  
*Period*    *Obligations*  
 02/01/79-01/31/80                      **FY79: \$57,606**                      **TOTAL: \$57,606**  
*Prin Invest*                      *NASA Tech Officer*                      *CASE Category*  
 Sennott, J. W.                      GSFC/Taylor, R. E.                      45-Elec Engr  
 Choudhury, A. K.

**NGR 09-050-019**                      **Univ of District of Columbia-Mt Vernon**                      **1901**  
 Determination of heavy metals in sediments and benthic species in relation to nuclear power plant operation  
*Period*    *Obligations*  
 02/18/74-05/31/80                      **FY79: \$58,266**                      **TOTAL: \$190,549**  
*Prin Invest*                      *NASA Tech Officer*                      *CASE Category*  
 Phelps, H. L.                      GSFC/Gross, F. C.                      39-Env Sci, NEC

**NSG 5378**                      **Howard University**                      **1895**  
 Clinical applications of the lexiscop  
*Period*    *Obligations*  
 07/01/79-06/30/80                      **FY79: \$13,724**                      **TOTAL: \$13,724**  
*Prin Invest*                      *NASA Tech Officer*                      *CASE Category*  
 Press, H. C., Jr.                      GSFC/Yin, L. I.                      56-Medical Sciences  
 GSFC/Trombka, J. I.

**NSG 5122**                      **Univ of District of Columbia-Mt Vernon**                      **1902**  
 Research in orbit determination by method of least squares and Kalman filter  
*Period*    *Obligations*  
 08/01/76-11/30/79                      **FY79:**                      **TOTAL: \$25,529**  
*Prin Invest*                      *NASA Tech Officer*                      *CASE Category*  
 Bakshi, J. S.                      GSFC/Fuchs, A. J.                      21-Mathematics

**NSG 7378**                      **Howard University**                      **1896**  
 Photodissociative excitation detection of parent molecules in comets  
*Period*    *Obligations*  
 10/15/77-10/14/78                      **FY79:**                      **TOTAL: \$47,018**  
*Prin Invest*                      *NASA Tech Officer*                      *CASE Category*  
 Jackson, W. M.                      HQ-SL/Donn, B.                      12-Chemistry

**NSG 5192**                      **Univ of District of Columbia-Mt Vernon**                      **1903**  
 Excitation cross section measurements of atmospheric interest  
*Period*    *Obligations*  
 08/01/77-08/31/80                      **FY79: \$48,703**                      **TOTAL: \$155,997**  
*Prin Invest*                      *NASA Tech Officer*                      *CASE Category*  
 Morgan, H. D.                      GSFC/Mentall, J. E.                      13-Physics

**NSG 7624**                      **Howard University**                      **1897**  
 Eigenvalue/eigenvector assignment in linear systems  
*Period*    *Obligations*  
 08/01/79-07/31/80                      **FY79: \$20,000**                      **TOTAL: \$20,000**  
*Prin Invest*                      *NASA Tech Officer*                      *CASE Category*  
 Choudhury, A. K.                      HQ-RT/Whiting, E. E.                      45-Elec Eng  
 LARC/Taylor, L. W.

**NCA 5-95**                      **Univ of District of Columbia-Van Ness**                      **1904**  
 Study of the evolution of solar active regions  
*Period*    *Obligations*  
 06/01/79-08/15/79                      **FY79: \$3,860**                      **TOTAL: \$3,860**  
*Prin Invest*                      *NASA Tech Officer*                      *CASE Category*  
 Kasten, R.                      GSFC/Hobbs, R. W.                      11-Astronomy

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**NSG 5290** Univ of District of Columbia-Van Ness 1905  
Measurement of bi-directional reflected spectra and correlation  
to agronomic parameters

<i>Period</i>	<i>Obligations</i>	
08/01/78-11/30/79	FY79:	TOTAL: \$26,444
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Watlington, R. A.	GSFC/Chappelle, E. W.	19-Phys Sci, NEC

**NSG 2183** Florida A & M University 1911  
Regulation of the adrenal cortex function during stress

<i>Period</i>	<i>Obligations</i>	
09/01/76-09/30/80	FY79: \$79,663	TOTAL: \$148,952
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Soliman, K. F.	ARC/Winget, C. M.	59-Life Sci, NEC

**NSG 2311** Florida A & M University 1912  
A model system for studies on liver metabolism in space

<i>Period</i>	<i>Obligations</i>	
04/01/78-03/31/80	FY79: \$28,720	TOTAL: \$58,640
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tolbert, M. E.	ARC/Klein, H. P.	51-Biological Sci

**FLORIDA**

**NAS 1-15724** Embry-Riddle Aeronautical University 1906  
Development of training materials and concepts for terminal  
configured vehicle research programs

<i>Period</i>	<i>Obligations</i>	
02/22/79-07/21/79	FY79: \$14,666	TOTAL: \$14,666
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gandelman, J. H.	LARC/Houck, J. A.	41-Aero Engr
Connolly, T. J.	LARC/Bowles, R. L.	
Brachhold, A. F.		

**NSG 5307** Florida A & M University 1913  
Electron-impact excitation of molecular nitrogen

<i>Period</i>	<i>Obligations</i>	
11/15/78-11/14/80	FY79: \$110,434	TOTAL: \$110,434
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jones, H. W.	GSFC/Temkin, A.	13-Physics
Neatherford, C. A.		
Jain, B. L.		

**NAS 5-25165** Florida A & M University 1907  
Medical application for computer technology

<i>Period</i>	<i>Obligations</i>	
08/15/78-02/14/80	FY79:	TOTAL: \$48,317
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fresh, F. A.	GSFC/Alterescu, S.	56-Medical Sciences
	KSC/Buchanan, P.	

**NAS10-9461** Florida Institute of Technology 1914  
Acetylacetone, mmH reaction byproducts, and portable scrubbing  
aspirator study

<i>Period</i>	<i>Obligations</i>	
08/14/78-08/13/79	FY79:	TOTAL: \$19,858
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Thomas, J. J.	KSC/Howard, F. S.	43-Chem Engr

**NCA 2-230701** Florida A & M University 1908  
Use of campus facilities and services by NASA to support research  
in chronopharmacology

<i>Period</i>	<i>Obligations</i>	
08/01/77-07/31/78	FY79:	TOTAL: \$25,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Walker, C. A.	ARC/Winget, C. M.	61-Biol Aspects

**NAS 1-9693** Florida State University 1915  
Participation in the science planning for the Viking 1975 missions  
in the area of meteorology

<i>Period</i>	<i>Obligations</i>	
03/23/70-01/31/79	FY79:	TOTAL: \$462,139
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hess, S. K.	LARC/Williams, T. S., Jr.	
	LARC/Glenny, W. R.	32-Geological Sci

**NSG 901** Florida A & M University 1909  
Electron-impact excitation of molecular nitrogen

<i>Period</i>	<i>Obligations</i>	
09/12/74-09/30/78	FY79:	TOTAL: \$118,416
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jones, H. J.	HQ-LU/Pohly, J. G.	13-Physics
	JPL/Trajmar, S.	

**NAS 1-14930** Florida State University 1916  
Science support for the stratospheric aerosol and gas experiment

<i>Period</i>	<i>Obligations</i>	
06/22/77-09/30/79	FY79:	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Craig, R. A.	LARC/McMaster, L. R.	31-Atmos Sci
	LARC/McCormick, M. P.	

**NSG 2029** Florida A & M University 1910  
Study of influence of amines on diurnal toxicity of stimulants &  
depressants

<i>Period</i>	<i>Obligations</i>	
07/01/74-09/30/80	FY79: \$120,000	TOTAL: \$288,058
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stronach, C. E.	ARC/Winget, C. M.	59-Life Sci, NEC

**NGR 10-004-056** Florida State University 1917  
Infrared absorption from 0.8 to 1.5 microns of Nh3, Ch4 and  
CO2

<i>Period</i>	<i>Obligations</i>	
03/25/69-01/31/79	FY79: \$18,000	TOTAL: \$281,963
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hunt, R. H.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Quaide, W. L.	

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**NSG 7337** Florida State University 1918  
Rock-inhabiting microorganisms from hot and cold deserts:  
Adaptations to extreme environments

<i>Period</i>	<i>Obligations</i>	
03/15/77-03/14/80	FY79: \$79,995	TOTAL: \$204,960
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Friedmann, E. I.	HQ-SB/Young, R. S.	54-Env Biology
Friedmann, R. O.		

**NSG 7473** Florida State University 1919  
Laboratory determination of infrared absorption line parameters  
for molecules of importance in upper atmospheric research

<i>Period</i>	<i>Obligations</i>	
07/01/78-06/30/80	FY79: \$70,000	TOTAL: \$70,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hunt, R. H.	HQ-EB/Kakar, R. K.	31-Atmos Sci
	HQ-EB/Seals, R. K., Jr.	

**NSG 7629** Florida State University 1920  
Meteorology studies of Mars

<i>Period</i>	<i>Obligations</i>	
03/01/79-09/30/79	FY79: \$33,000	TOTAL: \$33,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hess, S. K.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

**NASW 3060** State University System of Florida 1921  
Operation of a state technology application center

<i>Period</i>	<i>Obligations</i>	
01/01/77-12/31/79	FY79: \$106,000	TOTAL: \$331,980
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Unavailable	HQ-ET/Dolby, W.	99-Multi-Discip

**NAS 8-32835** The University of Central Florida 1922  
Boundary integral fracture mechanics code

<i>Period</i>	<i>Obligations</i>	
02/27/78-03/25/80	FY79: \$15,000	TOTAL: \$24,515
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carroll, W. E.	MSFC/Bianca, C.	47-Materials Engr
	MSFC/Frederick, P. W.	

**NAS 8-33071** The University of Central Florida 1923  
Study of cloud cover modeling

<i>Period</i>	<i>Obligations</i>	
05/30/78-09/30/79	FY79:	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Somerville, P. N.	MSFC/Smith, O. E.	31-Atmos Sci
	MSFC/Brown, S. C.	

**NAS10-8986** The University of Central Florida 1924  
Base-line studies for environmentally monitoring effects of space  
transportation systems

<i>Period</i>	<i>Obligations</i>	
05/28/76-09/21/79	FY79: \$285,774	TOTAL: \$1,073,352
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Vickers, D. H.	KSC/Buchanan, P.	39-Env Sci, NEC
Stout, I. J.	KSC/Knott, W. M.	
Madsen, B. C.		

**NAS10-9455** The University of Central Florida 1925  
Fiber optics pulse dispersion study

<i>Period</i>	<i>Obligations</i>	
07/24/78-12/23/79	FY79: \$19,980	TOTAL: \$39,957
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Riad, S. M.	KSC/Springer, D. A.	49-Engr, NEC
Riad, A.	KSC/Padgett, M. E.	

**NAS 2-9976** University of Florida 1926  
Experiment implementation of a lightning and radio emission  
detector

<i>Period</i>	<i>Obligations</i>	
05/31/78-03/31/82	FY79:	TOTAL: \$25,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lanzerotti, L. J.	ARC/Wilhelmi, A. J.	31-Atmos Sci
Uman, M. A.	ARC/Tischler, E. T.	
Krider, E. P.		

**NAS 5-22908** University of Florida 1927  
Nimbus-G experiment team for solar back-scattered ultraviolet  
and total ozone mapping system

<i>Period</i>	<i>Obligations</i>	
12/19/75-10/01/80	FY79: \$16	TOTAL: \$208,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Green, A. E.	GSFC/Heath, D. F.	49-Engr, NEC
	GSFC/Nelsen, E. D.	

**NAS 8-20247** University of Florida 1928  
Study of age deterioration of gasket materials installed in simulated  
launch vehicle hardware

<i>Period</i>	<i>Obligations</i>	
06/28/65-06/30/79	FY79:	TOTAL: \$43,055
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Patterson, E. P.	MSFC/Schell, J. T.	12-Chemistry
	MSFC/Wood, T. E.	

**NAS 9-15114** University of Florida 1929  
Influence of clouds on UV-B penetration of the earth's surface

<i>Period</i>	<i>Obligations</i>	
09/01/76-09/30/79	FY79:	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Green, A. E.	JSC/Nachtwey, D. S.	56-Medical Sciences

**NAS10-8920** University of Florida 1930  
Models to predict earth-air interface temperature regimes during  
freeze conditions

<i>Period</i>	<i>Obligations</i>	
12/02/75-05/07/80	FY79: \$60,524	TOTAL: \$263,515
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Manvi, R.	KSC/Pope, C. D.	39-Env Sci, NEC

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**NAS10-9168** University of Florida 1931  
Satellite freeze forecast system  
*Period* Obligations  
05/10/77-07/24/80 FY79: \$65,000 TOTAL: \$264,230  
*Prin Invest* NASA Tech Officer CASE Category  
Gerber, J. F. KSC/Pope, C. D. 39-Env Sci, NEC  
Martsolf, J. D.

**NAS10-9378** University of Florida 1932  
Study of processing analysis of lidar and data for accessing launch/landing hazard due to thunderstorms  
*Period* Obligations  
04/17/78-10/16/79 FY79: \$5,000 TOTAL: \$29,000  
*Prin Invest* NASA Tech Officer CASE Category  
Heasley, J. N. KSC/Jafferis, W. 45-Elec Engr  
Uman, M. A. KSC/Toft, P. D.

**NAS10-9466** University of Florida 1933  
Evaluation of remote sensing techniques  
*Period* Obligations  
10/05/78-10/05/79 FY79: \$5,758 TOTAL: \$5,758  
*Prin Invest* NASA Tech Officer CASE Category  
Arvanitis, L. G. KSC/Bland, R. A. 39-Env Sci, NEC  
KSC/Barnett, U. R.

**NAS10-9611** University of Florida 1934  
Application of satellite freeze technology to other parts of the U S  
*Period* Obligations  
05/04/79-05/03/80 FY79: \$47,999 TOTAL: \$47,999  
*Prin Invest* NASA Tech Officer CASE Category  
Gerber, J. F. KSC/Pope, C. D. 31-Atmos Sci

**NAS10-9666** University of Florida 1935  
Color infrared applications to citiculture  
*Period* Obligations  
07/19/79-01/18/80 FY79: \$12,500 TOTAL: \$12,500  
*Prin Invest* NASA Tech Officer CASE Category  
Blazquez, C. H. KSC/Horn, F. W. 39-Env Sci, NEC

**NAS13-106** University of Florida 1936  
Conducting short courses in remote sensing  
*Period* Obligations  
01/08/79-01/07/80 FY79: \$24,161 TOTAL: \$24,161  
*Prin Invest* NASA Tech Officer CASE Category  
Cross, C. NSTL/Atwell, B. H. 32-Geological Sci

**NGL 10-005-008** University of Florida 1937  
Theoretical atmospheric physics  
*Period* Obligations  
06/04/64-04/30/80 FY79: TOTAL: \$666,460  
*Prin Invest* NASA Tech Officer CASE Category  
Green, A. S. HQ-SL/Donn, B. 31-Atmos Sci  
HQ-SL/Brunk, W. E.

**NGL 10-005-089** University of Florida 1938  
Experimental investigation of a uranium plasma  
*Period* Obligations  
01/30/68-12/31/78 FY79: TOTAL: \$778,795  
*Prin Invest* NASA Tech Officer CASE Category  
Schneider, R. T. HQ-RR/Thom, K. 13-Physics

**NGR 10-005-169** University of Florida 1939  
Lightning studies  
*Period* Obligations  
01/15/73-04/13/80 FY79: \$5,000 TOTAL: \$74,197  
*Prin Invest* NASA Tech Officer CASE Category  
Uman, M. A. KSC/Jafferis, W. 31-Atmos Sci

**NGR 10-005-182** University of Florida 1940  
Fundamental studies on electrolyte matrix processing  
*Period* Obligations  
06/26/73-01/01/80 FY79: TOTAL: \$102,667  
*Prin Invest* NASA Tech Officer CASE Category  
Walker, R. D., Jr. IERC/Shebley, D. W. 43-Chem Engr

**NSG 1425** University of Florida 1941  
Study of the electronic properties in the electron and proton irradiated GaAlAs solar cell materials  
*Period* Obligations  
09/01/77-08/31/80 FY79: \$40,000 TOTAL: \$120,400  
*Prin Invest* NASA Tech Officer CASE Category  
Li, S. S. LARC/Walker, G. H. 45-Elec Engr  
LARC/Conway, E. J.

**NSG 1586** University of Florida 1942  
Research on radiation induced laser plasmas  
*Period* Obligations  
01/01/79-12/31/79 FY79 \$99,235 TOTAL \$99,235  
*Prin Invest* NASA Tech Officer CASE Category  
Schneider, R. T. LARC/Hohl, F. 13-Physics

**NSG 1600** University of Florida 1943  
The photochemistry of tropospheric CO and NoX and the impact of anthropogenic emissions  
*Period* Obligations  
04/01/79-03/31/80 FY79: \$59,077 TOTAL: \$59,077  
*Prin Invest* NASA Tech Officer CASE Category  
Chameides, W. L. LARC/Reichle, H. G. Jr. 31-Atmos Sci

**NSG 2120** University of Florida 1944  
Investigation on the flow about general fuselage shapes at high angles of attack  
*Period* Obligations  
09/15/75-10/30/79 FY79: \$17,264 TOTAL: \$150,681  
*Prin Invest* NASA Tech Officer CASE Category  
Clarkson, M. H. ARC/Malcolm, G. N. 41-Aero Engr  
ARC/Chapman, G. T.



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**NSG 2288** University of Florida 1945  
A jet in a crossflow  
*Period* *Obligations*  
01/01/78-11/30/80 FY79: \$85,988 TOTAL: \$110,988  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Fearn, R. L. ARC/Aoyagi, K. 41-Aero Engr  
ARC/Koenig, D. G.

**NSG 3018** University of Florida 1946  
Silicon PN junction solar cells  
*Period* *Obligations*  
06/24/74-02/29/80 FY79: TOTAL: \$266,983  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lindholm, F. A. LERC/Godlewski, M. P. 45-Elec Engr  
Neugroschel, A. LERC/Brandhorst, H. W., Jr

**NSG 3254** University of Florida 1947  
Mechanisms of devitrification of grain boundary glassy phases  
in silicon nitride materials  
*Period* *Obligations*  
03/26/79-03/25/80 FY79: \$40,000 TOTAL: \$40,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hench, L. L. LERC/Dutta, S. 47-Materials Engr

**NSG 3273** University of Florida 1948  
Evaluation of ion beam sputtered bioglass coatings of prosthetic  
devices  
*Period* *Obligations*  
07/01/79-06/30/80 FY79: \$9,740 TOTAL: \$9,740  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hench, L. L. LERC/Sater, B. L. 56-Medical Sciences

**NSG 7143** University of Florida 1949  
Analysis of Jupiter data from radio astronomy experiment  
spacecraft  
*Period* *Obligations*  
06/01/75-02/28/78 FY79 TOTAL: \$46,079  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Carr, T. D. HQ-SC/Roman, N. G. 11-Astronomy  
HQ-SC/Rosendhal, J. D.

**NSG 7235** University of Florida 1950  
Use of remote sensing in solving Florida's geological and coastal  
engineering problems  
*Period* *Obligations*  
07/01/76-06/30/82 FY79: \$100,000 TOTAL: \$400,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ruth, B. E. HQ-ET/Vitale, J. A. 39-Env Sci, NEC

**NSG 7299** University of Florida 1951  
Basic research relevant to a CW-nuclear pumped laser  
*Period* *Obligations*  
01/01/77-03/31/79 FY79: TOTAL: \$187,833  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Schneider, R. T. HQ-RR/Thom, K. 13-Physics  
LARC/Hohl, F.

**NAS 5-22963** University of Miami 1952  
Nimbus G coastal zone color scanner sensor experiment  
*Period* *Obligations*  
02/02/76-10/01/80 FY79: \$28,369 TOTAL: \$110,365  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gordon, H. R. GSFC/Nelsen, E. D. 31-Atmos Sci

**NAS 5-25374** University of Miami 1953  
Data Systems Test (DST) evaluation and data sets  
*Period* *Obligations*  
01/15/79-08/14/80 FY79: \$60,466 TOTAL: \$60,466  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Krause, E. B. GSFC/Greaves, J. R. 31-Atmos Sci  
Geller, M. A. GSFC/Stetina, F. L.

**NAS 8-32898** University of Miami 1954  
Numerical study of baroclinic instability  
*Period* *Obligations*  
06/02/78-06/14/79 FY79: \$9,765 TOTAL: \$25,748  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Geisler, J. E. MSFC/Fowles, W. W. 31-Atmos Sci  
MSFC/Fichtl, G. H.

**NAS 8-33558** University of Miami 1955  
Numerical study of baroclinic instability  
*Period* *Obligations*  
09/01/79-11/30/79 FY79: \$7,000 TOTAL: \$7,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Geisler, J. E. MSFC/Fowles, W. W. 31-Atmos Sci  
MSFC/Fichtl, G. H.

**NAS 9-15473** University of Miami 1956  
Study of sodium homeostasis and renin-aldosterone during water  
immersion  
*Period* *Obligations*  
11/21/77-10/31/79 FY79: \$40,000 TOTAL: \$65,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Epstein, M. JSC/Huntoon, C. L. 56-Medical Sciences

**NAS10-9410** University of Miami 1957  
Three-dimensional thermal pollution mathematical model  
*Period* *Obligations*  
06/06/78-06/05/80 FY79: \$94,692 TOTAL: \$189,643  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lee, S. S. KSC/Bland, R. A. 46-Mech Engr  
Sengupta, S. KSC/Barnett, U. R.

**NCA 2-438801** University of Miami 1958  
Influence of weightlessness on biochemical aging of flight muscle  
in drosophila melanogaster  
*Period* *Obligations*  
03/01/78-02/29/80 FY79: \$18,700 TOTAL: \$32,200  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ono, K. ARC/Miquel, J. 51-Biological Sci  
Varner, J. R.

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**NSG 10-007-008** University of Miami 1959  
Research in the Institute of Molecular Evolution in the school  
of Environmental and Planetary Sciences  
*Period* *Obligations*  
06/09/64-09/30/80 FY79: \$65,000 TOTAL: \$2,522,040  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Fox, S. W. HQ-SB/Young, R. S. 12-Chemistry

**NSG 1283** University of Miami 1960  
Effects of environmental variables on the crack initiation stages  
of the corrosion fatigue of high strength aluminum alloys  
*Period* *Obligations*  
03/01/76-06/30/80 FY79: \$17,204 TOTAL: \$108,383  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Potat, L. E. LARC/Lisagor, W. B. 47-Materials Engr  
LARC/Ransone, P. O.

**NSG 1436** University of Miami 1961  
Development of Boolean calculus and its application  
*Period* *Obligations*  
08/15/77-10/14/80 FY79: \$22,700 TOTAL \$59,798  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tapia, M. A. LARC/Tucker, J. H. 21-Mathematic

**NSG 5342** University of Miami 1962  
Tropical disturbances in relation to general circulation modeling  
*Period* *Obligations*  
05/01/79-04/30/80 FY79: \$62,221 TOTAL \$62,221  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Estoque, M. A. CSFC/Halen, M. 31-Atmos Sci

**NSG 5344** University of Miami 1963  
Research of ocean fronts and applications to Atlantic bluefish  
and tuna utilization and management  
*Period* *Obligations*  
04/04/79-04/03/80 FY79: \$79,397 TOTAL: \$79,397  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Williams, F. CSFC/Mueller, J. L. 33-Oceanography  
Maul, G. A.

**NSG 7309** University of Miami 1964  
Cosmogenic production rates in chondritic meteorites  
*Period* *Obligations*  
02/01/77-07/31/78 FY79: TOTAL: \$34,190  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Fisher, D. E. HQ-SL/French, B. M. 12-Geological Sci  
HQ-SL/Quaide, W. L.

**NSG 7510** University of Miami 1965  
Freezing brines: A Martian regolith model  
*Period* *Obligations*  
12/01/78-08/31/79 FY79: \$10,585 TOTAL: \$10,585  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Brass, G. B. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. M.

**NSG 1487** University of South Florida 1966  
Multispectral sensors and the discrimination of sources  
*Period* *Obligations*  
01/16/78-01/15/80 FY79: \$11,000 TOTAL: \$33,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tsokos, C. P. LARC/Park, S. K. 21-Mathematics

**NAS 9-15417** University of West Florida 1967  
Advanced dosimetry concepts  
*Period* *Obligations*  
10/01/77-03/31/80 FY79: \$10,000 TOTAL: \$30,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Schaefer, H. J. JSC/Barnes, C. M. 59-Life Sci, NEC

**GEORGIA**

**NSG 8019** Atlanta University 1968  
A study of the redox photo-chemistry of a number of iron  
complexes  
*Period* *Obligations*  
09/01/74-05/31/80 FY79: TOTAL: \$99,679  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
ed, J. L. MSFC/Kent, M. I. 12-Chemistry  
Johnson, J.

**NSG 2143** Clark College 1969  
Aerosol formation and the space shuttle program  
*Period* *Obligations*  
04/15/76-07/31/80 FY79: \$29,872 TOTAL \$100,087  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Veluri, V. R. ARC/Whitten, R. C. 12-Chemistry  
Utley, H. B. ARC/Toon, O. B.

**NSG 7267** Clark College 1970  
Study of impurity states in quasi one-dimensional systems  
*Period* *Obligations*  
12/01/76-08/31/79 FY79: TOTAL: \$23,224  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Saha, O. P. HQ-LU/Pohly, J. G. 13 Physics  
JPL/Somoano, R.

**NGL 11-001-009** Emory University 1971  
Study of cardiovascular adaptation during long-term weightless-  
ness  
*Period* *Obligations*  
05/12/65-06/30/82 FY79: \$35,000 TOTAL: \$627,198  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Popovic, V. P. ARC/Holton, E. M. 51-Biological Sci

**NSG 11-001-016** Emory University 1972  
Histopathological & histochemical study of subhuman primates  
*Period* *Obligations*  
10/01/63-02/29/80 FY79: \$90,000 TOTAL: \$1,035,748  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
King, F. A. ARC/Sandler, H. 56-Medical Sciences

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**NSG 11-001-045** Emory University 1973  
Vestibular influence on sleep in non-human primates  
Period Obligations  
10/07/71-12/31/79 FY79 \$70,000 TOTAL \$510,383  
Prin Invest NASA Tech Officer CASE Category  
Perachio, A. A. ARC/Daunton, N G 59-Life Sci, NEC

**NSG 735** Fort Valley State College 1974  
Nitrogen fixation as an adjunct to wastewater purification systems using water hyacinths  
Period Obligations  
07/17/79-07/16/80 FY79: \$29,923 TOTAL: \$29,923  
Prin Invest NASA Tech Officer CASE Category  
Rogerson, A. C. NSTL/Wolverton, B. C. 39-Env Sci, NEC  
Brown, N. B., Jr

**DEN 3 73** Georgia Institute of Technology 1975  
Flat plate photovoltaic system costs study  
Period Obligations  
09/21/78-08/20/79 FY79 \$4,000 TOTAL \$38,122  
Prin Invest NASA Tech Officer CASE Category  
Zimmer, R. P. LERC/Hein, G. F. 45-Elec Engr

**NAS 1-14351** Georgia Institute of Technology 1976  
Benefit assessment of pollution monitoring satellites  
Period Obligations  
02/26/76-09/05/79 FY79 TOTAL \$172,339  
Prin Invest NASA Tech Officer CASE Category  
Zimmer, K. P. LARC/Torrence, G. F. 31-Atmos Sci  
Sassone, P. LARC/Rarer, J. L.  
Haffer, S. C.

**NAS 1-14654** Georgia Institute of Technology 1977  
Investigation of the effects of long duration exposure on active optical system components  
Period Obligations  
10/14/76-08/13/78 FY79: TOTAL \$197,823  
Prin Invest NASA Tech Officer CASE Category  
Blue, M. D. LARC/O'Neal, R. L. 45-Elec Engr  
Gallagher, J. J. LARC/Battista, J. D.  
Shackelford, R. G.

**NAS 1-14947** Georgia Institute of Technology 1978  
Data systems study for retrieving remote sensing stratospheric pollution monitoring data from satellite, airborne, and surface platforms  
Period Obligations  
06/01/77-06/30/78 FY79: TOTAL: \$74,157  
Prin Invest NASA Tech Officer CASE Category  
Wilkins, R. D. LARC/Hall, J. B., Jr. 99-Multi-Discip  
Zimmer, R. P. LARC/Sullivan, E. M.

**NAS 1-15158** Georgia Institute of Technology 1979  
A study to interpret the surface pressure measurements at the tip of a model helicopter rotor in hover  
Period Obligations  
11/01/77-07/31/79 FY79 TOTAL \$29,000  
Prin Invest NASA Tech Officer CASE Category  
Gray, R. B. LARC/Young, W. H., Jr. 41-Aero Engr  
McMahon, H. M. LARC/Mantay, W. R.

**NAS 1-15370** Georgia Institute of Technology 1980  
Holographic data storage crystals experiment for the Long Duration Exposure Facility (LDEF), phases I and II  
Period Obligations  
04/21/78-10/20/79 FY79 \$13,838 TOTAL \$24,838  
Prin Invest NASA Tech Officer CASE Category  
Gaylord, T. K. LARC/O'Neal, R. L. 45-Elec Engr  
Callen, W. R. LARC/Clark, L. G.

**NAS 3-20110** Georgia Institute of Technology 1981  
Study of millimeter wave satellite concept  
Period Obligations  
06/01/76-03/31/79 FY79 TOTAL \$127,148  
Prin Invest NASA Tech Officer CASE Category  
Zimmer, R. P. LERC/Stevens, G. H. 42-Astro Engr

**NAS 5-23710** Georgia Institute of Technology 1982  
Aircraft radiometer system for project Storm Fury  
Period Obligations  
09/21/76-02/28/80 FY79 \$197,197 TOTAL \$457,197  
Prin Invest NASA Tech Officer CASE Category  
Schuchardt, J. M. GSFC/King, J. L. 45-Elec Engr

**NAS 5-24148** Georgia Institute of Technology 1983  
Thunderstorm research - international project 1977  
Period Obligations  
05/04/77-06/04/80 FY79: \$27,000 TOTAL \$46,993  
Prin Invest NASA Tech Officer CASE Category  
Wilson, C. S. GSFC/Levine, D. M. 31-Atmos Sci  
Wilson, B. J.

**NAS 5-25817** Georgia Institute of Technology 1984  
Study of Nimbus 7 applications investigations from priority I listing  
Period Obligations  
08/20/79-02/19/81 FY79 \$68,113 TOTAL \$68,113  
Prin Invest NASA Tech Officer CASE Category  
Cunnold, D. M. GSFC/Slajna, F. 39-Env Sci, NEC

**NAS 8-31990** Georgia Institute of Technology 1985  
Digital analysis of LANDSAT data  
Period Obligations  
06/25/76-11/30/77 FY79 TOTAL \$18,000  
Prin Invest NASA Tech Officer CASE Category  
Faust, C. E. MSFC/Downs, S. P. 32-Geophys  
MSFC/Densko, J. 32-Geophys

**NASA'S UNIVERSITY PROGRAM  
GEORGIA (Continued)**

**NAS 8-32897** Georgia Institute of Technology 1986  
Study-low latitude winds for orbital reentry

<i>Period</i>	<i>Obligations</i>	
06/02/78-06/01/79	FY79: TOTAL: \$40,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Justus, C. G.	MSFC/Smith, O. E.	31-Atmos Sci
	MSFC/Johnson, D.	

**NGL 11-002-004** Georgia Institute of Technology 1992  
Theoretical and experimental research program in geophysics with emphasis on upper atmosphere chemical release studies

<i>Period</i>	<i>Obligations</i>	
09/27/62-05/31/80	FY79: TOTAL: \$815,075	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Edwards, H. D.	HQ-SL/Fellows, R. F.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

**NAS 8-33093** Georgia Institute of Technology 1987  
Applications of acoustics in the measurement of coal slab thicknesses

<i>Period</i>	<i>Obligations</i>	
07/31/78-10/31/79	FY79: TOTAL: \$87,636	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pierce, A. D.	MSFC/Reed, B.	49-Engr, NEC
Mills, J. M.	MSFC/Randall, J. D.	
Madden, J., Jr.		

**NSG 1493** Georgia Institute of Technology 1993  
Science support for solar occultation experiments with the Nimbus-G/SAM II and AEM-B/Sage spacecraft sensors

<i>Period</i>	<i>Obligations</i>	
01/16/78-10/15/80	FY79: \$167,407 TOTAL: \$224,399	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Grams, G. W.	LARC/McMaster, L. R.	31-Atmos Sci
	LARC/McCormick, M. P.	

**NAS 8-33438** Georgia Institute of Technology 1988  
Quantitative analysis of metallurgical specimens

<i>Period</i>	<i>Obligations</i>	
06/04/79-06/03/80	FY79: \$10,969 TOTAL: \$10,969	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Brown, J. L.	MSFC/Johnston, M. H.	
	MSFC/Parr, R. A.	47-Materials Engr

**NSG 1592** Georgia Institute of Technology 1994  
Analysis and design of pendulum vibration absorbers for helicopters

<i>Period</i>	<i>Obligations</i>	
01/15/79-01/14/80	FY79: \$44,984 TOTAL: \$44,984	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pierce, G. A.	LARC/Lee, B. L.	41-Aero Engr
	LARC/Hammond, C. E.	

**NAS 8-33605** Georgia Institute of Technology 1989  
High accuracy radiation efficiency measurement techniques. Study is related to satellite power systems

<i>Period</i>	<i>Obligations</i>	
09/27/79-02/12/80	FY79: \$19,928 TOTAL: \$19,928	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kozakoff, D. J.	MSFC/Inman, R. A.	45-Elec Engr
	MSFC/Finnell, W.	

**NSG 1643** Georgia Institute of Technology 1995  
Ozone transport in the lower stratosphere and the ozone relationship

<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/80	FY79: \$20,000 TOTAL: \$20,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cunnold, D. M.	LARC/McMaster, I. R.	31-Atmos Sci
	LARC/McCormick, M. P.	

**NAS13-84** Georgia Institute of Technology 1990  
Transfer of IMGRID software from Cyber 74 system to the Univac 1108 and implementation of the linear feature selection software

<i>Period</i>	<i>Obligations</i>	
04/06/78-04/05/79	FY79: TOTAL: \$20,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Faust, N. L.	NSTL/Pearson, R.	22-Computer Science

**NSG 2306** Georgia Institute of Technology 1996  
Light-scattering calculations for the nephelometer experiment on the 1981/1982 Jupiter orbiter-probe mission

<i>Period</i>	<i>Obligations</i>	
03/01/78-02/28/80	FY79: \$10,934 TOTAL: \$27,797	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Grams, G. W.	ARC/Ragent, B.	31-Atmos Sci
	ARC/Pollack, J. B.	

**NCC 2 9** Georgia Institute of Technology 1991  
Three-dimensional simulation of the Jovian circulation

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$12,969 TOTAL: \$12,969	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Alyea, F. N.	ARC/Young, R. E.	31-Atmos Sci

**NSG 2323** Georgia Institute of Technology 1997  
Chronology integration analyses for closed life support systems applicable to space habitats

<i>Period</i>	<i>Obligations</i>	
06/01/78-12/31/79	FY79: \$170,000 TOTAL: \$235,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carden, J. L.	ARC/MacElroy, R. D.	59-Life Sci, NEC

**NASA S UNIVERSITY PROGRAM  
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**NSG 2356** Georgia Institute of Technology 1998  
Development of molded, coated fabric joints  
*Period* 12/01/78-08/31/80 *Obligations* FY79: \$84,308 TOTAL: \$84,308  
*Prin Invest* Olson, L. H. *NASA Tech Officer* ARC/Vykukal, H. C. *CASE Category* 49-Engr, NEC  
Freeston, W. D. *ARC/Webbon, B. W.*

**NSG 2363** Georgia Institute of Technology 1999  
In-situ measurements of optical properties of stratospheric aerosols using NASA U-2 aircraft  
*Period* 02/01/79-11/30/79 *Obligations* FY79: \$49,957 TOTAL: \$49,957  
*Prin Invest* Grains, G. W. *NASA Tech Officer* ARC/Pollack, J. B. *CASE Category* 31-Atmos Sci

**NSG 3036** Georgia Institute of Technology 2000  
Acoustic properties of turbofan inlets  
*Period* 09/01/74-10/31/81 *Obligations* FY79: \$66,279 TOTAL: \$134,633  
*Prin Invest* Zinn, B. T. *NASA Tech Officer* LERC/Baumeister, K. J. *CASE Category* 41-Aero Engr  
Sigman, R. K. *LERC/Rice, E. J.*

**NSG 3052** Georgia Institute of Technology 2001  
Experimental determination of rocket injector response factors under reactive conditions  
*Period* 03/01/75-02/28/79 *Obligations* FY79: TOTAL: \$212,558  
*Prin Invest* Korkan, K. D. *NASA Tech Officer* LERC/Priem, R. J. *CASE Category* 42-Astro Engr  
Petrie, S. L.

**NSG 3106** Georgia Institute of Technology 2002  
Surface temperatures and glassy state investigations in tribology  
*Period* 05/15/76-07/01/80 *Obligations* FY79: \$39,954 TOTAL: \$119,983  
*Prin Invest* Winer, W. O. *NASA Tech Officer* LERC/Jones, W. R., Jr. *CASE Category* 46-Mech Engr  
Bair, S.

**NSG 3228** Georgia Institute of Technology 2003  
A study of poultry plant noise characteristics and potential noise control techniques  
*Period* 10/01/78-12/31/79 *Obligations* FY79: TOTAL: \$50,000  
*Prin Invest* Cassonova, R. A. *NASA Tech Officer* LERC/Feiler, C. E. *CASE Category* 13-Physics

**NSG 3260** Georgia Institute of Technology 2004  
A viscous-inviscid interactive procedure for rotational flow in cascades of two-dimensional airfoils of arbitrary shape  
*Period* 03/15/79-03/15/80 *Obligations* FY79: \$21,889 TOTAL: \$21,889  
*Prin Invest* Johnston, W. A. *NASA Tech Officer* LERC/Sockol, P. M. *CASE Category* 41-Aero Engr

**NSG 3297** Georgia Institute of Technology 2005  
Foreign labor and capital costs for the manufacture of balance of system components  
*Period* 08/15/79-12/14/79 *Obligations* FY79: \$22,308 TOTAL: \$22,308  
*Prin Invest* Jacobson, J. E. *NASA Tech Officer* LERC/Scudder, L. R. *CASE Category* 72-Economics  
Hammond, R. W.  
James, B. E.

**NSG 3307** Georgia Institute of Technology 2006  
A new numerical approach for compressible viscous flows  
*Period* 09/10/79-09/09/80 *Obligations* FY79: \$45,678 TOTAL: \$45,678  
*Prin Invest* Wu, J. *NASA Tech Officer* LERC/McFarland, E. R. *CASE Category* 41-Aero Engr  
LERC/Sockol, P. M.

**NSG 5012** Georgia Institute of Technology 2007  
Research in millimeter wave techniques  
*Period* 06/15/74-01/31/80 *Obligations* FY79: \$35,000 TOTAL: \$586,434  
*Prin Invest* Forsythe, R. E. *NASA Tech Officer* GSFC/King, J. L. *CASE Category* 45-Elec Engr  
GSFC/Shiue, J. C.

**NSG 5082** Georgia Institute of Technology 2008  
Permittivity of sea water at millimeter wavelengths  
*Period* 10/01/75-05/15/78 *Obligations* FY79: TOTAL: \$61,971  
*Prin Invest* Dees, J. W. *NASA Tech Officer* GSFC/King, J. L. *CASE Category* 31-Atmos Sci

**NSG 5220** Georgia Institute of Technology 2009  
Meteorological measurements by synthetic radar  
*Period* 02/01/78-01/31/79 *Obligations* FY79: TOTAL: \$50,315  
*Prin Invest* Metcalf, J. I. *NASA Tech Officer* GSFC/Atlas, D. *CASE Category* 31-Atmos Sci  
Trebets, R. N.  
Piper, S. O.

**NSG 7969** Georgia Institute of Technology 2010  
Photocatalytic synthesis on planetary surfaces; molecular bases for the adaptation of halophilic microorganisms  
*Period* 09/15/74-09/30/80 *Obligations* FY79: \$18,318 TOTAL: \$72,766  
*Prin Invest* Hubbard, J. S. *NASA Tech Officer* HQ-SB/Young, R. S. *CASE Category* 51-Biological Sci

**NASA'S UNIVERSITY PROGRAM  
GEORGIA (Continued)**

**NAS 5-23571** **Morehouse College** **2011**  
Application of medical information management system for  
medical record keeping  
*Period* *Obligations*  
06/09/76-12/08/79 **FY79:** **TOTAL: \$72,865**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Margolis, S. GSFC/Alterescu, S. 56-Medical Sciences  
Norris, T. E. GSFC/Friedman, D. S.  
Sullivan, L. W.

**NSG 803** **Savannah State College** **2017**  
Toxic elements and organic degradation products in aquatic bodies  
and sediments around KSC  
*Period* *Obligations*  
09/23/74-09/22/79 **FY79:** **TOTAL: \$110,289**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ghuman, G. S. KSC/Perkins, E. E. 39-Env Sci, NEC  
Mench, M. P.  
Emch, C. O.

**NGT 11-008-004** **Morehouse College** **2012**  
Training of undergraduate students in sciences and engineering  
*Period* *Obligations*  
06/01/74-05/31/79 **FY79:** **TOTAL: \$31,500**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hall, J. H. HQ-LU/Pohly, J. G. 99-Multi-Discip  
HQ-U/Jenkins, H. G.

**NSG 8048** **Savannah State College** **2018**  
Research study of edge enhancement of multispectral imagery  
*Period* *Obligations*  
02/15/77-08/31/78 **FY79** **TOTAL: \$27,987**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wenner, D. B. MSFC/Jayroc, R. R., Jr. 45-Elec Engr  
MSFC/Kent, M. I.

**NSG 7652** **Morehouse College** **2013**  
The matrix-isolation infrared-laser-Raman study of the molecular  
structure of chlorine nitrate  
*Period* *Obligations*  
09/30/79-09/30/80 **FY79: \$45,000** **TOTAL: \$45,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hall, J. H. HQ-LU/Pohly, J. G. 12-Chemistry  
JPL/Watson, R. T.

**NGT 11-013-001** **Spelman College** **2019**  
Training of undergraduate students in sciences and engineering  
*Period* *Obligations*  
06/01/74-05/31/78 **FY79:** **TOTAL: \$31,500**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Falconer, E. HQ-LU/Pohly, J. G. 99-Multi-Discip  
HQ-U/Jenkins, H. G.

**NSG 8043** **Morehouse College** **2014**  
A comprehensive examination of ion acoustic waves in multi-ion  
component plasmas  
*Period* *Obligations*  
09/15/76-09/14/79 **FY79:** **TOTAL: \$22,786**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Turner, J. M. MSFC/Burch, J. L. 13-Physics

**NASW 2948** **University of Georgia** **2020**  
Operation of the computer software management information  
center  
*Period* *Obligations*  
07/01/76-06/30/79 **FY79:** **TOTAL: \$142,026**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Unavailable HQ-ET/Harrison, J. O. 99-Multi-Discip

**NSG 8027** **Morris Brown College** **2015**  
Increasing adhesion of paracyclophane polymers to epoxy glass  
laminate surfaces  
*Period* *Obligations*  
06/01/75-01/31/78 **FY79:** **TOTAL: \$35,472**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Maxwell, A. MSFC/Patterson, W. J. 12-Chemistry  
MSFC/Kent, M. I.

**NASW 3247** **University of Georgia** **2021**  
Operation of Co mic  
*Period* *Obligations*  
05/01/79-04/30/80 **FY79 \$372,000** **TOTAL \$372,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hale, H. HQ-ET/Harrison, J. O. 22-Computer Science

**NAS 8-30619** **North Georgia College** **2016**  
Correlation studies of remote sensing and fire beetle infestation  
*Period* *Obligations*  
04/09/74-06/30/78 **FY79** **TOTAL \$17,232**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Biesbrock, J. A. MSFC/Downs, S. W., Jr. 51-Biological Sci  
MSFC/Paludan, C. T.

**NAS13-121** **University of Georgia** **2022**  
Investigation studies to apply LANDSAT technology to assess  
the structure and potential waste assimilation capability of  
wetlands located along the Savannah River from Augusta to  
Savannah  
*Period* *Obligations*  
06/01/79-05/31/80 **FY79: \$20,671** **TOTAL \$20,671**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cooley, J. E. NSTL/Butera, M. K. 32-Geological Sci  
Odum, E. P.

**NASA'S UNIVERSITY PROGRAM  
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**NAS13-123** **University of Georgia** **2023**  
Conduct short courses in remote sensing  
*Period* *Obligations*  
05/18/79-05/31/80 **FY79: \$19,946** **TOTAL: \$19,946**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Welch, R. NSTL/Atwell, B. H. 32-Geological Sci

**NGR 11-003-037** **University of Georgia** **2024**  
Interpretation of stratigraphy and geologic mapping of Mars from Mariner/Mars 1971 television pictures  
*Period* *Obligations*  
05/24/72-04/14/79 **FY79:** **TOTAL: \$79,800**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Howard, J. H. HQ-SL/Boyce, J. M. 32-Geological Sci

**NSG 7433** **University of Georgia** **2025**  
Irradiation effects on the surface of the Moon, Mercury, Asteroids, and other airless solar system bodies due to solar high energy particles and cosmic rays  
*Period* *Obligations*  
03/01/78-02/28/80 **FY79: \$24,656** **TOTAL: \$40,677**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wenner, D. B. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. M.

**NSG 7539** **University of Georgia** **2026**  
Comparative analysis of terrestrial and Martian labyrinth terrains  
*Period* *Obligations*  
03/01/79-02/28/80 **FY79 \$14,650** **TOTAL: \$14,650**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Brook, G. HQ-SL/Dwornik, S. E. 32-Geological Sci  
HQ-SL/Boyce, J. M.

**HAWAII**

**NAS 5-25181** **University of Hawaii** **2027**  
Modifications to and operations and maintenance of the lunar laser observatory at the University of Hawaii in support of various satellite missions  
*Period* *Obligations*  
08/09/78-09/30/79 **FY79 \$157,010** **TOTAL \$257,010**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cushman, S. F. GSFC/White, W. W. 11-Astronomy  
Jefferies, J. T. GSFC/Davis, J. B.

**NAS 5-25376** **University of Hawaii** **2028**  
Data system test evaluation of global data sets  
*Period* *Obligations*  
01/23/79-02/22/80 **FY79: \$54,775** **TOTAL: \$54,775**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sadler, J. C. GSFC/Greaves, J. R. 31-Atmos Sci  
GSFC/Stetina, F. L.

**NAS 5-25378** **University of Hawaii** **2029**  
Data systems test evaluation and data sets  
*Period* *Obligations*  
12/05/78-01/04/80 **FY79: \$20,000** **TOTAL: \$20,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Murakami, T. GSFC/Greaves, J. R. 31-Atmos Sci  
GSFC/Stetina, F. L.

**NAS 8-33219** **University of Hawaii** **2030**  
The modeling of the solar upper photosphere and lower chromosphere based upon ATM data  
*Period* *Obligations*  
03/01/79-02/29/80 **FY79: \$65,796** **TOTAL: \$65,796**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Heasley, J. N. MSFC/DeLoach, A. C. 13-Physics

**NASW 2326** **University of Hawaii** **2031**  
Design development and fabrication of research equipment  
*Period* *Obligations*  
06/22/72-12/30/77 **FY79:** **TOTAL: \$360,049**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Jefferies, J. T. HQ-SL/Strickland, A. T. 11-Astronomy

**NASW 2801** **University of Hawaii** **2032**  
Construction of the three meter infrared telescope facility at Mauna Kea, Hawaii  
*Period* *Obligations*  
06/01/75-07/01/79 **FY79:** **TOTAL: \$7,666,455**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Jefferies, J. T. HQ-BX/Weir, J. F. 11-Astronomy  
HQ-SL/Brunk, W. E.

**NASW 3159** **University of Hawaii** **2033**  
Provision of support during the preparatory stage for operation of the NASA infrared telescope facility  
*Period* *Obligations*  
01/01/78-09/30/79 **FY79: \$389,172** **TOTAL: \$480,464**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Jefferies, J. T. HQ-SL/Brunk, W. E. 11-Astronomy  
HQ-SL/Quaide, W. L.

**NGL 12-001-011** **University of Hawaii** **2034**  
Research in coronal and chromospheric physics  
*Period* *Obligations*  
11/16/64-09/30/79 **FY79: \$233,000** **TOTAL \$4,092,234**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Jefferies, J. T. HQ-ST/Boulin J. D. 11-Astronomy

**NGL 12-001-042** **University of Hawaii** **2035**  
Performance and capabilities of terrestrial organisms in extreme and unusually gaseous and liquid environments  
*Period* *Obligations*  
04/14/67-12/31/77 **FY79:** **TOTAL: \$451,378**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Siegel, S. M. HQ-SB/Young, R. S. 51-Biological Sci

**NASA'S UNIVERSITY PROGRAM  
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<b>NGI 12-001-057</b>	<b>University of Hawaii</b>	<b>2036</b>			
Research in planetary studies					
<i>Period</i>	<i>Obligations</i>				
05/21/58-06/30/81	FY79: \$510,000	TOTAL: \$4,071,472			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Jefferies, J. T.	HQ-SL/Brunk, W. E.	11-Astronomy			
	HQ-SL/Murphy, R. E.				
<b>NGR 12-001-075</b>	<b>University of Hawaii</b>	<b>2037</b>			
Research in solar ultraviolet spectroscopy					
<i>Period</i>	<i>Obligations</i>				
12/09/69-12/31/78	FY79:	TOTAL \$1,950,421			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Jefferies, J. T.	GSFC/Bissell, E. E.	11-Astronomy			
	HQ-ST/Bohlin, J. D.				
<b>NGR 12-001-109</b>	<b>University of Hawaii</b>	<b>2038</b>			
N-heterocyclic compounds role in chemical evolution distribution in meteorites ancient sediments and as products of spark discharge reactions					
<i>Period</i>	<i>Obligations</i>				
06/26/72-05/14/80	FY79: \$37,600	TOTAL: \$264,375			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Folsome, C. E.	HQ-SB/Young, R. S.	12-Chemistry			
<b>NGR 12-001-127</b>	<b>University of Hawaii</b>	<b>2039</b>			
Operation of the Haleakala Lunar Ranging Observatory					
<i>Period</i>	<i>Obligations</i>				
06/01/73-10/31/79	FY79: \$325,000	TOTAL: \$1,912,200			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Jefferies, J. T.	GSFC/White, W. W.	32-Geological Sci			
Cushman, S. F.	HQ-ER/Flinn, E. A.				
<b>NSG 5159</b>	<b>University of Hawaii</b>	<b>2040</b>			
Determination of highly reflective cloud frequencies over the tropical oceans					
<i>Period</i>	<i>Obligations</i>				
02/14/77-01/15/79	FY79:	TOTAL: \$17,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Ramage, C. S.	GSFC/Theon, J. S.	31-Atmos Sci			
<b>NSG 5203</b>	<b>University of Hawaii</b>	<b>2041</b>			
Geochemical data synthesis and analyses					
<i>Period</i>	<i>Obligations</i>				
12/01/77-01/31/79	FY79:	TOTAL: \$30,700			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Hilpotts, J. A.	GSFC/Nava, D. F.	32-Geological Sci			
<b>NSG 5231</b>	<b>University of Hawaii</b>	<b>2042</b>			
Determination of cosmic abundance of boron					
<i>Period</i>	<i>Obligations</i>				
02/19/78-02/18/79	FY79:	TOTAL: \$5,457			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Boesgaard, A. M.	GSFC/Kupperian, J. E., Jr.	11-Astronomy			
<b>NSG 5317</b>	<b>University of Hawaii</b>	<b>2043</b>			
Ground base solar observations for the Solar Maximum Mission (SMM)					
<i>Period</i>	<i>Obligations</i>				
01/15/79-01/14/80	FY79: \$22,117	TOTAL: \$22,117			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Jefferies, J. T.	GSFC/Donley, J. L.	31-Atmos Sci			
Orrall, F. Q.					
<b>NSG 5326</b>	<b>University of Hawaii</b>	<b>2044</b>			
Investigation of flare protons in the sun's atmosphere					
<i>Period</i>	<i>Obligations</i>				
02/01/79-01/31/80	FY79: \$2,581	TOTAL \$2,581			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Orrall, F. Q.	GSFC/Donley, J. L.	31-Atmos Sci			
<b>NSG 7179</b>	<b>University of Hawaii</b>	<b>2045</b>			
Crustal deformation observations					
<i>Period</i>	<i>Obligations</i>				
10/20/75-12/31/79	FY79: \$245,607	TOTAL: \$591,472			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Berg, E.	HQ-SL/Finley, C. J.	19-Phys Sci, NEC			
Sutton, G. H.	HQ-ER/Flinn, E. A.				
Laurila, S. H.					
<b>NSG 7310</b>	<b>University of Hawaii</b>	<b>2046</b>			
Spectroscopy of asteroids					
<i>Period</i>	<i>Obligations</i>				
01/01/77-01/31/79	FY79:	TOTAL: \$62,786			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
McCord, T. B.	HQ-SL/Brunk, W. E.	11-Astronomy			
	HQ-SL/Quaide, W. L.				
<b>NSG 7312</b>	<b>University of Hawaii</b>	<b>2047</b>			
Remote compositional mapping of the lunar surface					
<i>Period</i>	<i>Obligations</i>				
02/01/77-01/31/80	FY79 \$190,000	TOTAL: \$751,112			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
McCord, T. B.	HQ-SL/Quaide, W. L.	32-Geological Sci			
	HQ-SL/French, B. M.				
<b>NSG 7323</b>	<b>University of Hawaii</b>	<b>2048</b>			
Research in planetary astronomy					
<i>Period</i>	<i>Obligations</i>				
02/01/77-01/31/80	FY79 \$108,000	TOTAL \$240,292			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
McCord, T. B.	HQ-SL/Brunk, W. E.	11-Astronomy			
	HQ-SL/Murphy, R. E.				
<b>NSG 7403</b>	<b>University of Hawaii</b>	<b>2049</b>			
Study of physical processes affecting water ice on outer solar system objects					
<i>Period</i>	<i>Obligations</i>				
12/01/77-05/31/80	FY79: \$23,626	TOTAL \$43,326			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Kafotos, M.	HQ-SL/Dworkin, S. I.	32-Geological Sci			
	HQ-SL/Boyce, J. M.				



**NASA'S UNIVERSITY PROGRAM  
HAWAII (Continued)**

**NSG 7423** University of Hawaii 2050  
Analysis of depth profiles of cosmic ray products in rocks  
*Period* *Obligations*  
03/01/78-10/31/79 FY79: TOTAL: \$9,960  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Russ, G. P. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. E.

**NSG 7443** University of Hawaii 2051  
Mineralogy of the surfaces of Mercury and Mars  
*Period* *Obligations*  
02/01/78-04/30/79 FY79: TOTAL: \$40,048  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
McCord, T. B. HQ-SL/Dwornik, S. E. 32-Geological Sci

**NSG 7462** University of Hawaii 2052  
An investigation of the mineralogy and petrology of meteorite parent bodies utilizing reflectance spectroscopy  
*Period* *Obligations*  
07/15/78-02/29/80 FY79: TOTAL: \$15,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gaffey, M. J. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. M.

**NSG 7536** University of Hawaii 2053  
Research in ultraviolet spectroscopy  
*Period* *Obligations*  
11/01/78-10/31/80 FY79: \$100,000 TOTAL: \$100,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Jefferies, J. T. HQ-ST/Bohlin, J. D. 13-Physics

**NSG 7590** University of Hawaii 2054  
Mars surface unit definition characterization  
*Period* *Obligations*  
03/01/79-02/29/80 FY79: \$64,854 TOTAL: \$64,854  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
McCord, T. B. HQ-SL/Quaide, W. L. 31-Atmos Sci

**NSG 7597** University of Hawaii 2055  
Geophysics and thermal evolution of small planetary objects  
*Period* *Obligations*  
05/01/79-04/30/80 FY79: \$30,446 TOTAL: \$30,446  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gaffey, M. J. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. M.

**NSG 7633** University of Hawaii 2056  
Thermophysics of satellites and asteroids  
*Period* *Obligations*  
07/01/79-06/30/80 FY79: \$12,142 TOTAL: \$12,142  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Morrison, D. HQ-SL/Dwornik, S. E. 13-Physics  
HQ-SL/Boyce, J. M.

**NSG 9071** University of Hawaii 2057  
Geochemistry of lunar and planetary processes  
*Period* *Obligations*  
07/15/78-09/30/79 FY79: TOTAL: \$28,750  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Philpotts, J. A. JSC/Harris, J. W. 32-Geological Sci

**IDAHO**

**NSG 2367** University of Idaho 2058  
Perfluoroether triazine elastomers  
*Period* *Obligations*  
03/01/79-02/28/80 FY79: \$9,800 TOTAL: \$9,800  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Korus, R. A. ARC/Rosner, R. W. 12-Chemistry  
ARC/Palmer, J. A.

**ILLINOIS**

**NSG 3030** Chicago State University 2059  
The restoration of obliterated serial numbers by ultrasonically cavitated water  
*Period* *Obligations*  
07/01/74-08/31/79 FY79: TOTAL: \$89,725  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Treptow, R. S. LERC/Young, S. G. 99-Multi-Discip

**NSG 1266** Illinois Institute of Technology 2060  
Automated sizing of aerospace structures under multiple constraints  
*Period* *Obligations*  
12/01/75-10/31/79 FY79: TOTAL: \$148,610  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Haftka, R. T. LARC/Adelman, H. M. 41-Aero Engr

**NSG 1591** Illinois Institute of Technology 2061  
Management of turbulent flow structures in boundary layers aimed at drag reduction  
*Period* *Obligations*  
01/15/79-01/14/80 FY79: \$40,122 TOTAL: \$40,122  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Nagib, H. M. LARC/Hefner, J. N. 41-Aero Engr  
LARC/Bushnell, D. M.

**NSG 3220** Illinois Institute of Technology 2062  
Management of turbulence and vorticity in contracting flows with applications to simulations of flight fan noise  
*Period* *Obligations*  
09/15/78-09/15/80 FY79: \$67,040 TOTAL: \$117,340  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Nagib, H. M. LERC/Groeneweg, J. F. 41-Aero Engr  
Wigeland, R. A.

**NASA'S UNIVERSITY PROGRAM  
ILLINOIS (Continued)**

<b>NAS 3-21261</b>	<b>Northwestern University</b>	<b>2063</b>
Measurement of film thickness in face seals		
<i>Period</i>	<i>Obligations</i>	
07/14/78-10/13/78	FY79:	TOTAL: \$9,666
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burton, R. A.	LERC/Ludwig, L. P.	46-Mech Engr
<b>NAS 8-33010</b>	<b>Northwestern University</b>	<b>2064</b>
Research in galactic and extragalactic astronomy HEAO-1		
<i>Period</i>	<i>Obligations</i>	
06/01/78-09/30/80	FY79: \$5,800	TOTAL: \$38,383
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ulmer, M. P.	MSFC/Jones, J. B., Jr.	11-Astronomy
<b>NAS 8-33354</b>	<b>Northwestern University</b>	<b>2065</b>
Observations of Abell cluster		
<i>Period</i>	<i>Obligations</i>	
07/15/79-07/14/80	FY79: \$7,000	TOTAL: \$7,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ulmer, M. P.	MSFC/Jones, J. B., Jr.	11-Astronomy
<b>NGL 14-007-04</b>	<b>Northwestern University</b>	<b>2066</b>
A study of celestial objects of high angular momenta		
<i>Period</i>	<i>Obligations</i>	
02/18/66-04/30/78	FY79:	TOTAL: \$265,251
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Huang, S. S.	HQ-SC/Roman, N. G	11-Astronomy
	HQ-SC/Rosendhal, J. D.	
<b>NGT 14-007-780</b>	<b>Northwestern University</b>	<b>2067</b>
Pre-cooperative engineering education program		
<i>Period</i>	<i>Obligations</i>	
10/01/77-09/30/79	FY79:	TOTAL: \$14,765
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ingersoll, D.	HQ-LU/Pohly, J. G.	49-Engr, NEC
	LERC/Allen, R. P.	
<b>NSG 2149</b>	<b>Northwestern University</b>	<b>2068</b>
Technological and economic factors affecting the retirement dates of commercial jet aircraft		
<i>Period</i>	<i>Obligations</i>	
04/01/76-01/01/80	FY79: \$7,578	TOTAL: \$53,182
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Spencer, F. A.	ARC/Anderson, J. L.	41-Aero Engr
	ARC/Jones, J. L.	
<b>NSG 2328</b>	<b>Northwestern University</b>	<b>2069</b>
Impact of international noise abatement regulations on the U.S. aircraft manufacturing and air carrier industries		
<i>Period</i>	<i>Obligations</i>	
05/15/78-12/31/79	FY79: \$18,400	TOTAL: \$40,700
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Spencer, F. A.	ARC/Anderson, J. L.	41-Aero Engr
	ARC/Faye, A. E.	
<b>NSG 3039</b>	<b>Northwestern University</b>	<b>2070</b>
Investigation of interaction of turbine blade tips and labyrinth seals with housings of jet engines and gas turbines		
<i>Period</i>	<i>Obligations</i>	
09/16/74-12/31/78	FY79:	TOTAL: \$133,270
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burton, R. A.	LERC/Ludwig, L. P.	47-Materials Engr
<b>NSG 3143</b>	<b>Northwestern University</b>	<b>2071</b>
Dynamic load and lubrication of spiral bevel gears		
<i>Period</i>	<i>Obligations</i>	
03/15/77-10/15/80	FY79: \$34,842	TOTAL: \$103,637
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cheng, H. S.	LERC/Coy, J. J.	46-Mech Engr
	LERC/Zaretsky, E. V.	
<b>NSG 3149</b>	<b>Northwestern University</b>	<b>2072</b>
Effects of debris dents and furrows on elastohydrodynamic lubrication		
<i>Period</i>	<i>Obligations</i>	
05/01/77-04/30/79	FY79:	TOTAL: \$16,775
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cheng, H. S.	LERC/Wedeven, L. D.	46-Mech Engr
<b>NSG 7394</b>	<b>Southern Illinois University - Carbondale</b>	<b>2073</b>
Blue-green algae studies		
<i>Period</i>	<i>Obligations</i>	
12/01/77-02/28/79	FY79:	TOTAL: \$31,708
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Yopp, J. H.	HQ-SB/Young, R. S.	51-Biological Sci
<b>NAS 2-6551</b>	<b>University of Chicago</b>	<b>2074</b>
Pioneer F/G charged particle experiment data analysis		
<i>Period</i>	<i>Obligations</i>	
08/09/71-09/30/79	FY79: \$244,620	TOTAL: \$1,669,361
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Simpson, J. A.	ARC/Hall, C. F.	11-Astronomy
	ARC/Porter, D. L.	
<b>NAS 5-11067</b>	<b>University of Chicago</b>	<b>2075</b>
IMP-H&J solar flare and isotope experiment		
<i>Period</i>	<i>Obligations</i>	
06/11/68-11/30/79	FY79: \$196,000	TOTAL: \$2,227,304
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Simpson, J. A.	GSFC/Davis, M. A.	13-Physics
<b>NAS 5-20674</b>	<b>University of Chicago</b>	<b>2076</b>
Quasi ray electrons experiment for ISEE-C heliocentric orbit		
<i>Period</i>	<i>Obligations</i>	
10/24/74-12/31/81	FY79: \$213,448	TOTAL: \$1,158,418
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Meyer, P.	GSFC/Gallagher, W. F.	13-Physics
	GSFC/Davis, M. A.	

**NASA'S UNIVERSITY PROGRAM**

**ILLINOIS (Continued)**

**NAS 5-24430** University of Chicago 2077  
 Design, develop, fabricate and test a scientific instrument for an experiment to measure cosmic ray isotopes  
*Period* *Obligations*  
 12/01/77-09/30/83 FY79: \$416,316 TOTAL: \$1,216,316  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Simpson, J. A. GSFC/Davis, M. A. 13-Physics

**NAS 8-32828** University of Chicago 2078  
 Elemental composition and energy spectra of cosmic ray nuclei  
*Period* *Obligations*  
 10/28/77-11/15/82 FY79: \$1,163,318 TOTAL: \$2,099,103  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Meyer, P. MSFC/Guynes, B. V. 31-Atmos Sci  
 Muller, D. MSFC/Isac, R.

**NAS 8-33350** University of Chicago 2079  
 Guest investigator effort on the high energy astronomy observatory C-2  
*Period* *Obligations*  
 05/30/79-05/29/80 FY79: \$25,000 TOTAL: \$25,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Meyer, P. MSFC/Jones, J. B., Jr. 11-Astronomy

**NCA 2-108901** University of Chicago 2080  
 Photometric performance of airborne infrared telescopes  
*Period* *Obligations*  
 11/01/78-06/15/79 FY79: \$11,880 TOTAL: \$11,880  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Harper, D. A., Jr. ARC/Erickson, E. F. 11-Astronomy  
 ARC/Haughney, L. C.

**NCA 2-108902** University of Chicago 2081  
 Numerical experiments in galactic dynamics and planetary formation  
*Period* *Obligations*  
 11/15/78-11/14/80 FY79: \$7,700 TOTAL: \$7,700  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Miller, R. H. ARC/Smith, B. F. 11-Astronomy  
 Arnett, W. D.

**NGL 14-001-001** University of Chicago 2082  
 Investigation of effects of solar wind in interplanetary space  
*Period* *Obligations*  
 08/01/60-12/31/80 FY79: \$29,700 TOTAL: \$1,179,072  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Parker, E. N. HQ-SC/Kaluzienski, L. J. 11-Astronomy  
 HQ-SC/Opp, A. G.

**NGL 14-001-005** University of Chicago 2083  
 High altitude balloon investigations on composition, energy spectrum & intensity of primary cosmic radiation at high & intermediate geomagnetic latitudes  
*Period* *Obligations*  
 05/01/61-10/31/79 FY79: \$430,000 TOTAL: \$5,935,258  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Meyer, P. HQ-SC/Opp, A. G. 11-Astronomy

**NGL 14-001-006** University of Chicago 2084  
 Experimental and theoretical studies of energetic particles and electrodynamic processes in interplanetary space and in vicinity of planets  
*Period* *Obligations*  
 08/01/61-12/31/79 FY79: \$440,000 TOTAL: \$6,452,396  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Simpson, J. A. HQ-SL/Kaluzienski, L. J. 11-Astronomy  
 HQ-SC/Opp, A. G.

**NGL 14-001-010** University of Chicago 2085  
 Research and investigation of origin, age and composition of meteorites  
*Period* *Obligations*  
 03/11/63-03/31/81 FY79: \$85,660 TOTAL: \$1,634,173  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Anders, E. HQ-SL/French, B. M. 32-Geological Sci  
 Lewis, R. S. HQ-SL/Quaide, W. L.

**NGL 14-001-167** University of Chicago 2086  
 Lunar sample analysis  
*Period* *Obligations*  
 03/29/72-01/31/81 FY79: \$91,960 TOTAL: \$1,588,350  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Anders, E. JSC/Harris, J. W. 13-Physics

**NGL 14-001-169** University of Chicago 2087  
 Lunar sample analysis  
*Period* *Obligations*  
 01/19/71-01/31/81 FY79: \$73,006 TOTAL: \$866,298  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Clayton, R. N. JSC/Harris, J. W. 12-Chemistry

**NGL 14-001-171** University of Chicago 2088  
 Lunar sample analysis  
*Period* *Obligations*  
 01/19/71-01/31/81 FY79: TOTAL: \$619,383  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Smith, J. V. JSC/Harris, J. W. 13-Physics

**NGL 14-001-258** University of Chicago 2089  
 Advanced technical developments in support of scientific experiments in space  
*Period* *Obligations*  
 06/11/73-03/31/80 FY79: \$250,000 TOTAL: \$1,550,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Simpson, J. A. HQ-SP/Tate, F. 99-Multi-Discip

**NGR 14-001-008** University of Chicago 2090  
 Meteorological interpretation of satellite radiation data  
*Period* *Obligations*  
 09/01/70-10/31/79 FY79: \$75,000 TOTAL: \$1,447,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Fujita, T. T. HQ-EB/Dodge, J. C. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
ILLINOIS (Continued)**

<b>NGR 14-001-135</b>	<b>University of Chicago</b>	<b>2091</b>			
Feasibility of the alpha scattering technique for Martian surface analysis					
<i>Period</i>	<i>Obligations</i>				
02/25/69-01/31/80	FY79: \$22,000	TOTAL: \$731,844			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Turkevich, A. L.	HQ-SL/Quaide, W. L.	32-Geological Sci			
	HQ-SL/French, B. M.				
<b>NGR 14-001-147</b>	<b>University of Chicago</b>	<b>2092</b>			
Interferometric high-resolution spectroscopy of optical interstellar lines					
<i>Period</i>	<i>Obligations</i>				
03/18/70-12/31/78	FY79: \$31,161	TOTAL: \$262,769			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Hobbs, L. M.	HQ-SC/Rosendhal, J. D.	11-Astronomy			
	HQ-SC/Roman, N. G.				
<b>NGR 14-001-194</b>	<b>University of Chicago</b>	<b>2093</b>			
Quantitative spectroscopy of planetary atmospheres					
<i>Period</i>	<i>Obligations</i>				
07/20/71-04/14/79	FY79:	TOTAL: \$190,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Clayton, R. N.	HQ-SL/Fellows, R. F.	31-Atmos Sci			
	HQ-SL/Brunk, W. E.				
<b>NGR 14-001-225</b>	<b>University of Chicago</b>	<b>2094</b>			
Physiology of the vestibular system of the squirrel monkey					
<i>Period</i>	<i>Obligations</i>				
05/12/67-11/30/79	FY79: \$45,000	TOTAL: \$422,893			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Goldberg, J. M.	ARC/Daunton, N. G.	51-Biological Sci			
<b>NGR 14-001-227</b>	<b>University of Chicago</b>	<b>2095</b>			
Photometry of galactic and extragalactic far infrared sources using the 91.5 cm airborne infrared telescope					
<i>Period</i>	<i>Obligations</i>				
02/27/73-03/31/80	FY79: \$122,302	TOTAL: \$560,565			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Harper, D. A., Jr.	ARC/Haughney, L. C.	11-Astronomy			
<b>NGR 14-001-249</b>	<b>University of Chicago</b>	<b>2096</b>			
Physical properties of solar nebula as deduced from chondrites					
<i>Period</i>	<i>Obligations</i>				
05/14/73-03/31/81	FY79: \$64,484	TOTAL: \$636,940			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Grossman, L.	HQ-SL/French, B. M.	32-Geological Sci			
Davis, A. M.	HQ-SL/Quaide, W. L.				
<b>NSG 5202</b>	<b>University of Chicago</b>	<b>2097</b>			
Study of interstellar clouds containing atomic and molecular constituents					
<i>Period</i>	<i>Obligations</i>				
09/01/77-08/31/79	FY79:	TOTAL: \$12,500			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Simpson, J. A.	GSFC/Kupperian, J. E., Jr.	11-Astronomy			
<b>NSG 5291</b>	<b>University of Chicago</b>	<b>2098</b>			
Molecular hydrogen experimentation with Copernicus					
<i>Period</i>	<i>Obligations</i>				
07/15/78-07/14/79	FY79:	TOTAL: \$3,796			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Simpson, J. A.	GSFC/Kupperian, J. E., Jr.	11-Astronomy			
<b>NSG 5311</b>	<b>University of Chicago</b>	<b>2099</b>			
Ultraviolet observations of Copernicus data					
<i>Period</i>	<i>Obligations</i>				
12/15/78-12/14/79	FY79: \$15,000	TOTAL: \$15,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Simpson, J. A.	GSFC/Kupperian, J. E., Jr.	11-Astronomy			
<b>NSG 5402</b>	<b>University of Chicago</b>	<b>2100</b>			
Research of precipitation growth in convective clouds					
<i>Period</i>	<i>Obligations</i>				
08/01/79-07/31/80	FY79: \$26,474	TOTAL: \$26,474			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Srivastava, R. C.	GSFC/Adler, R. F.	31-Atmos Sci			
<b>NSG 5405</b>	<b>University of Chicago</b>	<b>2101</b>			
Observations of interstellar lines in stars toward the north polar spur					
<i>Period</i>	<i>Obligations</i>				
09/15/79-09/14/80	FY79 \$12,000	TOTAL: \$12,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Frisch, P. C.	GSFC/Bogges, A.	11-Astronomy			
<b>NSG 7212</b>	<b>University of Chicago</b>	<b>2102</b>			
Nuclear astrophysics effects in meteoritic and lunar material					
<i>Period</i>	<i>Obligations</i>				
03/01/76-02/29/80	FY79 \$48,675	TOTAL: \$157,241			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Schramm, D. N.	HQ-SL/Quaide, W. L.	32-Geological Sci			
	HQ-SL/French, B. E.				
<b>NSG 7303</b>	<b>University of Chicago</b>	<b>2103</b>			
Applications of electron microscopy in molecular exobiology and extraterrestrial research					
<i>Period</i>	<i>Obligations</i>				
12/01/76-07/31/80	FY79:	TOTAL: \$105,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Moran, H. F.	HQ-SB/Larson, C. A.	51-Biological Sci			
	HQ-SB/Winter, D. L.				
<b>NSG 7356</b>	<b>University of Chicago</b>	<b>2104</b>			
Balloon-borne spectroscopy of stratospheric constituents					
<i>Period</i>	<i>Obligations</i>				
06/01/77-12/31/79	FY79:	TOTAL: \$142,996			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>			
Kaplan, L. D.	HQ-ST/Seals, R. K., Jr.	31-Atmos Sci			
	HQ-ST/Tilford, S. G.				

**NASA'S UNIVERSITY PROGRAM  
ILLINOIS (Continued)**

**NSG 7464** University of Chicago 2105  
Studies of the energy spectrum of cosmic ray electrons  
*Period* *Obligations*  
07/01/78-03/31/80 FY79: \$117,300 TOTAL: \$160,332  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Muller, D. HQ-SC/Kaluzienski, L. J. 31-Atmos Sci  
HQ-SC/Opp, A. G.

**NSG 7532** University of Chicago 2106  
Chemical analysis by alpha particle techniques on a cometary mission  
*Period* *Obligations*  
01/01/79-12/31/79 FY79: \$98,000 TOTAL: \$98,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Turkevich, A. L. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. M.

**NSG 7550** University of Chicago 2107  
Ion and electron microprobe analyses of meteoritic minerals  
*Period* *Obligations*  
02/01/79-01/31/80 FY79: \$54,000 TOTAL: \$54,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Smith, J. V. HQ-SL/French, B. M. 32-Geological Sci  
HQ-SL/Quaide, W. L.

**NAS 8-32993** University of Illinois - Chicago Circle 2108  
Spacelab experiment definition relating to basic soil behavior and dynamic properties  
*Period* *Obligations*  
04/01/78-02/28/79 FY79: TOTAL: \$10,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Silver, M. L. MSFC/Costes, N. C. 44-Civil Engr  
MSFC/Campbell, W.

**NCA 2-330901** University of Illinois - Chicago Circle 2109  
Adapting a general radiative transfer program to atmospheric problems  
*Period* *Obligations*  
01/01/79-12/31/79 FY79: \$11,000 TOTAL: \$11,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cogley, A. C. ARC/Pollack, J. B. 49-Engr, NEC  
Bergstrom, R. W.

**NSG 1150** University of Illinois - Chicago Circle 2110  
A kinetic-theory approach to turbulent mixing and combustion  
*Period* *Obligations*  
03/01/75-12/31/79 FY79: TOTAL: \$123,915  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Chung, P. M. LARC/Evans, J. S. 41-Aero Engr  
LARC/Beach, H. L., Jr.

**NSG 7247** University of Illinois - Chicago Circle 2111  
Inverse problems in physics and geophysics  
*Period* *Obligations*  
07/01/76-12/31/78 FY79: TOTAL: \$48,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Barcilon, V. HQ-RT/Randolph, L. P. 21-Mathematics  
JPL/Chahine, M.

**NAS 1-14731** University of Illinois - Urbana 2112  
Investigation of predictive display symbology for terminal configured vehicle  
*Period* *Obligations*  
12/20/76-05/15/79 FY79: \$12,866 TOTAL: \$116,218  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Jensen, R. S. LARC/Salmirs, S. 41-Aero Engr  
LARC/Kurbjun, M. C.

**NAS 5-24275** University of Illinois - Urbana 2113  
Application and design refinement of the massively parallel processing computer  
*Period* *Obligations*  
09/12/77-08/19/80 FY79: TOTAL: \$115,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Slotnick, D. L. GSFC/Schaefer, D. H. 45-Elec Engr

**NAS 5-25062** University of Illinois - Urbana 2114  
Study of antenna diffraction problems  
*Period* *Obligations*  
06/23/78-02/01/81 FY79: \$85,086 TOTAL: \$129,229  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Mitra, R. GSFC/Keating, T., Jr. 45-Elec Engr  
Lee, S.

**NAS 9-15328** University of Illinois - Urbana 2115  
Definition of Spacelab I experiment on effects of prolonged weightlessness on the humoral response in humans  
*Period* *Obligations*  
07/15/77-07/01/81 FY79 TOTAL: \$47,738  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Voss, E. W. JSC/Chassay, C. E. 59-Life Sci, NEC

**NGL 14-005-140** University of Illinois - Urbana 2116  
Research on fluid dynamic and heat transfer problems of modern air breathing propulsive systems  
*Period* *Obligations*  
05/23/69-05/31/79 FY79: TOTAL: \$257,661  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Chow, W. L. LERC/Bober, L. J. 41-Aero Engr

**NGR 14-005-176** University of Illinois - Urbana 2117  
Investigation of the atmosphere of Jupiter by studying the ammonia feature at a wavelength of 1.26 cm  
*Period* *Obligations*  
05/22/72-12/31/79 FY79: \$13,672 TOTAL: \$64,109  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Dickel, J. R. HQ-SL/Brunk, W. E. 11-Astronomy  
HQ-SL/Murphy, R. E.

**NGR 14-005-181** University of Illinois - Urbana 2118  
Rocket studies of the lower ionosphere  
*Period* *Obligations*  
08/01/71-10/31/79 FY79: \$450,000 TOTAL: \$3,584,817  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bowhill, S. A. WFC/Gray, J. W. 19-Phys Sci, NEC  
WFC/Pless, R. H.

**NASA'S UNIVERSITY PROGRAM  
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**NGR 14-005-200** University of Illinois - Urbana 2119  
Studies of discharge mechanisms occurring in high pressure gases with applications to high efficiency high power lasers

<i>Period</i>	<i>Obligations</i>	
04/06/73-11/30/78	FY79:	TOTAL: \$189,860
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Verdeyen, J. T.	LERC/Dunning, J. W., Jr.	13-Physics
Cherrington, B. E.		

**NSG 3043** University of Illinois - Urbana 2125  
The effect of a zero g environment on flammability limits as determined using a standard flammability tube apparatus

<i>Period</i>	<i>Obligations</i>	
05/21/75-06/30/79	FY79:	TOTAL: \$75,254
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Strehlow, R. A.	LERC/Cochran, T. H.	43-Chem Engr

**NSG 1434** University of Illinois - Urbana 2120  
Development of methods for predicting and measuring distribution patterns of aerial sprays

<i>Period</i>	<i>Obligations</i>	
06/21/77-10/20/78	FY79:	TOTAL: \$73,379
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ormsbee, A. I.	LARC/Jordan, F. L.	41-Aero Engr
Sivier, K. R.		

**NSG 3098** University of Illinois - Urbana 2126  
Transient dynamic analysis of high-speed lightly loaded cylindrical roller bearings

<i>Period</i>	<i>Obligations</i>	
06/06/76-10/05/78	FY79:	TOTAL: \$21,986
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Conry, T. F.	LERC/Scribber, H. W.	46-Mech Engr

**NSG 1471** University of Illinois - Urbana 2121  
Mechanisms and methodologies for the design and construction of communicating concurrent processes in real-time environments

<i>Period</i>	<i>Obligations</i>	
11/15/77-11/14/80	FY79: \$109,252	TOTAL: \$174,422
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Campbell, R. H.	LARC/Foudriat, E. C.	21-Mathematics
Belford, G.	LARC/Will, R. W.	

**NSG 3293** University of Illinois - Urbana 2127  
The effect of a zero g environment on flammability limits as determined using a standard flammability tube apparatus

<i>Period</i>	<i>Obligations</i>	
08/21/79-08/20/80	FY79: \$30,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Strehlow, R. A.	LERC/Cochran, T. H.	13-Physics

**NSG 1547** University of Illinois - Urbana 2122  
An experimental investigation of 235Uf6 fission produced plasmas

<i>Period</i>	<i>Obligations</i>	
07/01/78-06/30/80	FY79: \$40,000	TOTAL: \$80,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miley, G. H.	LARC/Hohl, F.	13-Physics

**NSG 5049** University of Illinois - Urbana 2128  
Effects of atmospheric refraction and turbulence on the accuracy of laser systems

<i>Period</i>	<i>Obligations</i>	
02/01/75-03/31/80	FY79: \$30,810	TOTAL: \$171,080
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ghia, K. N.	GSFC/Abshire, J. B.	45-Elec Engr
Ghia, U.	GSFC/Fitzmaurice, M. W.	

**NSG 1609** University of Illinois - Urbana 2123  
Lasing characteristics of gas mixtures involving Uf6 application to nuclear pumping of lasers

<i>Period</i>	<i>Obligations</i>	
04/15/79-04/14/80	FY79: \$30,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Verdeyen, J. T.	LARC/Hohl, F.	13-Physics
Eden, J. G.		

**NSG 5213** University of Illinois - Urbana 2129  
Studies of the transport of nitric oxide using AE satellite data

<i>Period</i>	<i>Obligations</i>	
10/01/77-07/31/80	FY79: \$23,000	TOTAL: \$47,957
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sechrist, C. F., Jr.	GSFC/Spencer, N. W.	13-Physics

**NSG 2119** University of Illinois - Urbana 2124  
Pilot interaction with automated airborne decision making systems

<i>Period</i>	<i>Obligations</i>	
11/01/75-08/20/80	FY79: \$64,100	TOTAL: \$176,898
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rouse, W. B.	ARC/Palmer, E. A.	99-Multi-Discip
	ARC/Wempe, T. E.	

**NSG 5278** University of Illinois - Urbana 2130  
Search for spectra of interstellar molecules against hot stars

<i>Period</i>	<i>Obligations</i>	
06/15/78-12/14/79	FY79:	TOTAL: \$13,513
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Snyder, L. E.	GSFC/Donn, B. D.	11-Astronomy
	GSFC/Stief, L. J.	

**NSG 5294** University of Illinois - Urbana 2131  
Copernicus satellite observations

<i>Period</i>	<i>Obligations</i>	
08/01/78-07/31/80	FY79:	TOTAL: \$6,823
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Crutcher, R. M.	GSFC/Kupperman, J. J., Jr.	11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
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**NSG 5319** University of Illinois - Urbana 2132  
Theoretical studies of the solar corona, solar maximum mission  
*Period* 01/15/79-01/14/81 *Obligations* FY79: \$41,568 TOTAL: \$41,568  
*Prin Invest* Mouschovias, T. C. *NASA Tech Officer* GSFC/Donley, J. L. *CASE Category* 31-Atmos Sci

**NSG 7044** University of Illinois - Urbana 2133  
Evolution of the cell and the translation process  
*Period* 06/01/74-05/31/80 *Obligations* FY79: \$75,060 TOTAL: \$297,360  
*Prin Invest* Woese, C. R. *NASA Tech Officer* HQ-SB/Young, R. S. *CASE Category* 12-Chemistry

**NSG 7506** University of Illinois - Urbana 2134  
Studies of upper-atmosphere motions by UHF  
*Period* 10/01/78-09/30/79 *Obligations* FY79: \$75,000 TOTAL: \$75,000  
*Prin Invest* Bowhill, S. A. *NASA Tech Officer* HQ-ST/Seals, R. K., Jr. *CASE Category* 31-Atmos Sci  
HQ-ST/Tilford, S. G.

**NSG 7598** University of Illinois - Urbana 2135  
Observing compact objects workshop  
*Period* 02/01/79-09/30/79 *Obligations* FY79: \$7,143 TOTAL: \$7,143  
*Prin Invest* Pines, D. *NASA Tech Officer* HQ-SC/Opp, A. G. *CASE Category* 11-Astronomy  
Lamb, F.

**INDIANA**

**NAS 5-22987** Indiana University - Bloomington 2136  
Digital techniques applied to surface photometry of low contrast astronomical objects  
*Period* 02/11/76-08/31/80 *Obligations* FY79: \$14,311 TOTAL: \$59,996  
*Prin Invest* Burkhead, M. S. *NASA Tech Officer* GSFC/Hobbs, R. W. *CASE Category* 11-Astronomy

**NAS 8-33087** Indiana University - Bloomington 2137  
Correlated ground base observations in support of the HEAO-1 X-ray observatory  
*Period* 06/01/78-07/26/80 *Obligations* FY79: \$15,152 TOTAL: \$45,129  
*Prin Invest* Mufson, S. L. *NASA Tech Officer* MSEC/Dauey, C. C. *CASE Category* 11-Astronomy  
Wisniewski, W. Z.  
Johnson, H. L.

**NGR 15-003-118** Indiana University - Bloomington 2138  
Application of ultra-high sensitivity isotope ratio mass spectrometry to organic geochemistry and cosmochemistry  
*Period* 06/20/72-05/31/80 *Obligations* FY79: \$78,500 TOTAL: \$555,466  
*Prin Invest* Hayes, J. M. *NASA Tech Officer* HQ-SB/Young, R. S. *CASE Category* 32-Geological Sci

**NSG 7389** Indiana University - Bloomington 2139  
Development of gas extraction systems needed to prepare geologic samples for sulfur and oxygen isotopic analysis  
*Period* 11/01/77-09/30/79 *Obligations* FY79: TOTAL: \$9,190  
*Prin Invest* Ripley, E. M. *NASA Tech Officer* HQ-SB/Young, R. S. *CASE Category* 32-Geological Sci

**NSG 7520** Indiana University - Bloomington 2140  
Origin and evolution of sulfur in an archean volcano-sedimentary sequence, North Central Minnesota  
*Period* 01/01/79-12/31/79 *Obligations* FY79: \$12,144 TOTAL: \$12,144  
*Prin Invest* Ripley, E. M. *NASA Tech Officer* HQ-SB/Young, R. S. *CASE Category* 32-Geological Sci

**NSG 9072** Indiana University - Bloomington 2141  
Investigation of regolith evolution through a petrographic and electronprobe analysis of soil samples  
*Period* 07/14/78-07/13/80 *Obligations* FY79: \$9,000 TOTAL: \$18,900  
*Prin Invest* Basu, A. *NASA Tech Officer* JSC/McKay, D. S. *CASE Category* 32-Geological Sci

**NSG 9077** Indiana University - Bloomington 2142  
Characterization and evolution of Apollo 15 drill core soils, and the origin of green glass vitrophyres  
*Period* 07/15/79-07/14/80 *Obligations* FY79: \$21,000 TOTAL: \$21,000  
*Prin Invest* Basu, A. *NASA Tech Officer* JSC/Harris, J. W. *CASE Category* 32-Geological Sci

**NSG 3183** Indiana Univ.-Purdue U. at Indianapolis 2143  
Numerical solution of the compressible boundary layer equations with viscous-inviscid interaction  
*Period* 01/16/78-01/16/80 *Obligations* FY79: \$23,288 TOTAL: \$38,475  
*Prin Invest* Bodonyi, R. J. *NASA Tech Officer* LERC/Sockol, P. M. *CASE Category* 41-Aero Engr

**NSG 3294** Indiana Univ.-Purdue U. at Indianapolis 2144  
Finite element analysis of transonic flow through a cascade of airfoils using a self-adaptive mesh  
*Period* 08/01/79-07/31/80 *Obligations* FY79: \$56,411 TOTAL: \$56,411  
*Prin Invest* Ecer, A. *NASA Tech Officer* LERC/Chima, R. U. *CASE Category* 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM  
INDIANA (Continued)**

**NAS 5-22816** **Purdue University** **2145**  
Utility of correlation techniques on gravity and magnetic interpretation study  
*Period* *Obligations*  
11/24/75-08/31/78 **FY79:** **TOTAL: \$48,489**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hinze, A. J. GSFC/Langel, R. A. 32-Geological Sci  
Braile, L. W.

**NAS 9-15508** **Purdue University** **2152**  
Digital processing of LANDSAT (MSS) and topographic data to improve capabilities for computerized mapping of forest cover types  
*Period* *Obligations*  
12/16/77-01/15/80 **FY79: \$108,386** **TOTAL: \$200,549**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hoffer, R. M. JSC/Amsbury, D. L. 39-Env Sci, NEC

**NAS 5-24462** **Purdue University** **2146**  
Earth resources data processing remote terminal support  
*Period* *Obligations*  
02/23/78-12/22/79 **FY79: \$7,712** **TOTAL: \$26,052**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Phillips, T. L. GSFC/Gordon, F., Jr. 22-Computer Science  
Schwingendorf, S. K.

**NAS 9-15889** **Purdue University** **2153**  
Evaluation of Side Looking Airborne Radar (SLAR) and simulated thematic mapper Multi-Spectral Scanner (MSS) data for forest cover mapping using computer aided analysis techniques  
*Period* *Obligations*  
05/21/79-11/30/79 **FY79: \$63,775** **TOTAL: \$63,775**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hoffer, R. M. JSC/Amsbury, D. L. 32-Geological Sci

**NAS 5-25030** **Purdue University** **2147**  
Lithospheric models of the North American continent utilizing surface and satellite geophysical data  
*Period* *Obligations*  
05/04/78-01/04/80 **FY79:** **TOTAL: \$60,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hinze, W. J. GSFC/Langel, R. A. 32-Geological Sci  
Braile, L. W.

**NCC 5 21** **Purdue University** **2154**  
Lithospheric models of the North American continent derived from seismic refraction and surface wave studies  
*Period* *Obligations*  
07/01/79-06/30/80 **FY79: \$41,855** **TOTAL: \$41,855**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Braile, L. W. GSFC/Allenby, R. J. 32-Geological Sci

**NAS 6-2695** **Purdue University** **2148**  
Services in support of a remote Laeys Terminal Flight Center  
*Period* *Obligations*  
11/15/75-04/30/79 **FY79:** **TOTAL: \$35,186**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Phillips, T. L. WFC/Maurer, H. E. 39-Env Sci, NEC  
Schwingendorf, S. K. WFC/Hancock, D. W.

**NGI 15-005-140** **Purdue University** **2155**  
Origin of chondrites from relationships between fourteen key trace elements  
*Period* *Obligations*  
06/21/71-02/28/80 **FY79: \$65,000** **TOTAL: \$493,437**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lipschutz, M. E. HQ-SL/French, B. M. 32-Geological Sci  
HQ-SL/Quaide, W. L.

**NAS 9-15081** **Purdue University** **2149**  
Technical coordination and implementation of remote sensing experiments for analogous vegetative areas in the United States and the Soviet Union  
*Period* *Obligations*  
08/01/76-11/15/79 **FY79: \$99,857** **TOTAL: \$311,557**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bauer, M. E. JSC/McEwen, M. C. 39-Env Sci, NEC

**NGI 15-005-186** **Purdue University** **2156**  
Application of remote sensing technology to solution of problems in management of resources  
*Period* *Obligations*  
06/19/73-05/31/80 **FY79** **TOTAL \$1,195,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Weismiller, R. A. HQ-ET/Vitale, J. A. 39-Env Sci, NEC

**NAS 9-15325** **Purdue University** **2150**  
Develop an operational forest resource information system  
*Period* *Obligations*  
10/01/77-09/30/80 **FY79: \$275,000** **TOTAL: \$590,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Mroczynski, R. JSC/Joosten, R. E. 39-Env Sci, NEC

**NGT 15-005-790** **Purdue University** **2157**  
Pre-cooperative engineering education program  
*Period* *Obligations*  
08/01/79-07/31/80 **FY79 \$3,474** **TOTAL \$3,474**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Holec, D. E. HQ-LU/Pohly, J. G. 49-Engr, NEC  
LERC/Allen, R. P.

**NAS 9-15466** **Purdue University** **2151**  
Remote sensing of agriculture, earth resources and man's environment  
*Period* *Obligations*  
12/01/77-11/30/79 **FY79: \$1,750,045** **TOTAL: \$2,902,009**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Landgrebe, D. A. JSC/Erickson, J. D. 39-Env Sci, NEC

**NSG 1635** **Purdue University** **2158**  
Multiple level techniques for computational fluid dynamics  
*Period* *Obligations*  
08/20/79-05/21/80 **FY79: \$27,905** **TOTAL: \$27,905**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
McCarthy, D. R. LARC/Swanson, R. C. 41-Acro Engr  
LARC/Klunker, B. E.



**NASA'S UNIVERSITY PROGRAM  
INDIANA (Continued)**

**NSG 2192** **Purdue University** **2159**  
 Joint cooperative program in computer graphics  
*Period* *Obligations*  
 11/01/76-01/31/80 FY79: \$70,000 TOTAL: \$210,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Anderson, D. C. ARC/Gregory, T. J. 41-Aero Engr  
 White, P. R.

**NSG 2401** **Purdue University** **2160**  
 Plant diversity to support humans in a controlled ecology life support system ground-based demonstrator  
*Period* *Obligations*  
 09/01/79-05/30/80 FY79 \$38,000 TOTAL \$38,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Hoff, J. E. ARC/Zeitman, B. B. 59-Life Sci, NEC  
 Howe, J. M. ARC/Merek, E. L.

**NSG 2404** **Purdue University** **2161**  
 Higher plant species selection criteria for a closed ecological life support system Photosynthetic and nutritional aspects  
*Period* *Obligations*  
 09/01/79-05/31/80 FY79: \$40,000 TOTAL: \$40,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Mitchell, C. A. ARC/Zill, L. P. 59-Life Sci, NEC

**NSG 3071** **Purdue University** **2162**  
 Gas film cooling of turbine vane surfaces  
*Period* *Obligations*  
 09/01/75-06/30/80 FY79: TOTAL: \$53,067  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 L'Ecuyer, M. R. IERC/Davidson, H. W. 41-Aero Engr

**NSG 3105** **Purdue University** **2163**  
 Expanding capabilities of NASA computer programs for fluid flow computations in turbomachinery  
*Period* *Obligations*  
 06/01/76-06/01/80 FY79: TOTAL \$56,131  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Menke, W. J. IERC/Katsamis, T. 41-Aero Engr  
 Ragsdell, K. M.

**NSG 3119** **Purdue University** **2164**  
 An adaptive controller for an aircraft gas turbine propulsion system  
*Period* *Obligations*  
 09/01/76-08/31/79 FY79: TOTAL \$28,319  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Leonard, R. G. IERC/Lehtinen, B. 41-Aero Engr

**NSG 3135** **Purdue University** **2165**  
 Aerodynamics parameters affecting turbopropeller performance  
*Period* *Obligations*  
 01/15/77-09/15/80 FY79: \$87,390 TOTAL \$188,857  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Sullivan, J. P. IERC/Serafini, J. S. 41-Aero Engr

**NSG 3185** **Purdue University** **2166**  
 Analytical and experimental study on impact damage of laminated composites  
*Period* *Obligations*  
 10/31/77-02/29/80 FY79 \$50,981 TOTAL \$95,186  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Sun, C. T. IERC/Chamis, C. C. 41-Aero Engr

**NSG 3213** **Purdue University** **2167**  
 Fuel sprays in high-speed air flows  
*Period* *Obligations*  
 09/01/78-08/31/80 FY79 \$51,018 TOTAL \$151,015  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Lefebvre, A. H. IERC/Cooper, J. P. 41-Aero Engr  
 Skifstad, J. G.

**NSG 3237** **Purdue University** **2168**  
 Analysis and simulation of wind energy systems  
*Period* *Obligations*  
 12/01/78-11/30/79 FY79 \$49,870 TOTAL \$49,870  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Krause, P. C. IERC/Gibbert, I. J. 45-Elec Engr

**NSG 3258** **Purdue University** **2169**  
 Atomization of broad-specification aircraft fuels  
*Period* *Obligations*  
 05/15/79-04/30/80 FY79 \$47,507 TOTAL \$47,507  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Shifstad, J. G. IERC/Haggard, J. B. 46-Mech Engr  
 Lefebvre, A. H.

**NSG 3285** **Purdue University** **2170**  
 Three-dimensional aerodynamic of turbomachines  
*Period* *Obligations*  
 07/01/79-06/30/80 FY79 \$117,569 TOTAL \$117,569  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Heeter, S. IERC/Boldman, D. R. 41-Aero Engr

**NSG 4003** **Purdue University** **2171**  
 Handling and ride qualities of large flexible control-configured aircraft  
*Period* *Obligations*  
 01/01/75-08/30/79 FY79 TOTAL \$140,796  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Lauer, J. A. IERC/Berry, D. T. 41-Aero Engr  
 IERC/Cazier, F. W.

**NSG 5414** **Purdue University** **2172**  
 A quantitative applications-oriented evaluation of thematic mapper design specifications  
*Period* *Obligations*  
 10/01/79-09/30/80 FY79 \$50,977 TOTAL \$50,977  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Swain, P. H. GSFC/Gordon, F. J. Jr. 99-Multi-Discip  
 Landgrebe, D. A.

**NASA'S UNIVERSITY PROGRAM  
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**NSG 7167** **Purdue University** **2173**  
High-time resolution photometry of flare stars simultaneous with X-ray satellite observations  
*Period* *Obligations*  
10/01/75-03/31/80 **FY79: \$8,033** **TOTAL: \$30,648**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Moffett, T. J. HQ-SC/Rosendhal, J. D. 11-Astronomy  
HQ-SC/Roman, N. G.

**NSG 7278** **Purdue University** **2174**  
Characterization and elucidation of the mechanism of mechanical stress inhibition of plant growth  
*Period* *Obligations*  
10/01/76-09/30/79 **FY79: \$30,000** **TOTAL: \$88,476**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Mitchell, C. A. HQ-SB/Halstead, T. W. 51-Biological Sci  
HQ-SB/Geib, D. S.

**NAS 3-21018** **University of Notre Dame** **2175**  
Feasibility study of liquid pool burning in reduced gravity  
*Period* *Obligations*  
07/28/77-05/10/79 **FY79:** **TOTAL: \$45,648**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kanury, M. LERC/Haggard, J. B. 11-Astronomy

**NSG 1419** **University of Notre Dame** **2176**  
Structure of separated flow regions occurring near the leading edge of air foils including transition  
*Period* *Obligations*  
06/01/77-10/31/79 **FY79: \$25,000** **TOTAL: \$75,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Mueller, T. J. LARC/Somers, D. M. 41-Aero Engr

**NSG 2388** **University of Notre Dame** **2177**  
Modular theory of inverse systems  
*Period* *Obligations*  
06/01/79-12/31/79 **FY79: \$10,721** **TOTAL: \$10,721**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sain, M. K. ARC/Doolin, B. F. 49-Engr, NEC  
Wyman, B. F.

**NSG 3048** **University of Notre Dame** **2178**  
Alternatives for jet engine control  
*Period* *Obligations*  
03/01/75-07/31/80 **FY79: \$50,000** **TOTAL: \$173,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sain, M. K. LERC/Seldner, K. 45-Elec Engr

**NSG 3133** **University of Notre Dame** **2179**  
Correlation of single stage data to obtain improved models for loss in axial compressors  
*Period* *Obligations*  
11/01/76-02/28/79 **FY79:** **TOTAL: \$39,828**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Roberts, W. B. LERC/Crouse, J. E. 41-Aero Engr  
Sloviski, J. A. LERC/Sandercoc, D. M.

**NSG 3182** **University of Notre Dame** **2180**  
Investigation of electromagnetic waves on superconducting magnets as mechanism of potential coil damage  
*Period* *Obligations*  
01/03/78-11/04/79 **FY79:** **TOTAL: \$16,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gabriel, G. J. LERC/Burkhart, J. A. 45-Elec Engr  
LERC/Bercaw, R. W.

**NSG 3195** **University of Notre Dame** **2181**  
Study of aerodynamic mechanism for noise generated by rotor-stator interaction  
*Period* *Obligations*  
05/01/78-04/30/81 **FY79:** **TOTAL: \$103,720**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Atassi, H. LERC/Scott, J. N. 13-Physics  
LERC/Dittmar, J. H.

**IOWA**

**NAS 8-33013** **Iowa State University** **2182**  
Study of the X-ray emission from a strong gamma-ray source  
*Period* *Obligations*  
05/02/78-05/01/79 **FY79:** **TOTAL: \$9,794**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lamb, R. C. MSFC/Dailey, C. C. 11-Astronomy

**NAS 8-33334** **Iowa State University** **2183**  
Supernova remnants near COS-B gamma ray sources  
*Period* *Obligations*  
02/13/79-02/29/80 **FY79: \$13,671** **TOTAL: \$13,671**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lamb, R. C. MSFC/Jones, J. B., Jr. 11-Astronomy

**NCA 2-340802** **Iowa State University** **2184**  
Simulation of Martian aeolian phenomena  
*Period* *Obligations*  
09/01/78-08/31/80 **FY79: \$11,660** **TOTAL: \$23,870**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Iversen, J. D. ARC/Pollack, J. B. 49-Engr, NEC

**NCA 2-340901** **Iowa State University** **2185**  
Techniques for generating unsteady airfoil flows  
*Period* *Obligations*  
10/01/78-10/31/79 **FY79:** **TOTAL: \$12,645**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cook, W. J. ARC/Presley, L. L. 46-Mech Engr

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**NASA'S UNIVERSITY PROGRAM  
IOWA (Continued)**

**NCA 2-340902** Iowa State University 2186  
Theoretical models for the formation of the primordial atmospheres of terrestrial planets, the interiors of Saturn, Uranus, Neptune, and atmospheres of low temperature stars  
*Period* Obligations  
01/01/79-12/31/79 FY79: \$18,249 TOTAL: \$18,249  
*Prin Invest* NASA Tech Officer CASE Category  
Grossman, A. S. ARC/Pollack, J. B. 13-Physics  
Podolak, M. ARC/Reynolds, R. T.

**NCC 1 17** Iowa State University 2187  
Analysis of flows with shocks  
*Period* Obligations  
10/01/79-09/30/80 FY79: \$34,908 TOTAL: \$34,908  
*Prin Invest* NASA Tech Officer CASE Category  
Anderson, D. A. LARC/Salas, M. D. 41-Aero Engr

**NCC 2 19** Iowa State University 2188  
Wing/body interference flow investigation  
*Period* Obligations  
07/01/79-02/28/80 FY79: \$43,309 TOTAL: \$43,309  
*Prin Invest* NASA Tech Officer CASE Category  
Vogel, J. M. ARC/Hicks, R. M. 41-Aero Engr  
James, W. D. ARC/Corsiglia, V. R.  
Genalo, L. J.

**NCC 2 22** Iowa State University 2189  
Wing/nacelle interference flow investigation  
*Period* Obligations  
09/01/79-10/31/80 FY79: \$21,105 TOTAL: \$21,105  
*Prin Invest* NASA Tech Officer CASE Category  
Nogel, J. HQ-/Corsiglia, V. R. 41-Aero Engr

**NGR 16-002-038** Iowa State University 2190  
Calculation of viscous compressible flow  
*Period* Obligations  
10/07/71-07/31/80 FY79: \$25,904 TOTAL: \$165,163  
*Prin Invest* NASA Tech Officer CASE Category  
Tannehill, J. C. ARC/Rakich, J. V. 41-Aero Engr  
ARC/Marvin, J. G.

**NSG 1372** Iowa State University 2191  
Periodic analysis of large space structures  
*Period* Obligations  
01/01/77-12/31/79 FY79: \$25,000 TOTAL: \$84,945  
*Prin Invest* NASA Tech Officer CASE Category  
McDaniel, J. LARC/Fralich, R. W. 49-Engr, NEC  
LARC/Pinson, L. D.

**NSG 1535** Iowa State University 2192  
Analysis of flows with shocks  
*Period* Obligations  
10/01/78-09/30/79 FY79: TOTAL: \$29,961  
*Prin Invest* NASA Tech Officer CASE Category  
Anderson, D. A. LARC/Salas, M. D. 41-Aero Engr

**NSG 1538** Iowa State University 2193  
Symbolic solution of linear differential equations  
*Period* Obligations  
06/01/78-05/31/80 FY79: \$7,618 TOTAL: \$14,804  
*Prin Invest* NASA Tech Officer CASE Category  
Feinberg, R. B. LARC/Shoosmith, J. N. 21-Mathematics

**NSG 1582** Iowa State University 2194  
Trailing vortex interaction and decay  
*Period* Obligations  
12/01/78-09/30/80 FY79: \$31,658 TOTAL: \$31,658  
*Prin Invest* NASA Tech Officer CASE Category  
Iversen, J. D. LARC/Morris, D. J. 41-Aero Engr

**NSG 1605** Iowa State University 2195  
Load deflection characteristics of inflated structures  
*Period* Obligations  
04/01/79-03/31/80 FY79: \$25,006 TOTAL: \$25,006  
*Prin Invest* NASA Tech Officer CASE Category  
Baumgarten, J. R. LARC/Tanner, J. A. 46-Mech Engr

**NSG 2091** Iowa State University 2196  
Study of viscous cross-flow effects on cylinders at high Reynolds numbers  
*Period* Obligations  
07/01/75-11/30/80 FY79: \$10,700 TOTAL: \$112,544  
*Prin Invest* NASA Tech Officer CASE Category  
James, W. D. ARC/Malcolm, G. N. 41-Aero Engr  
ARC/Chapman, G. T.

**NSG 2257** Iowa State University 2197  
Low speed, high lift aerodynamics  
*Period* Obligations  
09/01/77-10/31/79 FY79: TOTAL: \$35,000  
*Prin Invest* NASA Tech Officer CASE Category  
James, W. D. ARC/Olson, L. E. 41-Aero Engr  
ARC/Corsiglia, V. R.

**NSG 5199** Iowa State University 2198  
Search for an X-ray identification of a strong gamma-ray source  
*Period* Obligations  
08/01/77-04/30/79 FY79: TOTAL: \$11,498  
*Prin Invest* NASA Tech Officer CASE Category  
Lamb, R. C. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 5339** Iowa State University 2199  
Research of extended-range forecasting problems blocking  
*Period* Obligations  
04/01/79-05/13/80 FY79: \$45,245 TOTAL: \$45,245  
*Prin Invest* NASA Tech Officer CASE Category  
Chen, T. GSFC/Halem, M. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM**  
**IOWA (Continued)**

**NAS 2-6553** University of Iowa **2200**  
Pioneer F/G data analysis: Jovian charged particles experiment  
*Period* *Obligations*  
07/21/71-09/30/80 FY79: \$198,575 TOTAL: \$860,300  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
VanAllen, J. A. ARC/Hall, C. F. 11-Astronomy  
Goertz, C. K. ARC/Porter, D. L.

**NAS 5-24294** University of Iowa **2207**  
Plasma wave experiment for the Dynamic Explorer (DE)  
*Period* *Obligations*  
07/26/77-04/28/81 FY79: \$242,000 TOTAL: \$629,779  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Shawhan, S. D. GSFC/Fellerman, K. D. 13-Physics  
Gurnett, D. A. GSFC/Lidston, J. M.

**NAS 5-11064** University of Iowa **2201**  
Low energy electrons and protons experiment for IMP-H&J  
*Period* *Obligations*  
05/31/68-09/30/79 FY79: TOTAL: \$840,656  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Frank, L. A. GSFC/Gemmell, J. D. 13-Physics

**NAS 5-24336** University of Iowa **2208**  
International Sun-Earth Explorer-A experiment data reduction and analysis  
*Period* *Obligations*  
10/11/77-10/10/80 FY79: \$7,000 TOTAL: \$54,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gurnett, D. A. GSFC/Heppner, J. P. 13-Physics

**NAS 5-11279** University of Iowa **2202**  
Solar wind plasma wave experiment for the Helios missions  
*Period* *Obligations*  
03/30/70-05/15/80 FY79: \$5,628 TOTAL: \$1,519,773  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tabakoff, W. GSFC/Gemmell, J. D. 11-Astronomy  
Hamed, A.

**NAS 5-25530** University of Iowa **2209**  
Data reduction and analysis for measurements of low-energy electrons and protons in the earth's magnetosphere and the interplanetary medium  
*Period* *Obligations*  
10/01/79-10/31/80 FY79: \$70,980 TOTAL: \$70,980  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Frank, L. A. GSFC/Gemmell, J. D. 13-Physics

**NAS 5-11431** University of Iowa **2203**  
Ac electric and magnetic fields experiment  
*Period* *Obligations*  
05/21/71-03/31/80 FY79: TOTAL: \$650,387  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gurnett, D. A. GSFC/Davis, M. A. 31-Atmos Sci

**NAS 8-32807** University of Iowa **2210**  
Definition of instruments for an ejectable plasma diagnostics package for Spacelab 2 mission  
*Period* *Obligations*  
10/03/77-09/30/82 FY79: \$989,593 TOTAL: \$1,827,431  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Shawhan, S. D. MSFC/Guynes, B. V. 31-Atmos Sci  
MSFC/Ise, R.

**NAS 5-20093** University of Iowa **2204**  
Plasma wave experiment for International Sun-Earth Explorer spacecraft A&B  
*Period* *Obligations*  
05/20/74-09/30/80 FY79: \$195,523 TOTAL: \$1,660,768  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gurnett, D. A. GSFC/Davis, M. A. 13-Physics

**NAS 5-20094** University of Iowa **2205**  
Magnetospheric and interplanetary plasma for International Sun-Earth Explorer mother & daughter spacecraft  
*Period* *Obligations*  
05/20/74-10/31/79 FY79: \$259,958 TOTAL: \$1,439,600  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Frank, L. A. GSFC/Davis, M. A. 13-Physics

**NGL 16-001-002** University of Iowa **2211**  
Theoretical & experimental studies related to particles & fields associated with major bodies of solar system & with interplanetary space  
*Period* *Obligations*  
05/23/62-11/30/81 FY79: \$265,000 TOTAL: \$5,319,196  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
VanAllen, J. A. HQ-ST/Wiskerchen, M. J. 13-Physics  
HQ-ST/Schmerling, E. R.

**NAS 5-24293** University of Iowa **2206**  
Global auroral imaging at visible and ultraviolet wavelengths for the dynamic Explorer  
*Period* *Obligations*  
07/26/77-04/28/81 FY79: \$109,000 TOTAL: \$628,614  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Frank, L. A. GSFC/Fellerman, K. D. 13-Physics  
Ackerson, K. L. GSFC/Lidston, J. M.  
Carovillano, R. L.

**NGL 16-001-043** University of Iowa **2212**  
Waves in plasmas  
*Period* *Obligations*  
03/28/67-11/30/81 FY79: \$125,000 TOTAL: \$1,014,986  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gurnett, D. A. HQ-ST/Kaiser, M. L. 13-Physics  
HQ-ST/Schmerling, E. R.

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**NSG 1499**                      **University of Iowa**                      **2213**  
Effects of misalignment on mechanical behavior of metals in creep

<i>Period</i>	<i>Obligations</i>	
03/01/78-12/31/79	FY79: TOTAL: \$29,632	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wu, H. C.	LARC/Rummler, D. R.	47-Materials Engr
	LARC/Swann, R. T.	

**NSG 7471**                      **University of Iowa**                      **2219**  
Experiments on spin-aligned atoms

<i>Period</i>	<i>Obligations</i>	
07/01/78-06/30/80	FY79: \$69,241 TOTAL: \$118,701	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stwalley, W. C.	HQ-RT/Schwenk, F. C.	13-Physics
	Weberer, R. W.	

**NSG 2300**                      **University of Iowa**                      **2214**  
Experimental study of trailing edge and near-wake flows

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/80	FY79: \$51,940 TOTAL: \$103,390	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ramaprian, B. R.	ARC/Marvin, J. G.	41-Aero Engr
Patel, V. C.	ARC/Cleary, J. W.	

**NSG 7632**                      **University of Iowa**                      **2220**  
Investigation of charged particle acceleration mechanisms in space plasmas

<i>Period</i>	<i>Obligations</i>	
07/01/79-09/30/80	FY79: \$56,000 TOTAL: \$56,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Joyce, G.	HQ-ST/Hedin, A. E.	19-Phys Sci, NEC
	HQ-ST/Schmerling, E. R.	

**NSG 2327**                      **University of Iowa**                      **2215**  
Laser manipulation of metallic vapors

<i>Period</i>	<i>Obligations</i>	
08/01/78-07/31/80	FY79: \$59,892 TOTAL: \$117,768	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stwalley, W. C.	ARC/Stallcop, J. R.	13-Physics
Yang, S. C.	ARC/McKenzie, R. L.	
Zemke, W. T.		

**NSG 9060**                      **University of Iowa**                      **2221**  
Neurocirculatory control mechanisms in humans: Role of cardiopulmonary baroreceptors

<i>Period</i>	<i>Obligations</i>	
08/01/77-07/31/80	FY79: \$35,000 TOTAL: \$80,899	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Abboud, F. M.	JSC/Hull, W. E.	50-Medical Sciences

**NSG 3117**                      **University of Iowa**                      **2216**  
Boundary layer flow transition and separation in inlets of V/STOL and other high performance propulsion system

<i>Period</i>	<i>Obligations</i>	
01/01/77-11/01/79	FY79: \$36,918 TOTAL: \$69,666	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chou, D. C.	LERC/Stockman, N. O.	41-Aero Engr
	LERC/Shaw, R. J.	

**KANSAS**

**NAS 9-14899**                      **Kansas State University**                      **2222**  
Estimated winter wheat yield from crop growth predicted by LANDSAT

<i>Period</i>	<i>Obligations</i>	
03/15/76-07/31/80	FY79: \$67,000 TOTAL: \$219,734	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kanemasu, E. T.	JSC/Baldwin, R. R.	31-Atmos Sci

**NSG 3305**                      **University of Iowa**                      **2217**  
Development of finite differential method for internal computational fluid mechanics

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/80	FY79: \$38,697 TOTAL: \$38,697	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chen, C. J.	LERC/Johnson, G. M.	41-Aero Engr

**NGL 17-001-026**                      **Kansas State University**                      **2223**  
Infrared laboratory studies of synthetic planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
01/10/67-11/30/79	FY79: \$13,000 TOTAL: \$265,554	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Williams, D.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-SL/Mitz, M. A.	

**NSG 7412**                      **University of Iowa**                      **2218**  
Analysis of cometary gas and dust

<i>Period</i>	<i>Obligations</i>	
01/01/78-05/31/79	FY79: TOTAL: \$22,255	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Neff, J. S.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Quaide, W. L.	

**NSG 7478**                      **Kansas State University**                      **2224**  
Geologic map of Kuiper quadrangle of Mercury

<i>Period</i>	<i>Obligations</i>	
09/01/77-08/31/78	FY79: \$14,002 TOTAL: \$14,002	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Underwood, J. R., Jr.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Boyce, J. M.	

**NASA'S UNIVERSITY PROGRAM  
KANSAS (Continued)**

**NSG 7580**                      **Kansas State University**                      **2225**  
Geology of Libyan desert glass site, S.W. Egypt

<i>Period</i>		<i>Obligations</i>	
03/01/79-02/29/80	FY79: \$2,298	TOTAL: \$2,298	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Underwood, J. R., Jr.	HQ-SL/Quaide, W. L.	32-Geological Sci	
	HQ-SL/Dwornik, S. E.		

**NCC 1 6**                      **University of Kansas**                      **2232**  
A research program to reduce interior noise in general aviation airplanes

<i>Period</i>		<i>Obligations</i>	
05/01/79-04/30/80	FY79: \$74,655	TOTAL: \$74,655	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Roskam, J.	LARC/Stephens, D. G.	41-Aero Engr	
Unz, H.			

**NSG 7613**                      **Kansas State University**                      **2226**  
Northern plains of Mars

<i>Period</i>		<i>Obligations</i>	
06/01/79-05/30/80	FY79: \$17,603	TOTAL: \$17,603	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Underwood, J. R., Jr.	HQ-SL/Dwornik, S. E.	32-Geological Sci	
	HQ-SL/Boyce, J. M.		

**NCC 1 18**                      **University of Kansas**                      **2233**  
Investigation of optimum wing configurations with edge separation

<i>Period</i>		<i>Obligations</i>	
06/15/79-06/14/80	FY79: \$29,984	TOTAL: \$29,984	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Lan, C. E.	LARC/Campbell, J. F.	41-Aero Engr	
Pao, J. L.			

**NAS 1-15770**                      **University of Kansas**                      **2227**  
Feasibility study for advanced technology integration for general aviation

<i>Period</i>		<i>Obligations</i>	
04/10/79-04/09/80	FY79: \$81,985	TOTAL: \$81,985	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Roskam, J.	LARC/Holmes, B. J.	41-Aero Engr	
Kohlman, D. L.			

**NGL 17-004-024**                      **University of Kansas**                      **2234**  
Research on the applications of satellite remote sensing

<i>Period</i>		<i>Obligations</i>	
04/06/72-03/31/82	FY79: \$150,000	TOTAL: \$950,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Barr, B. G.	HQ-ET/Vitale, J. A.	39-Env Sci, NEC	

**NAS 5-23777**                      **University of Kansas**                      **2228**  
Microwave remote sensing of snow

<i>Period</i>		<i>Obligations</i>	
11/23/76-08/09/81	FY79:	TOTAL: \$150,085	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Ulaby, F. T.	GSFC/Rango, A.	45-Elec Engr	
	GSFC/Shive, J.		

**NSG 1046**                      **University of Kansas**                      **2235**  
Effects of aeroelasticity on control effectiveness

<i>Period</i>		<i>Obligations</i>	
06/10/74-01/31/80	FY79:	TOTAL: \$161,350	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Roskam, J.	LARC/Lamar, J. E.	41-Aero Engr	
Lan, C. E.	LARC/Polhamus, E. C.		
Mehrotra, S.			

**NAS 5-25807**                      **University of Kansas**                      **2229**  
Evaluation of the measurement of the microwave back-scatter coefficient with active microwave systems

<i>Period</i>		<i>Obligations</i>	
07/31/79-09/30/80	FY79: \$15,000	TOTAL: \$15,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Ulaby, F. T.	GSFC/Schmugge, T. J.	31-Atmos Sci	

**NSG 1281**                      **University of Kansas**                      **2236**  
Statistical distribution of mechanical properties of graphite-epoxies

<i>Period</i>		<i>Obligations</i>	
07/15/76-12/31/79	FY79: \$5,499	TOTAL: \$74,939	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Reese, C. D.	LARC/Howell, W. E.	47-Materials Engr	
	LARC/Dexter, H. B.		

**NAS 9-14052**                      **University of Kansas**                      **2230**  
Joint soil moisture experiment

<i>Period</i>		<i>Obligations</i>	
04/01/74-11/30/79	FY79: \$125,000	TOTAL: \$699,3 <sup>nd</sup>	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Ulaby, F. T.	JSC/Demel, K. J.	39-Env Sci, NEC	

**NSG 1397**                      **University of Kansas**                      **2237**  
Remote sensing of oceans

<i>Period</i>		<i>Obligations</i>	
02/15/77-05/31/80	FY79: \$117,408	TOTAL: \$142,439	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Moore, R. K.	LARC/Schroeder, L. C.		
	LARC/Jones, W. L.	33-Oceanography	

**NAS 9-15421**                      **University of Kansas**                      **2231**  
Radar measurements in agricultural applications

<i>Period</i>		<i>Obligations</i>	
10/01/77-01/31/80	FY79: \$112,980	TOTAL: \$237,980	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Ulaby, F. T.	JSC/Demel, K. J.	31-Atmos Sci	
	JSC/Baldwin, R. R.		

**NASA'S UNIVERSITY PROGRAM  
KANSAS (Continued)**

<b>NSG 1537</b>	<b>University of Kansas</b>	<b>2238</b>
Investigation of optimum wing configurations with edge separation		
<i>Period</i>	<i>Obligations</i>	
06/15/78-08/31/79	FY79: TOTAL: \$24,996	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lan, C. E.	LARC/Campbell, J. F.	41-Aero Engr
<b>NSG 1554</b>	<b>University of Kansas</b>	<b>2239</b>
Radar discrimination of oil spills on the sea		
<i>Period</i>	<i>Obligations</i>	
07/24/78-12/23/79	FY79: TOTAL: \$38,713	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moore, R. K. Yu, Y. S.	LARC/Croswell, W. F. LARC/Fedors, J. C.	45-Elec Engr
<b>NSG 1574</b>	<b>University of Kansas</b>	<b>2240</b>
Correlation of theoretical prediction with tunnel data and flight data on the Advanced Technology Light Twin Engine (ATLIT) airplane		
<i>Period</i>	<i>Obligations</i>	
11/01/78-06/30/80	FY79: \$57,505 TOTAL: \$57,505	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Roskam, J.	LARC/Hassell, J. L., Jr.	41-Aero Engr
<b>NSG 1629</b>	<b>University of Kansas</b>	<b>2241</b>
An investigation of vortex induced aerodynamic characteristics of supersonic cruise configurations		
<i>Period</i>	<i>Obligations</i>	
06/16/79-06/15/80	FY79: \$20,970 TOTAL: \$20,970	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lan, C. E.	LARC/Lamar, J. E.	41-Aero Engr
<b>NSG 1633</b>	<b>University of Kansas</b>	<b>2242</b>
Analysis of performance and handling qualities considerations for wake modification devices on agricultural aircraft		
<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/80	FY79: \$26,454 TOTAL: \$26,454	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lenzen, K. H.	LARC/Holmes, B. J.	41-Aero Engr
<b>NSG 3290</b>	<b>University of Kansas</b>	<b>2243</b>
Self consistent numerical simulation of plasma insulator interactions in space		
<i>Period</i>	<i>Obligations</i>	
08/16/79-08/15/80	FY79: \$39,615 TOTAL: \$39,615	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Armstrong, T. P. Enoch, J. Wiseman, G. G.	LERC/Hallenback, C. A. LERC/Aron, P. R.	13-Physics
<b>NSG 4008</b>	<b>University of Kansas</b>	<b>2244</b>
Analysis of structural components for ultra high speed aircraft		
<i>Period</i>	<i>Obligations</i>	
05/01/76-04/30/81	FY79: TOTAL: \$40,416	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lenzen, K. H.	DFRC/Jenkins, J. M.	41-Aero Engr
<b>NSG 4017</b>	<b>University of Kansas</b>	<b>2245</b>
Analyze and test the flight control system for the DAST vehicle		
<i>Period</i>	<i>Obligations</i>	
06/01/78-12/31/80	FY79: TOTAL: \$53,076	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kotsabasis, A. Roskam, J.	DFRC/Edwards, J. W. DFRC/Deets, D. A.	41-Aero Engr
<b>NSG 4019</b>	<b>University of Kansas</b>	<b>2246</b>
Study of new flight test techniques		
<i>Period</i>	<i>Obligations</i>	
01/22/79-01/21/80	FY79: \$58,409 TOTAL: \$58,409	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Roskam, J. Klein, R. L. Kohlman, D. L.	DFRC/Kordes, E. E. DFRC/Szalai, K. J.	41-Aero Engr
<b>NSG 4021</b>	<b>University of Kansas</b>	<b>2247</b>
Investigation of drag reduction for tractor trailer vehicles with air deflector and boat tail		
<i>Period</i>	<i>Obligations</i>	
01/01/79-08/31/79	FY79: \$7,566 TOTAL: \$7,566	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Muirhead, V. U.	DFRC/Saltzman, E. J.	49-Engr, NEC
<b>NSG 4023</b>	<b>University of Kansas</b>	<b>2248</b>
Drag reduction/delivery truck		
<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$11,934 TOTAL: \$11,934	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Muirhead, V. U.	DFRC/Saltzman, E. J.	49-Engr, NEC
<b>NSG 4026</b>	<b>University of Kansas</b>	<b>2249</b>
A system study for the application of distributed processors to flight testing techniques		
<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$45,812 TOTAL: \$45,812	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kelley, G. L.	DFRC/Szalai, K. J. DFRC/Abbott, L. W.	45-Elec Engr
<b>NSG 5335</b>	<b>University of Kansas</b>	<b>2250</b>
Active microwave investigation of snow hydrology		
<i>Period</i>	<i>Obligations</i>	
02/01/79-01/31/80	FY79: \$50,000 TOTAL: \$50,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ulaby, F. T.	GSFC/Chang, A. T.	32-Geological Sci
<b>NSG 7351</b>	<b>University of Kansas</b>	<b>2251</b>
Structural study of the Kentland, Indiana impact structure		
<i>Period</i>	<i>Obligations</i>	
05/17/77-12/31/78	FY79: TOTAL: \$13,169	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
VanSchmus, W. R.	HQ-SL/Goldstein, B. E. HQ-SL/Quaide, W. L.	32-Geological Sci

## NASA'S UNIVERSITY PROGRAM

### KANSAS (Continued)

**NCC 1 21**                      **Wichita State University**                      **2252**  
Weight estimation techniques for hypersonic flight vehicles

<i>Period</i>	<i>Obligations</i>	
09/01/79-05/31/80	FY79: \$20,716	TOTAL: \$20,716
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cook, E. L.	LARC/Watts, J. D.	41-Aero Engr
	LARC/Jackson, L. R.	

**NGR 17-003-021**                      **Wichita State University**                      **2253**

Experimental studies of flow separation and stalling on two-dimensional airfoils at low speeds, phase I

<i>Period</i>	<i>Obligations</i>	
12/01/73-01/31/79	FY79:	TOTAL: \$164,108
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rodgers, E. J.	LARC/Noonan, K. W.	41-Aero Engr
Wentz, W. H., Jr.	LARC/McGhee, R. J.	

**NSG 1165**                      **Wichita State University**                      **2254**

Computer and wind tunnel development of flaps and control surfaces for advanced technology general aviation airfoils

<i>Period</i>	<i>Obligations</i>	
06/01/75-10/31/79	FY79: \$31,149	TOTAL: \$246,185
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wentz, W. H., Jr.	LARC/McGhee, R. J.	41-Aero Engr
	LARC/Barnwell, R. W.	

**NSG 1575**                      **Wichita State University**                      **2255**

Supersonic burning in separated flow regions

<i>Period</i>	<i>Obligations</i>	
11/01/78-10/31/79	FY79: \$26,907	TOTAL: \$26,907
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zumwalt, G. W.	LARC/Huber, P. W.	41-Aero Engr
	LARC/Jones, R. A.	

**NSG 3186**                      **Wichita State University**                      **2256**

Numerical modeling of magnetohydrodynamic channel flow

<i>Period</i>	<i>Obligations</i>	
03/01/78-01/15/80	FY79: \$9,900	TOTAL: \$19,801
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jordan, K. D.	LERC/Smith, J. M.	21-Mathematics
	LERC/Pian, C. C.	

**NSG 3277**                      **Wichita State University**                      **2257**

Feasibility studies of spoiler and aileron control systems for large wind turbine

<i>Period</i>	<i>Obligations</i>	
06/01/79-11/30/79	FY79: \$25,641	TOTAL: \$25,641
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wentz, W. H., Jr.	LERC/Richards, T. R.	41-Aero Engr
Snyder, M. H.	LERC/Finnegan, P. M.	
Calhoun, J. T.		

### KENTUCKY

**NSG 801**                      **Kentucky State University**                      **2258**

Zoological effects of variations in atmospheric oxygen levels

<i>Period</i>	<i>Obligations</i>	
02/27/74-04/29/80	FY79: \$40,551	TOTAL: \$219,321
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Klock, G.	KSC/Morrison, J. D.	59-Life Sci, NEC

**NAS 9-15452**                      **University of Kentucky**                      **2259**

Development of limb volume measuring system

<i>Period</i>	<i>Obligations</i>	
11/01/77-10/31/79	FY79: \$24,971	TOTAL: \$45,121
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bhagat, P. K.	JSC/Alexander, C.	56-Medical Sciences

**NASW 3039**                      **University of Kentucky**                      **2260**

Operation of a state technical application program

<i>Period</i>	<i>Obligations</i>	
02/01/77-08/31/80	FY79 \$141,558	TOTAL: \$491,558
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Unavailable	HQ-ET/Dolby, W.	99-Multi-Discip

**NSG 1501**                      **University of Kentucky**                      **2261**

An algorithm to generate input data from meteorological and space shuttle observations to validate a CH4-Co model

<i>Period</i>	<i>Obligations</i>	
02/01/78-06/30/80	FY79 \$39,197	TOTAL: \$69,197
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Peters, L. K.	LARC/Reichle, H. G., Jr.	31-Atmos Sci
Yamanis, J.		

**NSG 2318**                      **University of Kentucky**                      **2262**

Dynamically imposed oscillating forces for preventing cardiovascular deconditioning

<i>Period</i>	<i>Obligations</i>	
05/01/78-04/30/80	FY79: \$60,641	TOTAL: \$121,046
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Knapp, C. F.	ARC/Sandler, H.	56-Medical Sciences

**NSG 3114**                      **University of Kentucky**                      **2263**

Study effects of buoyancy on flame spreading across beds of solid fuel

<i>Period</i>	<i>Obligations</i>	
07/01/76-09/30/80	FY79: \$82,451	TOTAL: \$112,234
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Altenkirch, R. A.	LERC/Cochran, T. H.	46-Mech Engr
Eichhorn, R.		



**NASA'S UNIVERSITY PROGRAM  
KENTUCKY (Continued)**

**NAS 8-31233** University of Louisville 2264  
Turbopump technology improvements via transient rotordynamics analysis

<i>Period</i>	<i>Obligations</i>	
11/14/74-07/01/80	FY79: \$35,993	TOTAL: \$158,224
<i>Prin Invest.</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Childs, D. W.	MSFC/Winder, S. W.	42-Astro Engr
	MSFC/Goetz, O. K.	

**NCA 2-400901** University of Louisville 2265  
Susceptibility to infection: Interrelationship of interferon and genetic factors

<i>Period</i>	<i>Obligations</i>	
11/01/78-10/31/80	FY79: \$15,000	TOTAL: \$15,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sonnenfeld, G.	ARC/Mandel, A. D.	56-Medical Sciences

**NSG 2325** University of Louisville 2266  
Renal function, water and electrolyte balance and intestinal transport in hypokinetic animals

<i>Period</i>	<i>Obligations</i>	
06/01/78-10/30/79	FY79: \$30,000	TOTAL: \$54,768
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Musacchia, X. J.	ARC/Holton, E. M.	51-Biological Sci

**NSG 3200** University of Louisville 2267  
Dynamic seal testing and analysis for turbopump rotor dynamic stability and synchronous response technology improvements

<i>Period</i>	<i>Obligations</i>	
06/01/78-11/01/80	FY79: \$99,993	TOTAL: \$134,992
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Childs, D. W.	LERC/Fleming, D. P.	46-Mech Engr
Dressman, J. B.	LERC/Ludwig, L. P.	

**NSG 7441** University of Louisville 2268  
Baseline studies on the embryonic development of the mouse cranial sensory systems

<i>Period</i>	<i>Obligations</i>	
02/01/78-04/30/79	FY79:	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fuller, P. M.	HQ-SB/Halstead, T. W.	51-Biological Sci
	HQ-SB/Geib, D. S.	

**NAS 8-33387** Western Kentucky University 2269  
MSFC solar heating and cooling: High Speed Performance (HISPER) code validation

<i>Period</i>	<i>Obligations</i>	
07/02/79-01/01/80	FY79: \$15,000	TOTAL: \$15,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Healy, H.	MSFC/Stonemetz, R. E.	31-Atmos Sci
	MSFC/Elkins, R. F.	

**NSG 5238** Western Kentucky University 2270  
Ultraviolet observations of high excitation planetary nebulae

<i>Period</i>	<i>Obligations</i>	
02/15/78-05/11/80	FY79: \$9,000	TOTAL: \$15,813
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hackney, R. L.	GSFC/Boggess, A.	11-Astronomy
Hackney, K. R.		

**LOUISIANA**

**NGL 19-001-105** Louisiana State University - Baton Rouge 2271  
Interpretation of remote sensing data in the Bayou la Fourche region of South Louisiana

<i>Period</i>	<i>Obligations</i>	
04/06/72-08/15/79	FY79:	TOTAL: \$425,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Whitehurst, C. A.	HQ-ET/Vitale, J. A.	39-Env Sci, NEC

**NAS 9-9317** Louisiana State University - Shreveport 2272  
Study of modulatory effects of solar wind in galactic cosmic rays

<i>Period</i>	<i>Obligations</i>	
04/07/69-06/30/80	FY79:	TOTAL: \$30,160
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bankston, J. D., Jr.	JSC/Giuli, R. T.	11-Astronomy

**NAS 9-15950** Louisiana State University - Shreveport 2273  
Development of a new noninvasive method to determine bone integrity in vivo

<i>Period</i>	<i>Obligations</i>	
09/27/79-08/31/80	FY79: \$10,000	TOTAL: \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Albright, J. A.	JSC/Altchuler, S. I.	56-Medical Sciences
Saha, S.		
Anders, F.		

**NSG 7542** Louisiana State University - Shreveport 2274  
Paleohydrology of Mars

<i>Period</i>	<i>Obligations</i>	
04/01/79-03/31/80	FY79: \$30,108	TOTAL: \$30,108
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nummedal, D.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Boyce, J. M.	

**NSG 7357** Northeast Louisiana University 2275  
Mercury geologic mapping: Kuiper quadrangle

<i>Period</i>	<i>Obligations</i>	
06/01/77-12/31/79	FY79:	TOTAL: \$16,417
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dehon, R. A.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Boyce, J. M.	

**NASA'S UNIVERSITY PROGRAM  
LOUISIANA (Continued)**

**NSG 7420** Northeast Louisiana University 2276  
Thickness of mare basalt - Western Mare Basin  
*Period* Obligations  
03/01/78-06/30/79 FY79: TOTAL: \$11,716  
*Prin Invest* NASA Tech Officer CASE Category  
Dehon, R. A. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. M.

**NSG 7534** Northeast Louisiana University 2277  
Stratigraphy and crater morphology  
*Period* Obligations  
02/01/79-01/31/80 FY79: \$16,061 TOTAL: \$16,061  
*Prin Invest* NASA Tech Officer CASE Category  
Dehon, R. A. HQ-SL/Dwornik, S. E. 32-Geological Sci  
HQ-SL/Boyce, J. M.

**NSG 7628** Northeast Louisiana University 2278  
Detection of buried surfaces on Mars  
*Period* Obligations  
08/01/79-07/31/80 FY79: \$7,514 TOTAL: \$7,514  
*Prin Invest* NASA Tech Officer CASE Category  
Dehon, R. A. HQ-SL/Dwornik, S. E. 32-Geological Sci  
HQ-SL/Boyce, J. M.

**NAS 1-15335** Southern University - Baton Rouge 2279  
Atomic oxygen stimulated outgassing experiment for the long  
duration exposure facility, phase I and II  
*Period* Obligations  
04/07/78-04/01/80 FY79: \$25,426 TOTAL: \$50,426  
*Prin Invest* NASA Tech Officer CASE Category  
Scott, R. L., Jr. LARC/O'Neal, R. L. 31-Atmos Sci  
LARC/Carter, D. J.

**NGR 19-005-006** Southern University - Baton Rouge 2280  
Research in the many-particle theory of nuclear systems with  
application to neutron star matter  
*Period* Obligations  
10/17/72-01/31/79 FY79: TOTAL: \$107,314  
*Prin Invest* NASA Tech Officer CASE Category  
Yang, C. H. JPL/Estabrook, F. B. 11-Astronomy  
JPL/Zmuidzinas, J. S.

**NSG 2041** Southern University - Baton Rouge 2281  
Analytical model for the dynamic stress and deformation studies  
in the left ventricle  
*Period* Obligations  
08/19/74-10/31/79 FY79: TOTAL: \$99,301  
*Prin Invest* NASA Tech Officer CASE Category  
Ray, G. ARC/Sandler, H. 59-Life Sci, NEC

**NSG 8025** Southern University - Baton Rouge 2282  
Inhibitor analysis for a solar heating and cooling system  
*Period* Obligations  
01/02/75-08/15/78 FY79: TOTAL: \$71,572  
*Prin Invest* NASA Tech Officer CASE Category  
Tabony, J. MSFC/Williamson, J. G. 46-Mech Engr  
MSFC/Kent, M. I.

**NSG 8053** Southern University - Baton Rouge 2283  
Development of a fault tolerant microprocessor based computer  
systems for space flight  
*Period* Obligations  
09/01/77-08/31/79 FY79: TOTAL: \$25,709  
*Prin Invest* NASA Tech Officer CASE Category  
Montgomery, V. T. MSFC/White, J. B. 45-Elec Engr  
MSFC/Kent, M. I.

**NSG 8056** Southern University - Baton Rouge 2284  
Research study of determination of particle size in clouds  
*Period* Obligations  
10/15/77-10/14/78 FY79: TOTAL: \$26,497  
*Prin Invest* NASA Tech Officer CASE Category  
Scott, R. L., Jr. MSFC/Owen, R. B. 46-Mech Engr  
MSFC/Kent, M. I.

**NSG 9030** Southern University - Baton Rouge 2285  
State vector update filter for autoland portion of the shuttle  
landing  
*Period* Obligations  
09/01/75-12/31/79 FY79: TOTAL: \$69,140  
*Prin Invest* NASA Tech Officer CASE Category  
Grewal, G. S. JSC/Echelkamp, R. E. 45-Elec Engr

**NCA 2-800801** Tulane University 2286  
Genetic bases for thermophily: Origins of thermal stability and  
membrane function  
*Period* Obligations  
11/01/77-10/31/79 FY79: \$5,000 TOTAL: \$12,301  
*Prin Invest* NASA Tech Officer CASE Category  
Johnson, E. J. ARC/MacElroy, R. D. 51-Biological Sci  
ARC/Lanyi, J. K.

**NSG 2139** Tulane University 2287  
Localization and ultrastructural histochemical characterization of  
the central emetric apparatus related to motion sickness and  
emetric drugs in the squirrel monkey and dog  
*Period* Obligations  
03/01/76-02/28/80 FY79: \$39,952 TOTAL: \$150,445  
*Prin Invest* NASA Tech Officer CASE Category  
Brizzee, K. R. ARC/Mehler, W. R. 59-Life Sci, NEC

**NSG 3209** Tulane University 2288  
Evaluation of ion textured Al<sub>2</sub>O<sub>3</sub> surfaces for permanent prosthetic  
attachment  
*Period* Obligations  
08/01/78-01/31/80 FY79: TOTAL: \$14,995  
*Prin Invest* NASA Tech Officer CASE Category  
Weinstein, A. M. LERC/Weigand, A. J.  
Klawitter, J. J. LERC/Banks, B. A. 56-Medical Sciences

**NASA'S UNIVERSITY PROGRAM  
LOUISIANA (Continued)**

**NAS 8-33479** University of New Orleans **2289**  
Photovoltaic gas cell thermal study  
*Period* *Obligations*  
05/21/79-02/20/80 **FY79: \$4,983 TOTAL: \$4,983**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bankston, J. D., Jr. MSFC/Humphries, W. R. 46-Mech Engr  
MSFC/Littles, J. W.

**NSG 1460** University of New Orleans **2290**  
Enhancement of appearance potential spectroscopy data by noise removal and deconvolution  
*Period* *Obligations*  
10/01/77-08/31/80 **FY79: \$5,597 TOTAL: \$15,847**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ioup, G. E. LARC/Wood, G. M. 47-Materials Engr

**NSG 1648** University of New Orleans **2291**  
Study on one and two-dimensional filtering and deconvolution algorithms for a streaming array computer  
*Period* *Obligations*  
09/01/79-08/31/80 **FY79: \$18,024 TOTAL: \$18,024**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ioup, G. E. LARC/Lambiotte, J. J., Jr. 21-Mathematics

**NGR 19-007-004** Xavier University - Louisiana **2292**  
The correlation of the 24 hour pattern of rat plasma and adrenal corticosterone with the diurnal variations of certain tissue constituents involved in carbohydrate metabolism  
*Period* *Obligations*  
05/07/73-12/31/79 **FY79: TOTAL: \$165,247**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ashman, P. U. ARC/Winget, C. M. 51-Biological Sci  
ARC/Danellis, J. V.

**NSG 1361** Xavier University - Louisiana **2293**  
Calculation of total cross sections for charge exchange in molecular collisions  
*Period* *Obligations*  
01/01/77-12/31/79 **FY79: TOTAL: \$35,012**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ioup, J. W. LARC/Wood, G. M. 13-Physics  
LARC/Smith, A.

**NSG 8050** Xavier University - Louisiana **2294**  
Solar radiation measurement project  
*Period* *Obligations*  
06/02/77-12/31/79 **FY79: \$25,661 TOTAL: \$71,457**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ioup, J. W. MSFC/Espy, P. N. 39-Env Sci, NEC  
MSFC/Kent, M. I.

**MARYLAND**

**NGR 21-027-001** Bowie State College **2295**  
Research in cosmic ray physics  
*Period* *Obligations*  
09/01/69-06/30/80 **FY79: TOTAL: \$140,428**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Walker, R. P. GSFC/Kniffen, D. A. 11-Astronomy

**NGR 21-027-004** Bowie State College **2296**  
Research in numerical integration  
*Period* *Obligations*  
05/25/71-07/31/80 **FY79: \$16,376 TOTAL: \$111,277**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Srivastava, S. GSFC/Lefferts, E. J. 21-Mathematics

**NGR 21-027-010** Bowie State College **2297**  
Holographic gratings for spectrographic applications study of aberrations  
*Period* *Obligations*  
05/14/73-07/31/80 **FY79: \$16,321 TOTAL: \$95,698**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bhatia, M. S. GSFC/Caruso, A. J. 13-Physics  
GSFC/Osantowski, J. F.

**NGT 21-027-012** Bowie State College **2298**  
Training of undergraduate students in sciences and engineering  
*Period* *Obligations*  
06/01/74-03/31/80 **FY79: \$32,821 TOTAL: \$183,034**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kirksey, C. H. HQ-LU/Pohly, J. G. 99-Multi-Discip  
GSFC/Mundy, J. R.

**NSG 5009** Bowie State College **2299**  
Characterization of the physico-chemical properties of polymeric materials for aerospace flights  
*Period* *Obligations*  
07/01/74-11/30/79 **FY79: \$25,575 TOTAL: \$110,058**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Rock, M. GSFC/Gross, F. C. 12-Chemistry  
GSFC/Colony, J. A.

**NSG 5416** Bowie State College **2300**  
Investigation of automatic picture transmission relative to space sciences  
*Period* *Obligations*  
10/01/79-09/30/80 **FY79: \$15,427 TOTAL: \$15,427**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kirksey, C. H. GSFC/Bailey, E. 99-Multi-Discip  
GSFC/Croime, R.

**NASA'S UNIVERSITY PROGRAM  
MARYLAND (Continued)**

**NSG 5051** **Coppin State College** **2301**  
 Research on the failure mechanism and other factors leading to reduced cycle life aerospace nickel-cadmium cells  
*Period* *Obligations*  
 05/01/75-05/31/80 **FY79: \$45,938 TOTAL: \$180,253**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 McFerrin, P. P. GSFC/Ford, F. E. 12-Chemistry  
 Shaw, R. GSFC/Halpert, G.

**NAS 2-9300** **Johns Hopkins University** **2302**  
 Study of predictive ecological models useful for the management and conservation of Bearing Sea mammals  
*Period* *Obligations*  
 06/28/76-12/31/79 **FY79: \$52,812 TOTAL: \$142,645**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Ray, G. C. ARC/Sebesta, P. D. 59-Life Sci, NEC  
 Wartzok, D. ARC/Billingham, J.  
 Besta, S. E.

**NAS 5-11415** **Johns Hopkins University** **2303**  
 Atmosphere Explorer photoelectron and energetic particle experiment  
*Period* *Obligations*  
 08/15/74-09/30/80 **FY79: \$108,000 TOTAL: \$1,451,877**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Doering, J. P. GSFC/Rice, C. F. 31-Atmos Sci

**NAS 5-23732** **Johns Hopkins University** **2304**  
 Development of a command system for a fully implantable human tissue stimulator  
*Period* *Obligations*  
 10/26/76-05/30/80 **FY79: \$175,000 TOTAL: \$525,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Long, D. GSFC/Friedman, D. S. 56-Medical Sciences  
 Fishell, R. E.

**NAS 5-25358** **Johns Hopkins University** **2305**  
 Grating facility use  
*Period* *Obligations*  
 10/01/78-12/31/80 **FY79: \$10,000 TOTAL: \$10,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Fastie, W. G. GSFC/Fowler, W. S. 13-Physics

**NAS 6-2706** **Johns Hopkins University** **2306**  
 Services and materials necessary to perform theoretical studies in ocean dynamics  
*Period* *Obligations*  
 01/16/76-02/14/78 **FY79: TOTAL: \$148,101**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Phillips, O. M. WFC/Stanley, H. R. 33-Oceanography  
 WFC/Huang, N. E.

**NAS 6-2888** **Johns Hopkins University** **2307**  
 Study of ocean fine structures  
*Period* *Obligations*  
 03/22/78-03/21/79 **FY79: TOTAL: \$50,043**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Phillips, O. M. WFC/Huang, N. E. 33-Oceanography  
 WFC/Long, S. R.

**NAS 6-2993** **Johns Hopkins University** **2308**  
 Study of the ocean fine structures  
*Period* *Obligations*  
 05/01/79-04/30/80 **FY79: \$31,693 TOTAL: \$31,693**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Phillips, O. M. WFC/Huang, N. E. 33-Oceanography  
 WFC/Long, S. R.

**NAS 8-32903** **Johns Hopkins University** **2309**  
 Scientific investigations in support of the space telescope project  
*Period* *Obligations*  
 02/01/78-01/31/84 **FY79 TOTAL: \$151,300**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Fastie, W. G. MSFC/O'Dell, C. R. 11-Astronomy

**NAS 8-33106** **Johns Hopkins University** **2310**  
 Coronal magnetic structure and the latitude and longitude distribution of energetic charged particles  
*Period* *Obligations*  
 10/18/78-10/17/79 **FY79 \$34,000 TOTAL \$34,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Roelof, E. C. MSFC/DeLoach, A. C. 13-Physics  
 MSFC/Snoddy, W. C.

**NCC 5 1** **Johns Hopkins University** **2311**  
 Interpretation and delineation of the earth's gravity field  
*Period* *Obligations*  
 04/01/79-03/31/80 **FY79 \$42,635 TOTAL \$42,635**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Marsh, B. D. GSFC/Marsh, J. G. 32-Geological Sci

**NCC 5 13** **Johns Hopkins University** **2312**  
 The source of long wavelength crustal magnetic anomalies  
*Period* *Obligations*  
 05/01/79-04/30/80 **FY79: \$10,000 TOTAL: \$10,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Marsh, B. D. GSFC/Taylor, P. T. 32-Geological Sci

**NCC 5 18** **Johns Hopkins University** **2313**  
 Research of thermal regime of the upper mantle  
*Period* *Obligations*  
 06/14/79-06/13/80 **FY79: \$10,452 TOTAL: \$10,452**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Marsh, B. D. GSFC/Langel, R. A. 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM  
MARYLAND (Continued)**

**NGR 21-001-001** Johns Hopkins University 2314  
 Rocket and laboratory experiments and analysis on ultraviolet  
 spectra of upper atmosphere  
*Period* *Obligations*  
 08/01/61-02/29/80 FY79: \$405,000 TOTAL: \$4,970,863  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Fastie, W. G. GSFC/Bissell, E. E. 11-Astronomy  
 Feldman, P. D. HQ-SC/Roman, N. G.  
 Henry, R. C.

**NGR 21-001-111** Johns Hopkins University 2315  
 Small group performance & effects of contingency management  
 in a programmed environment  
*Period* *Obligations*  
 03/31/72-10/31/79 FY79: \$70,000 TOTAL: \$875,794  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Brady, J. V. ARC/Patton, R. M. 62-Social Aspects  
 Emurian, H. H.

**NSG 1442** Johns Hopkins University 2316  
 Aspects of some transient faults in computer based systems  
*Period* *Obligations*  
 09/15/77-04/14/80 FY79: \$45,253 TOTAL: \$93,201  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Masson, G. M. LARC/Bavuso, S. J. 45-Elec Engr  
 LARC/Migneault, G. E.

**NSG 2303** Johns Hopkins University 2317  
 Experiments on sheared or strained turbulence  
*Period* *Obligations*  
 02/01/78-10/31/79 FY79: TOTAL: \$57,882  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Corrsin, S. ARC/Rubens, M. W. 41-Aero Engr  
 ARC/Marvin, J. G.

**NSG 5090** Johns Hopkins University 2318  
 Research in earth sciences  
*Period* *Obligations*  
 01/01/76-03/31/79 FY79: TOTAL: \$142,445  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Marsh, B. D. GSFC/Smith, D. E. 32-Geological Sci

**NSG 5184** Johns Hopkins University 2319  
 Research in stellar chromospheres with the Copernicus satellite  
*Period* *Obligations*  
 07/01/77-06/30/78 FY79: TOTAL: \$11,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Moos, H. W. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 5230** Johns Hopkins University 2320  
 Study of the geneses of tornadoes associated with hurricanes  
*Period* *Obligations*  
 02/13/78-02/12/79 FY79: TOTAL: \$5,920  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Moos, H. W. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 5255** Johns Hopkins University 2321  
 Ultraviolet studies of the outer planets  
*Period* *Obligations*  
 03/15/78-03/14/80 FY79: TOTAL: \$12,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Moos, H. W. GSFC/Boggett, A. 11-Astronomy  
 GSFC/West, D. K.

**NSG 5269** Johns Hopkins University 2322  
 Research of thermal regime of the upper mantle  
*Period* *Obligations*  
 04/15/78-07/31/79 FY79: TOTAL: \$18,821  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Marsh, B. D. GSFC/Langel, R. A. 32-Geological Sci  
 Didwall, E. M. GSFC/Mead, G. D.

**NSG 5310** Johns Hopkins University 2323  
 Study of interstellar matter and chromospheres  
*Period* *Obligations*  
 12/15/78-12/14/79 FY79: \$12,000 TOTAL: \$12,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Moos, H. W. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 5393** Johns Hopkins University 2324  
 Studies of the ultraviolet spectra of astronomical sources  
*Period* *Obligations*  
 07/01/79-10/31/79 FY79: \$16,000 TOTAL: \$16,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Moos, H. W. GSFC/Boggett, A. 11-Astronomy  
 Davidsen, A. F.  
 Feldman, P. D.

**NSG 7055** Johns Hopkins University 2325  
 Satellite data analysis  
*Period* *Obligations*  
 01/01/74-11/30/79 FY79: \$145,000 TOTAL: \$379,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Krimigis, S. M. HQ-ST/Hedin, A. E. 13-Physics  
 HQ-ST/Schmerling, E. R.

**NSG 7382** Johns Hopkins University 2326  
 A study of the feasibility of ultraviolet spectrometry for cometary  
 missions  
*Period* *Obligations*  
 11/01/77-04/30/79 FY79: TOTAL: \$35,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Feldman, P. D. HQ-SL/Murphy, R. F. 11-Astronomy  
 HQ-SL/Brunk, W. L.

**NSG 7449** Johns Hopkins University 2327  
 Analysis of X-ray astronomy data  
*Period* *Obligations*  
 05/15/78-05/14/80 FY79: \$41,000 TOTAL: \$101,520  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Davidsen, A. F. HQ-SC/Kaluzienski, L. J. 11-Astronomy



**NASA'S UNIVERSITY PROGRAM  
MARYLAND (Continued)**

**NAS 5-25437** University of Maryland - College Park 2342  
Feasibility study for fine structure solar energy converter

<i>Period</i>	<i>Obligations</i>	
02/14/79-10/14/80	FY79: \$12,441	TOTAL: \$12,441
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Taylor, L. S.	GSFC/Peake, H. J.	45-Elec Engr

**NAS 5-25472** University of Maryland - College Park 2343  
International Sun-Earth Explorer 3 data interpretation services

<i>Period</i>	<i>Obligations</i>	
01/29/79-01/29/80	FY79: \$30,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coplan, M. A.	GSFC/Ogilvie, K. W.	11-Astronomy

**NAS 5-25486** University of Maryland - College Park 2344  
Support to the space telescope wide field planetary camera development team

<i>Period</i>	<i>Obligations</i>	
02/01/79-10/31/79	FY79: \$30,047	TOTAL: \$30,047
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Currie, D. G.	GSFC/Sours, W. T.	31-Atmos Sci

**NAS 5-25764** University of Maryland - College Park 2345  
Research in natural human to machine interfaces for NASA mission operations data systems

<i>Period</i>	<i>Obligations</i>	
06/29/79-06/29/80	FY79: \$33,125	TOTAL: \$33,125
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rieger, C. S.	GSFC/Desjardins, R.	99-Multi-Discip
Somet, H.		

**NAS 5-25851** University of Maryland - College Park 2346  
Conference on The Regional Applications of Remote Sensing Technology

<i>Period</i>	<i>Obligations</i>	
08/22/79-11/21/79	FY79: \$22,353	TOTAL: \$22,353
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ragan, R. M.	GSFC/Short, N. M.	39-Env Sci, NEC

**NAS 8-32148** University of Maryland - College Park 2347  
A study to determine the aquatic biological effects on the solid rocket booster

<i>Period</i>	<i>Obligations</i>	
08/10/76-05/15/79	FY79:	TOTAL: \$103,041
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Colwell, R. R.	MSFC/Scott, F. E.	54-Env Biology
Zachary, A.	MSFC/Miller, T. Y.	

**NAS 8-33105** University of Maryland - College Park 2348  
A comparative study of meter-decameter bursts with X-ray loops and flaming bright points as observed by the Skylab S-054 experiment

<i>Period</i>	<i>Obligations</i>	
10/12/78-10/11/79	FY79: \$32,000	TOTAL: \$32,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rundu, M. R.	MSFC/DeLoach, A. C.	13-Physics
	MSFC/Snoddy, W. C.	

**NAS 8-33329** University of Maryland - College Park 2349  
HEAO-B observations of distant GSO associated clusters of galaxies

<i>Period</i>	<i>Obligations</i>	
02/14/79-02/13/80	FY79: \$8,000	TOTAL: \$8,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Scott, J. S.	MSFC/Jones, J. B., Jr.	11-Astronomy
Becker, R. H.		

**NAS 8-33346** University of Maryland - College Park 2350  
Radio and optical studies of X-ray clusters of galaxies

<i>Period</i>	<i>Obligations</i>	
02/14/79-02/13/80	FY79: \$24,356	TOTAL: \$24,356
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Erickson, W. C.	MSFC/Jones, J. B., Jr.	11-Astronomy
Holman, G. D.		
Matthews, T. A.		

**NAS 8-33358** University of Maryland - College Park 2351  
An investigation of the relation between Seyfert and other active nuclei galaxies

<i>Period</i>	<i>Obligations</i>	
05/22/79-05/21/80	FY79: \$15,000	TOTAL: \$15,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilson, A. S.	MSFC/Jones, J. B., Jr.	11-Astronomy

**NAS 8-33557** University of Maryland - College Park 2352  
Construction of a prototype superconducting gravity gradiometer

<i>Period</i>	<i>Obligations</i>	
08/03/79-03/18/80	FY79: \$20,000	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Paik, H. J.	MSFC/Urban, E. W.	13-Physics
Richard, J. P.	MSFC/Shriver, E. L.	

**NCA 2-420901** University of Maryland - College Park 2353  
Production of specific antibody without specific immunization: Extension to clinically important antigens

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/80	FY79: \$10,000	TOTAL: \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goldsby, R. A.	ARC/Mandel, A. D.	12-Chemistry

**NCA 2-420902** University of Maryland - College Park 2354  
Band model analysis of ammonia Y4 fundamental absorption band from 150-293 K

<i>Period</i>	<i>Obligations</i>	
06/15/79-06/14/80	FY79: \$7,900	TOTAL: \$7,900
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Khanna, R. K.	ARC/Giver, L. P.	12-Chemistry

**NCA 5-20** University of Maryland - College Park 2355  
Study of digital image processing of astronomical scenes

<i>Period</i>	<i>Obligations</i>	
05/16/77-05/15/78	FY79:	TOTAL: \$15,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rosenfeld, A.	GSFC/Fischel, D.	11-Astronomy
	GSFC/Klinglesmith, D. A.	

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**NCA 5-24 University of Maryland - College Park 2356**  
Physics study of planetary nebulae

<i>Period</i>	<i>Obligations</i>	
10/01/77-09/30/78	FY79:	TOTAL: \$2,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Currie, D. G.	GSFC/Hobbs, R. W.	11-Astronomy

**NCA 5-26 University of Maryland - College Park 2357**  
Study of digital image processing of astronomical scenes

<i>Period</i>	<i>Obligations</i>	
05/16/78-05/15/79	FY79: \$300	TOTAL: \$6,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rosenfeld, A.	GSFC/Klinglesmith, D. A.	11-Astronomy

**NCA 5-27 University of Maryland - College Park 2358**  
Development of software for spectral image processing

<i>Period</i>	<i>Obligations</i>	
03/01/78-03/31/78	FY79:	TOTAL: \$1,751
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rosenfeld, A.	GSFC/Klinglesmith, D. A.	11-Astronomy

**NCA 5-28 University of Maryland - College Park 2359**  
Goddard introduction to engineering careers

<i>Period</i>	<i>Obligations</i>	
06/01/78-06/30/80	FY79: \$27,505	TOTAL: \$27,505
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wockenfuss, W. A.	GSFC/Mundy, J. R.	49-Engr, NEC

**NCA 5-65 University of Maryland - College Park 2360**  
Study of atomic properties of astrophysic ions and atoms

<i>Period</i>	<i>Obligations</i>	
07/01/76-10/01/77	FY79: \$952	TOTAL: \$7,952
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Martin, F. W.	GSFC/Kastner, S. O.	13-Physics
Koopman, D.		
McIlrath, T. J.		

**NCA 5-79 University of Maryland - College Park 2361**  
Analysis of high energy X-ray spectrometer data

<i>Period</i>	<i>Obligations</i>	
12/01/77-12/31/78	FY79:	TOTAL: \$7,200
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rosenfeld, A.	GSFC/Dennis, B. R.	31-Atmos Sci

**NCC 1 25 University of Maryland - College Park 2362**  
Airborne water vapor lidar experiment

<i>Period</i>	<i>Obligations</i>	
08/01/79-04/30/80	FY79: \$41,000	TOTAL: \$41,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilkerson, T. D.	LARC/Browell, E. V.	31-Atmos Sci
	LARC/Carter, A. F.	

**NCC 5 9 University of Maryland - College Park 2363**  
Cooperative research in solar and stellar astronomy

<i>Period</i>	<i>Obligations</i>	
04/01/79-04/30/80	FY79: \$73,097	TOTAL: \$73,097
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tole, J. R.	GSFC/Hobbs, R. W.	11-Astronomy
Young, L. R.		

**NGL 21-002-005 University of Maryland - College Park 2364**  
Theoretical research on dynamics of astrophysical plasmas including studies of structure of plasma shock waves in solar corona and their possible radio emission

<i>Period</i>	<i>Obligations</i>	
02/01/62-06/30/81	FY79: \$127,000	TOTAL: \$1,107,493
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wu, C. S.	HQ-ST/Hedin, A. E.	19-Phys Sci, NEC
	HQ-ST/Schmerling, E. R.	

**NGL 21-002-033 University of Maryland - College Park 2365**  
Theoretical and experimental studies in space sciences, including consideration of rocket probe and satellites techniques

<i>Period</i>	<i>Obligations</i>	
06/02/64-07/31/81	FY79: \$75,951	TOTAL: \$3,216,835
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, E. P.	GSFC/Donn, B. D.	31-Atmos Sci
Kerr, F. J.		

**NGR 21-002-066 University of Maryland - College Park 2366**  
A study of primary cosmic ray electrons, utilizing balloon-borne experiments

<i>Period</i>	<i>Obligations</i>	
11/19/65-11/30/79	FY79: \$30,000	TOTAL: \$825,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Earl, J. A.	HQ-SC/Kaluzienski, L. J.	11-Astronomy

**NGR 21-002-073 University of Maryland - College Park 2367**  
Experimental and theoretical investigation of plasma radiation

<i>Period</i>	<i>Obligations</i>	
04/26/66-02/29/80	FY79 \$65,000	TOTAL: \$881,173
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Griem, H. R.	HQ-SC/Roman, N. G.	11-Astronomy
	HQ-SC/Boggett, N. W.	

**NGR 21-002-096 University of Maryland - College Park 2368**  
Research in atmospheric physics

<i>Period</i>	<i>Obligations</i>	
06/21/66-06/30/80	FY79: \$81,302	TOTAL: \$905,186
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Matthews, D. L.	GSFC/Hartle, R. E.	31-Atmos Sci
	GSFC/Gagnon, B. D.	

**NGR 21-002-199 University of Maryland - College Park 2369**  
Research in solar radio astronomy at short wavelengths

<i>Period</i>	<i>Obligations</i>	
04/11/69-09/30/79	FY79: \$73,000	TOTAL: \$416,656
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kundu, M. R.	HQ-ST/Bohlin, J. D.	13-Physics



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**NGR 21-002-224** University of Maryland - College Park 2370  
Research on the measurement of the charge and isotopic composition on the primary cosmic rays

<i>Period</i>	<i>Obligations</i>	
07/31/69-02/29/80	FY79: \$50,000	TOTAL: \$368,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gloeckler, G.	HQ-SC/Kaluzienski, L. J.	11-Astronomy
	HQ-SC/Opp, A. G.	

**NGR 21-002-399** University of Maryland - College Park 2377  
Urbanization and geologic processes in the Chesapeake Bay watershed

<i>Period</i>	<i>Obligations</i>	
03/01/73-05/31/79	FY79:	TOTAL: \$108,511
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McCuen, R. H.	GSFC/Rango, A.	32-Geological Sci
	GSFC/Salomonson, V. V.	

**NGR 21-002-270** University of Maryland - College Park 2371  
Research in mechanical theorem proving

<i>Period</i>	<i>Obligations</i>	
05/18/70-06/30/80	FY79:	TOTAL: \$176,661
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Minker, J.	HQ-RE/Gevarter, W. B.	21-Mathematics
	JPL/Friedman, L.	

**NGR 21-002-400** University of Maryland - College Park 2378  
Preliminary experiments with a split sphere high pressure apparatus

<i>Period</i>	<i>Obligations</i>	
04/17/73-01/31/79	FY79:	TOTAL: \$281,791
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Spain, I. L.	LERC/Coles, W. D.	13-Physics
Skelton, E. F.	LERC/Brown, G. V.	

**NGR 21-002-291** University of Maryland - College Park 2372  
Studies of charged particles in natural and laboratory environments

<i>Period</i>	<i>Obligations</i>	
01/28/71-11/30/79	FY79: \$71,000	TOTAL: \$327,921
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coplan, M. A.	GSFC/Ogilvie, K. W.	13-Physics
Nousek, J.	GSFC/Hoffman, R. A.	
Pravdo, S.		

**NGT 21-002-254** University of Maryland - College Park 2379  
Summer faculty fellowship program in research for 24 faculty members

<i>Period</i>	<i>Obligations</i>	
12/23/69-03/31/80	FY79: \$168,867	TOTAL \$812,235
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Emad, F. P.	HQ-LU/Carter, C. H.	49-Engr, NEC

**NGR 21-002-316** University of Maryland - College Park 2373  
Research program in charged particle detector technology

<i>Period</i>	<i>Obligations</i>	
07/01/71-01/14/80	FY79: \$575,000	TOTAL: \$2,660,717
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gloeckler, G.	GSFC/Teegarden, B. J.	13-Physics
Ipavich, F.		
Mason, G.		

**NSG 1468** University of Maryland - College Park 2380  
Study of surface acoustic wave charge transfer device

<i>Period</i>	<i>Obligations</i>	
11/15/77-06/14/80	FY79: \$29,853	TOTAL: \$57,672
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lin, H. C.	LARC/Benz, H. F.	45-Elec Engr
	LARC/Husson, C.	

**NGR 21-002-317** University of Maryland - College Park 2374  
Chemical studies of the origin of life

<i>Period</i>	<i>Obligations</i>	
08/18/71-06/30/80	FY79: \$180,065	TOTAL: \$845,158
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ponnamperuma, C. A.	HQ-SB/Young, R. S.	12-Chemistry

**NSG 1558** University of Maryland - College Park 2381  
Design of flight control systems via robust servomechanism theory

<i>Period</i>	<i>Obligations</i>	
08/15/78-12/14/79	FY79:	TOTAL: \$30,127
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wang, S. H.	LARC/Schy, A. A.	45-Elec Engr

**NGR 21-002-344** University of Maryland - College Park 2375  
Studies on thermophysical properties in critical region of fluids

<i>Period</i>	<i>Obligations</i>	
02/16/72-06/30/79	FY79: \$1,768	TOTAL: \$83,998
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sengers, J. V.	LERC/Simoneau, R. J.	13-Physics

**NSG 1570** University of Maryland - College Park 2382  
General aviation aerodynamics and dynamics

<i>Period</i>	<i>Obligations</i>	
11/01/78-10/31/79	FY79: \$24,847	TOTAL: \$24,847
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Barlow, J. B.	LARC/DiCarlo, D. J.	41-Aero Engr
Anderson, J. D., Jr.	LARC/Yip, L. P.	

**NGR 21-002-368** University of Maryland - College Park 2376  
Geochemistry of lunar & meteoritic materials

<i>Period</i>	<i>Obligations</i>	
06/01/72-08/15/78	FY79:	TOTAL: \$330,355
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Khanna, R. K.	GSFC/Stief, L. J.	32-Geological Sci

**NSG 2378** University of Maryland - College Park 2383  
Production of monoclonal antibodies to human T-cells

<i>Period</i>	<i>Obligations</i>	
04/01/79-03/31/80	FY79: \$42,554	TOTAL: \$42,554
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goldsby, R. A.	ARC/Mandel, A. D.	56-Medical Sciences

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**NSG 5017** University of Maryland - College Park 2384  
Resource identification studies on urban watersheds using the  
Anacostia River Basin as an example

<i>Period</i>	<i>Obligations</i>	
07/15/74-12/31/79	FY79: \$27,690	TOTAL: \$118,944
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ragan, R. M.	GSFC/Salomonsen, V. V.	32-Geological Sci
	GSFC/Rango, A.	

**NSG 5042** University of Maryland - College Park 2385  
Study of CO2 waveguide laser life problem

<i>Period</i>	<i>Obligations</i>	
01/12/75-12/31/79	FY79:	TOTAL: \$120,685
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hochuli, U. E.	GSFC/Degnan, J. J.	49-Engr, NEC
Davis, C.		

**NSG 5094** University of Maryland - College Park 2386  
Analysis of lunar data

<i>Period</i>	<i>Obligations</i>	
02/01/76-09/30/79	FY79:	TOTAL: \$139,004
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Balakrishnan, A. V.	GSFC/Trombka, J. I.	32-Geological Sci

**NSG 5123** University of Maryland - College Park 2387  
Evaluation of software engineering disciplines

<i>Period</i>	<i>Obligations</i>	
08/01/76-12/31/79	FY79: \$40,000	TOTAL: \$167,214
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Basili, V. R.	GSFC/McGarry, F. E.	49-Engr, NEC
Zelkowitz, M. V.	GSFC/Tasaki, K. K.	

**NSG 5129** University of Maryland - College Park 2388  
Research regarding centimeter laser ranging accuracy to earth  
satellites

<i>Period</i>	<i>Obligations</i>	
09/17/76-11/30/77	FY79:	TOTAL: \$169,070
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Alley, C. O.	GSFC/Johnson, T. S.	13-Physics
Currie, D. G.		

**NSG 5137** University of Maryland - College Park 2389  
Incorporation of remotely sensed soil moisture data into hydrologic  
models

<i>Period</i>	<i>Obligations</i>	
12/01/76-06/30/80	FY79: \$30,760	TOTAL: \$102,815
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Witczak, M. W.	GSFC/Schmugge, T. J.	32-Geological Sci

**NSG 5172** University of Maryland - College Park 2390  
Raman spectroscopy of cosmic ices and planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
04/01/77-06/30/80	FY79: \$26,412	TOTAL: \$48,978
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Khanna, R. K.	GSFC/Donn, B. D.	12-Chemistry

**NSG 5174** University of Maryland - College Park 2391  
Atmospheric lidar research

<i>Period</i>	<i>Obligations</i>	
06/01/77-05/31/78	FY79:	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilkerson, T. D.	GSFC/Barnes, W. L.	31-Atmos Sci

**NSG 5177** University of Maryland - College Park 2392  
Measurement of interstellar helium impinging on the earth

<i>Period</i>	<i>Obligations</i>	
06/01/77-06/30/79	FY79: \$6,000	TOTAL: \$41,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moore, J. H.	GSFC/Bissell, E. E.	13-Physics
Opal, C. B.	HQ-ST/Cauffman, D. P.	
Meier, R. R.		

**NSG 5209** University of Maryland - College Park 2393  
Multidisciplinary research program in atmospheric science

<i>Period</i>	<i>Obligations</i>	
09/12/77-12/31/79	FY79: \$362,413	TOTAL: \$656,247
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Thompson, O. E.	GSFC/Arking, A.	31-Atmos Sci
	GSFC/Halem, M.	

**NSG 5234** University of Maryland - College Park 2394  
Research of image motion and evaluation and optimization of  
the automatic guide system on the forty-eight inch telescope

<i>Period</i>	<i>Obligations</i>	
02/19/78-05/14/80	FY79: \$62,000	TOTAL: \$102,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Currie, D. G.	GSFC/Winston, G. C.	31-Atmos Sci

**NSG 5287** University of Maryland - College Park 2395  
Evaluate the automatic guider system for possible space ranging  
applications

<i>Period</i>	<i>Obligations</i>	
07/15/78-07/14/79	FY79:	TOTAL: \$37,404
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Currie, D. G.	GSFC/Winston, G. C.	31-Atmos Sci

**NSG 5298** University of Maryland - College Park 2396  
Solar gamma-ray astronomy research

<i>Period</i>	<i>Obligations</i>	
08/15/78-11/30/79	FY79: \$27,900	TOTAL: \$47,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wall, N. S.	GSFC/Ramaty, R.	11-Astronomy

**NSG 5313** University of Maryland - College Park 2397  
Resonance fluorescence in atmospheric gases research

<i>Period</i>	<i>Obligations</i>	
12/01/78-11/30/79	FY79: \$135,000	TOTAL: \$135,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McIlrath, T. J.	GSFC/Hudson, R. D.	13-Physics

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**NSG 5320 University of Maryland - College Park 2398**  
Ground-based solar radio observations: Solar maximum mission

Period	Obligations	
01/15/79-01/14/80	FY79: \$40,000	TOTAL: \$40,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kundu, M. R.	GSFC/Donley, J. L.	31-Atmos Sci

**NSG 7196 University of Maryland - College Park 2405**  
Research and development of gravitational experiments for spacecraft

Period	Obligations	
03/01/76-06/30/80	FY79: \$75,000	TOTAL: \$248,513
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Weber, J. Davis, W. Paik, H. J.	HQ-RT/Whiting, E. E.	13-Physics JPL/Tward, M.

**NSG 5323 University of Maryland - College Park 2399**  
Research of impulse electromagnetic bursts: Solar maximum mission

Period	Obligations	
07/01/79-05/30/80	FY79: \$12,318	TOTAL: \$12,318
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Spicer, D. S. Tidman, T. A.	GSFC/Donley, J. L.	31-Atmos Sci

**NSG 7252 University of Maryland - College Park 2406**  
Analysis and interpretation of X-ray data

Period	Obligations	
06/01/76-05/31/78	FY79:	TOTAL: \$35,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rose, W. K.	HQ-SC/Opp, A. G.	11-Astronomy

**NSG 5390 University of Maryland - College Park 2400**  
Studies of suspected high carbon abundance planetary nebulae

Period	Obligations	
07/01/79-06/30/80	FY79: \$6,815	TOTAL: \$6,815
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Harrington, J. P. Marionni, P. A.	GSFC/Bogges, A.	11-Astronomy

**NSG 7253 University of Maryland - College Park 2407**  
Improving communications between humans and computer-directed automatic systems

Period	Obligations	
07/01/76-08/31/79	FY79:	TOTAL: \$120,925
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Reiger, C. J. Minker, J.	HQ-RT/Whiting, E. E. JPL/Friedman, L.	22-Computer Science

**NSG 5399 University of Maryland - College Park 2401**  
Observations of ultraviolet line spectra stars

Period	Obligations	
07/01/79-06/30/80	FY79: \$12,300	TOTAL: \$12,300
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bell, R. A.	GSFC/Bogges, A.	11-Astronomy

**NSG 7284 University of Maryland - College Park 2408**  
Research on photon counting array photometer for space applications

Period	Obligations	
10/01/76-11/30/77	FY79:	TOTAL: \$147,768
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Currie, D. G.	HQ-SC/Rosendhal, J. D.	11-Astronomy

**NSG 5404 University of Maryland - College Park 2402**  
Field aligned particle fluxes and parallel electric potential

Period	Obligations	
10/01/79-09/30/80	FY79: \$24,000	TOTAL: \$24,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lin, C. S. Rosenberg, T. J.	GSFC/Spencer, N. W.	31-Atmos Sci

**NSG 7322 University of Maryland - College Park 2409**  
Research on comets

Period	Obligations	
03/01/77-05/31/80	FY79:	TOTAL: \$76,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
A'Hearn, M. F.	HQ-SL/Brunk, W. E. HQ-SL/Murphy, R. E.	11-Astronomy

**NSG 5408 University of Maryland - College Park 2403**  
Study of bow shock ions, particle accelerations and plasma instabilities

Period	Obligations	
10/01/79-05/30/80	FY79: \$25,000	TOTAL: \$25,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wu, C. S.	GSFC/Corrigan, J. P.	11-Astronomy

**NSG 7340 University of Maryland - College Park 2410**  
Spectral studies related to dissociation of hydrogen-bromine, hydrogen-chloride and bromine-oxide

Period	Obligations	
06/16/77-06/15/80	FY79: \$38,000	TOTAL: \$103,783
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ginter, M. L.	HQ-EB/Kakar, R. K. HQ-EB/Seals, R. K., Jr.	13-Physics

**NSG 7046 University of Maryland - College Park 2404**  
Studies of the Apollo 15 and 16 orbital X-ray data

Period	Obligations	
05/01/74-03/31/77	FY79: \$33,489	TOTAL: \$162,197
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Adler, I.	HQ-SL/Quaide, W. L. HQ-SL/French, B. E.	32-Geological Sci

**NASA'S UNIVERSITY PROGRAM  
MARYLAND (Continued)**

**NSG 7365** University of Maryland - College Park 2411  
Theoretical calculations of non-ballistic fluid dynamic flow for  
ejecta transport in models of multiring basins of impact origin  
*Period* *Obligations*  
07/01/77-06/30/79 FY79: \$37,500 TOTAL: \$67,500  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Pai, S. I. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. M.

**NSG 7427** University of Maryland - College Park 2412  
Numerical simulation experiments in support of NASA's solar  
physics missions: Solar loop and flare studies  
*Period* *Obligations*  
12/01/77-11/30/79 FY79: \$64,000 TOTAL: \$124,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Spicer, D. S. HQ-ST/Bohlin, J. D. 13-Physics

**NSG 7469** University of Maryland - College Park 2413  
Colloquium on the limits of life  
*Period* *Obligations*  
07/01/78-06/31/79 FY79: \$7,500 TOTAL: \$7,500  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ponnamperuma, C. HQ-SB/Young, R. S. 12-Chemistry

**NSG 7482** University of Maryland - College Park 2414  
Astrophysical science theory on lunar minerals  
*Period* *Obligations*  
09/01/78-02/29/80 FY79: \$24,753 TOTAL: \$24,753  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tossell, J. HQ-SL/Quaide, W. E. 32-Geological Sci  
HQ-SL/French, B. M.

**NSG 7496** University of Maryland - College Park 2415  
Experiments with phase transitions at very high pressures  
*Period* *Obligations*  
10/01/78-09/30/79 FY79: \$85,035 TOTAL: \$85,035  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Spain, I. L. HQ-RS/Lundholm, J. G., Jr. 13-Physics

**NSG 7555** University of Maryland - College Park 2416  
X-ray clusters of galaxies, gas dynamics and relativistic particle  
propagation  
*Period* *Obligations*  
03/01/79-02/29/80 FY79: \$40,608 TOTAL: \$40,608  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Scott, J. S. HQ-SC/Kaluzienski, L. J. 11-Astronomy  
HQ-SC/Opp, A. G.

**NAS 6-2855** University of Maryland - Eastern Shore 2417  
Services for operation of Wallops' Technical Library  
*Period* *Obligations*  
10/01/77-09/30/78 FY79: \$65,018 TOTAL: \$127,393  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Smith, J. C. WFC/Floyd, J. C. 99-Multi-Discip  
Ignasias, C. D. WFC/Foster, J. N.

**NGR 21-119-003** University of Maryland - Eastern Shore 2418  
High power pulsed laser beams and their atmospheric propagation  
limitations  
*Period* *Obligations*  
08/18/72-12/31/78 FY79: TOTAL: \$46,254  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Singh, G. WFC/Trafford, G. H. 13-Physics

**NSG 6006** University of Maryland - Eastern Shore 2419  
Studies of microwave radiation as a tool in soil sterilization against  
major diseases and pests of agricultural crops  
*Period* *Obligations*  
03/01/76-08/31/79 FY79: TOTAL: \$99,692  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wutoh, J. G. WFC/Oberholtzer, J. D. 99-Multi-Discip

**NSG 6016** University of Maryland - Eastern Shore 2420  
A chronology and retrieval system for Wallops Flight Center  
atmospheric data  
*Period* *Obligations*  
09/17/76-06/16/80 FY79: \$35,000 TOTAL: \$90,706  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Smith, J. C. WFC/Parsons, C. L. 31-Atmos Sci

**NSG 6017** University of Maryland - Eastern Shore 2421  
Summer study on space colonies  
*Period* *Obligations*  
06/20/77-05/31/78 FY79: TOTAL: \$5,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lynk, W. L. WFC/Trafford, G. H. 59-Life Sci, NEC

**NSG 6025** University of Maryland - Eastern Shore 2422  
Surface drift currents in the ocean  
*Period* *Obligations*  
12/01/78-11/30/79 FY79: \$10,000 TOTAL: \$10,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Dudis, J. J. WFC/Huang, N. E. 33-Oceanography  
WFC/Long, S. R.

**NSG 6033** University of Maryland - Eastern Shore 2423  
Investigation of aspergillus flavus  
*Period* *Obligations*  
06/01/79-12/31/79 FY79: \$10,000 TOTAL: \$10,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Albino, M. WFC/Trafford, G. H. 51-Biological Sci

**NSG 6034** University of Maryland - Eastern Shore 2424  
Aquatic vascular plants and algae as potential biological  
components of closed ecological life support systems  
*Period* *Obligations*  
06/01/79-12/31/79 FY79: \$11,321 TOTAL: \$11,321  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gupta, G. C. WFC/Trafford, G. H. 39-Env Sci, NEC

**NASA'S UNIVERSITY PROGRAM  
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**NSG 7470** University of Maryland - Eastern Shore **2425**  
Optimization of agricultural productivity in closed ecological life support systems  
*Period* *Obligations*  
07/01/78-12/31/79 FY79: TOTAL: \$40,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Joshi, J. M. HQ-SB/Young, R. S. 55-Agriculture Sci

**NGR 22-004-025** Boston University **2431**  
Microbial contributions to the precambrian earth  
*Period* *Obligations*  
12/15/70-09/30/79 FY79: \$42,688 TOTAL: \$253,351  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Margulis, L. HQ-SB/Young, R. S. 32-Geological Sci

**MASSACHUSETTS**

**NSG 7385** Boston College **2426**  
Investigation of auroral process on the ATS field line  
*Period* *Obligations*  
09/01/77-08/31/78 FY79: TOTAL: \$30,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Eather, R. H. HQ-ST/Taylor, W. W. 39-Env Sci, NEC  
HQ-ST/Schmerling, E. R.

**NGR 22-004-030** Boston University **2432**  
Compressible unsteady potential aerodynamic flow around lifting bodies having arbitrary shapes & motions  
*Period* *Obligations*  
12/08/71-12/31/79 FY79: \$101,282 TOTAL: \$525,754  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Morino, L. LARC/Yates, E. C., Jr. 41-Aero Engr  
Tseng, K.

**NSG 7468** Boston College **2427**  
Evaluate and assess the role of theorists in solar terrestrial research  
*Period* *Obligations*  
06/01/78-11/30/79 FY79: TOTAL: \$66,442  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Carovillano, R. L. HQ-ST/Tomayko, D. W.  
39-Env Sci, NEC

**NSG 1644** Boston University **2433**  
Noisiness and annoyance of noise-tone complexes  
*Period* *Obligations*  
09/01/79-09/30/80 FY79: \$29,271 TOTAL: \$29,271  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hellman, R. D. LARC/Powell, C. A. 69-Psych, NEC  
LARC/Key, K. F.

**NAS 5-25445** Boston University **2428**  
High resolution studies of ultraviolet lines in O-B stars  
*Period* *Obligations*  
12/11/78-10/31/79 FY79: \$7,404 TOTAL: \$7,404  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kamp, L. W. GSFC/Bogges, A. 11-Astronomy

**NSG 5389** Boston University **2434**  
Development of computer models for the analysis of ultraviolet and optical stellar spectra  
*Period* *Obligations*  
06/15/79-06/14/80 FY79: \$12,992 TOTAL: \$12,992  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kamp, L. W. GSFC/Leckronz, D. S. 11-Astronomy

**NAS 8-32844** Boston University **2429**  
Use of the space shuttle to create plasma holes for ionospheric and radio astronomical studies  
*Period* *Obligations*  
10/01/77-09/30/82 FY79: \$19,000 TOTAL: \$40,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Mendillo, M. MSFC/Guynes, B. V. 31-Atmos Sci  
MSFC/Ise, R.

**NSG 5407** Boston University **2435**  
Study of the propagation of geomagnetic pulsation signals  
*Period* *Obligations*  
09/15/79-09/14/80 FY79: \$20,000 TOTAL: \$20,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hughes, W. J. GSFC/Corrigan, J. P. 11-Astronomy

**NGR 22-004-018** Boston University **2430**  
Ultrasonic measurement of heart volume  
*Period* *Obligations*  
03/01/70-12/31/78 FY79: TOTAL: \$65,511  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Fulton, G. P. HQ-SB/Larson, C. A. 59-Life Sci, NEC  
Berman, H. J.

**NSG 7254** Boston University **2436**  
The creation of plasma holes in the ionosphere and their potential use  
*Period* *Obligations*  
09/01/76-08/31/77 FY79: TOTAL: \$10,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Mendillo, M. HQ-ST/Taylor, W. W. 19-Phys Sci, NEC  
HQ-ST/Schmerling, E. R.

**NSG 7588** Boston University **2437**  
Soil stabilization by a prokaryotic terrestrial mat in the southwestern United States Implications for precambrian terrestrial biota  
*Period* *Obligations*  
04/15/79-04/18/80 FY79: \$16,000 TOTAL: \$16,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Golubic, S. HQ-SB/Young, R. S. 54-Env Biology

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAS 8-33326** **Brandeis University** **2438**  
An attempt to detect X-ray emission  
*Period* *Obligations*  
03/28/79-03/27/80 **FY79: \$1,380** **TOTAL: \$1,380**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Willis, A. G. MSFC/Jones, J. B., Jr. 11-Astronomy  
Strom, R. G.

**NAS 8-33343** **Brandeis University** **2439**  
Study of the X-ray properties of ring galaxies  
*Period* *Obligations*  
02/22/79-02/21/80 **FY79: \$1,000** **TOTAL: \$1,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ghigo, F. D. MSFC/Jones, J. B., Jr. 11-Astronomy

**NAS 9-15147** **Brandeis University** **2440**  
Vestibular selection criteria development  
*Period* *Obligations*  
09/01/76-03/01/80 **FY79: \$40,000** **TOTAL: \$136,743**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lackner, J. R. JSC/Hornick, J. L. 59-Life Sci, NEC

**NAS 1-10492** **Harvard University** **2441**  
Participation in science planning for Viking 1975 missions in area of entry science  
*Period* *Obligations*  
03/25/71-02/28/79 **FY79:** **TOTAL: \$327,921**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
McElroy, M. B. LARC/Williams, T. S., Jr. 31-Atmos Sci  
LARC/Glenny, W. R.

**NAS 2-9127** **Harvard University** **2442**  
Interdisciplinary scientist, Pioneer/Venus program  
*Period* *Obligations*  
02/23/76-12/31/79 **FY79: \$78,200** **TOTAL: \$195,396**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Goody, R. M. ARC/Hall, C. F. 11-Astronomy  
Apt, J. ARC/Porter, D. L.

**NAS 2-10249** **Harvard University** **2443**  
Pioneer/Venus data analysis  
*Period* *Obligations*  
07/20/79-12/31/79 **FY79: \$28,702** **TOTAL: \$28,702**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
McElroy, M. B. ARC/Hall, C. F. 42-Astro Engr  
ARC/Porter, D. L.

**NAS 5-3949** **Harvard University** **2444**  
Study and experiment for a high resolution ultraviolet telescope and spectrometer system  
*Period* *Obligations*  
01/28/65-06/30/80 **FY79: \$183,000** **TOTAL: \$39,457,986**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hughes, B. M. MSFC/Snoddy, W. C. 11-Astronomy  
Arhart, R. W.

**NAS 5-23494** **Harvard University** **2445**  
X-ray ultraviolet spectroheliometer experiment for synchronous meteorological satellite study effort  
*Period* *Obligations*  
05/19/76-09/30/81 **FY79:** **TOTAL: \$4,295,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Reeves, E. M. GSFC/Donley, J. L. 31-Atmos Sci

**NAS 5-24134** **Harvard University** **2446**  
Investigation of the upper atmosphere using data from AE satellites  
*Period* *Obligations*  
09/19/77-09/30/80 **FY79: \$20,000** **TOTAL: \$143,864**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
McElroy, M. B. GSFC/Rice, C. F. 31-Atmos Sci

**NAS 8-31374** **Harvard University** **2447**  
Scientific data reduction and analysis activities: ATM experiment S-054  
*Period* *Obligations*  
01/01/75-04/30/80 **FY79: \$114,000** **TOTAL: \$1,087,588**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Vaiana, G. S. MSFC/Snoddy, W. C. 13-Physics

**NAS 8-32691** **Harvard University** **2448**  
Crystal nucleation in glass-forming alloy and pure metal melts under containerless and vibrationless conditions  
*Period* *Obligations*  
06/23/78-06/22/81 **FY79: \$14,000** **TOTAL: \$54,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Turnbull, D. MSFC/Lacy, L. L. 13-Physics  
Spaepen, F. MSFC/Kroes, R. L.

**NAS 9-15326** **Harvard University** **2449**  
Preliminary characterization of persisting circadian rhythms during space flight: Neurospora as a model system  
*Period* *Obligations*  
06/01/77-04/30/81 **FY79:** **TOTAL: \$99,316**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Newton, R. W. JSC/Nolte, R. W. 51-Biological Sci

**NASW 2952** **Harvard University** **2450**  
An atmospheric and oceanic nitrous oxide measurement program  
*Period* *Obligations*  
06/15/76-12/14/79 **FY79: \$140,000** **TOTAL: \$262,300**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
McElroy, M. B. HQ-ST/King, J. H. 33-Oceanography

**NASW 3242** **Harvard University** **2451**  
Measurement of compounds in the stratosphere of the earth and the development of measurement techniques  
*Period* *Obligations*  
10/01/78-03/31/80 **FY79: \$1,481,000** **TOTAL: \$1,481,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Anderson, J. HQ-ST/Seals, R. K., Jr. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
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**NGL 22-007-006** **Harvard University** **2452**  
Theoretical & experimental studies on ultraviolet solar physics  
*Period* *Obligations*  
07/10/63-09/30/79 **FY79: \$270,000 TOTAL: \$4,991,398**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Parkinson, W. H. HQ-ST/Bohlin, J. D. 13-Physics

**NGR 22-007-272** **Harvard University** **2459**  
Theoretical studies in space astronomy  
*Period* *Obligations*  
09/01/73-08/31/80 **FY79: \$95,770 TOTAL: \$271,466**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cameron, A. G. HQ-SC/Kaluznienski, L. J. 11-Astronomy  
HQ-SC/Opp, A. G.

**NGL 22-007-069** **Harvard University** **2453**  
Infrared absorption spectrophotometry of organic extractives from precambrian sediments  
*Period* *Obligations*  
05/29/66-05/31/80 **FY79: \$52,466 TOTAL: \$385,209**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Barghoorn, E. S. HQ-SB/Young, R. S. 32-Geological Sci

**NSG 2031** **Harvard University** **2460**  
Chemistry and dynamics of trace stratospheric gases  
*Period* *Obligations*  
07/01/74-09/30/79 **FY79: \$92,000 TOTAL: \$396,341**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
McElroy, M. B. HQ-ST/Kakar, R. K. 31-Atmos Sci  
Wofsy, S. C. HQ-ST/Tilford, S. G.

**NGL 22-007-228** **Harvard University** **2454**  
Theoretical investigation of multiphase in Jupiter interior and possible relationship to behavior of outer atmospheric layers  
*Period* *Obligations*  
12/15/71-09/30/80 **FY79: \$471,001 TOTAL: \$1,054,988**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Goody, R. M. HQ-SL/Murphy, R. E. 31-Atmos Sci  
Lindzen, R. S. HQ-SL/Brunk, W. E.

**NSG 2265** **Harvard University** **2461**  
Geometrical methods in nonlinear dynamics  
*Period* *Obligations*  
09/01/77-08/31/80 **FY79: \$32,181 TOTAL: \$82,681**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Brockett, R. W. ARC/Doolin, B. F. 41-Aero Engr  
Byrnes, C. I.

**NGL 22-007-247** **Harvard University** **2455**  
Lunar sample analysis  
*Period* *Obligations*  
06/30/72-01/31/81 **FY79: TOTAL: \$641,268**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hays, J. F. JSC/Harris, J. W. 12-Chemistry

**NSG 5128** **Harvard University** **2462**  
Lyman alpha coronagraph research sounding rocket program  
*Period* *Obligations*  
07/15/76-11/14/79 **FY79: \$304,950 TOTAL: \$929,876**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Parkinson, W. H. HQ-ST/Bohlin, J. D. 13-Physics  
Kohl, J. L. GSFC/Bissell, E. E.

**NGR 22-007-202** **Harvard University** **2456**  
Investigations in the far ultraviolet solar spectrum  
*Period* *Obligations*  
11/05/70-10/31/79 **FY79: \$10,920 TOTAL: \$1,054,920**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Parkinson, W. H. HQ-ST/Bohlin, J. D. 11-Astronomy

**NSG 5143** **Harvard University** **2463**  
Ultraviolet study of V Puggis  
*Period* *Obligations*  
12/01/76-08/31/78 **FY79: TOTAL: \$895**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Flannery, B. P. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NGR 22-007-269** **Harvard University** **2457**  
Theoretical research in planetary physics  
*Period* *Obligations*  
09/01/73-09/30/79 **FY79: \$67,378 TOTAL: \$275,575**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cameron, A. G. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/Dwornik, S. E.

**NSG 5160** **Harvard University** **2464**  
Climate processes in the atmosphere and ocean  
*Period* *Obligations*  
02/14/77-01/31/79 **FY79: TOTAL: \$89,532**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lindzen, R. S. GSFC/Halem, M. 31-Atmos Sci  
Sarachik, E. S.

**NGR 22-007-270** **Harvard University** **2458**  
The operation of a balloon-borne 40-inch telescope for far infrared astronomy  
*Period* *Obligations*  
11/05/73-12/31/80 **FY79: \$118,000 TOTAL: \$553,868**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Fazio, G. G. HQ-SC/Bogges, N. W. 11-Astronomy  
HQ-SC/Roman, N. G.

**NSG 5176** **Harvard University** **2465**  
Research of high resolution vacuum ultraviolet absorption cross-sections of stratospheric molecules  
*Period* *Obligations*  
06/01/77-05/31/80 **FY79: \$55,000 TOTAL: \$152,600**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Parkinson, W. H. GSFC/Reed, E. I. 13-Physics  
Freeman, D. E.  
Yoshino, K.

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**NSG 5191** **Harvard University** **2466**  
 Studies of chromospheres and corona of late-type stars: Reobservation of alpha aurigae  
*Period* *Obligations*  
 08/01/77-07/31/78 **FY79:** **TOTAL: \$15,158**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Dupree, A. K. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 5226** **Harvard University** **2467**  
 Studies of selected soft X-ray sources  
*Period* *Obligations*  
 02/01/78-01/31/79 **FY79:** **TOTAL: \$9,215**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Dupree, A. K. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 5228** **Harvard University** **2468**  
 Dynamics and evaluation of gulf stream meanders  
*Period* *Obligations*  
 02/01/78-11/30/79 **FY79: \$20,000** **TOTAL: \$39,105**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Robinson, A. R. GSFC/Halem, M. 33-Oceanography

**NSG 5229** **Harvard University** **2469**  
 Ultraviolet investigations of stellar X-ray sources  
*Period* *Obligations*  
 02/01/78-01/31/79 **FY79:** **TOTAL: \$39,885**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Dupree, A. K. GSFC/Bogges, A. GSFC/West, D. K. 11-Astronomy

**NSG 5239** **Harvard University** **2470**  
 Observations of stellar chromospheres and coronae  
*Period* *Obligations*  
 03/01/78-02/28/79 **FY79:** **TOTAL: \$21,500**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Dupree, A. K. GSFC/Bogges, A. GSFC/West, D. K. 11-Astronomy

**NSG 5293** **Harvard University** **2471**  
 Studies of the local interstellar medium  
*Period* *Obligations*  
 08/01/78-09/30/79 **FY79:** **TOTAL: \$15,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Dupree, A. K. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 5312** **Harvard University** **2472**  
 X-ray observations of a compact binary source  
*Period* *Obligations*  
 12/15/78-12/14/79 **FY79: \$8,000** **TOTAL: \$8,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Dupree, A. K. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 5370** **Harvard University** **2473**  
 Ultraviolet studies of astronomical sources  
*Period* *Obligations*  
 06/01/79-05/31/80 **FY79: \$27,047** **TOTAL: \$27,047**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Dupree, A. K. GSFC/Bogges, A. 11-Astronomy  
 Dalgarno, A.

**NSG 5380** **Harvard University** **2474**  
 International Ultraviolet Experiment (IUE) observations of interstellar carbon  
*Period* *Obligations*  
 07/01/79-12/31/79 **FY79: \$8,531** **TOTAL: \$8,531**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Dupree, A. K. GSFC/Bogges, A. 11-Astronomy  
 Black, J. H.

**NSG 7095** **Harvard University** **2475**  
 Reflection spectra of sodium doped ammonia ice  
*Period* *Obligations*  
 10/25/74-03/31/79 **FY79: \$33,835** **TOTAL: \$189,565**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Pipkin, F. M. HQ-SL/Murphy, R. E. HQ-SL/Brunk, W. E. 31-Atmos Sci

**NSG 7176** **Harvard University** **2476**  
 Participation in NASA core funding  
*Period* *Obligations*  
 11/01/75-10/31/81 **FY79: \$300,000** **TOTAL: \$1,100,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Field, G. B. HQ-SP/Tate, F. 19-Phys Sci, NEC  
 McElroy, M. B.

**NSG 7304** **Harvard University** **2477**  
 Absolute transition probabilities in ultraviolet spectra of interstellar molecules  
*Period* *Obligations*  
 12/15/76-12/14/79 **FY79: \$45,000** **TOTAL: \$118,525**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Parkinson, W. H. HQ-SC/Roman, N. G. HQ-SC/Bogges, N. W. 31-Atmos Sci

**NSG 7332** **Harvard University** **2478**  
 Planetary speckle imaging  
*Period* *Obligations*  
 03/01/77-12/31/79 **FY79: \$40,000** **TOTAL: \$161,366**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Goody, R. M. HQ-SL/Brunk, W. E. HQ-SL/Quaide, W. L. 11-Astronomy

**NSG 7398** **Harvard University** **2479**  
 Martian dust storms  
*Period* *Obligations*  
 07/01/77-06/30/79 **FY79:** **TOTAL: \$32,829**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Goody, R. M. HQ-SL/Dwornik, S. E. HQ-SL/Boyce, J. M. 32-Geological Sci



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**NSG 7461** **Harvard University** **2480**  
Computer-assisted performance tests of the Lyman-alpha coronagraph  
*Period* *Obligations*  
07/01/78-06/30/79 *FY79:* **TOTAL: \$20,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Parkinson, W. H. HQ-ST/Bohlin, J. D. 11-Astronomy

**NSG 7497** **Harvard University** **2481**  
Coronal plasma heating  
*Period* *Obligations*  
10/01/78-09/30/79 *FY79: \$34,673* **TOTAL: \$34,673**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Vaiana, G. S. HQ-ST/Bohlin, J. D. 13-Physics

**NSG 7513** **Harvard University** **2482**  
Creep and fracture properties of the moon  
*Period* *Obligations*  
01/01/79-12/31/79 *FY79: \$27,127* **TOTAL: \$27,127**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
O'Connell, R. J. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. M.

**NSG 7537** **Harvard University** **2483**  
Coronal plasma processes: Heating and energetic balance of closed coronal structures  
*Period* *Obligations*  
01/01/79-12/31/80 *FY79: \$56,000* **TOTAL: \$56,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Vaiana, G. S. HQ-ST/Bohlin, J. D. 13-Physics

**NSG 9054** **Harvard University** **2484**  
Fluid and electrolyte homeostasis during spaceflight: Ground-based preparative studies in a primate  
*Period* *Obligations*  
02/01/77-01/31/80 *FY79: \$45,000* **TOTAL: \$135,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Moore-Ede M. C. JSC/Leach, C. S. 56-Medical Sciences

**NAS 1-9684** **Massachusetts Institute of Technology** **2485**  
Participation in the science planning for the Viking 1975 missions in the area of molecular analysis  
*Period* *Obligations*  
05/01/70-09/30/78 *FY79:* **TOTAL: \$1,321,893**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Biemann, K. LARC/Williams, T. S., Jr.  
LARC/Glenny, W. R. 39-Env Sci, NEC

**NAS 1-14932** **Massachusetts Institute of Technology** **2486**  
Science support for the stratospheric aerosol and gas experiment  
*Period* *Obligations*  
07/06/77-09/30/79 *FY79:* **TOTAL: \$40,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cunnold, D. M. LARC/McMaster, L. R. 31-Atmos Sci  
LARC/McCormick, M. P.

**NAS 1-15154** **Massachusetts Institute of Technology** **2487**  
A study of noise and performance of propellers for light aircraft  
*Period* *Obligations*  
01/20/78-05/05/80 *FY79: \$132,509* **TOTAL: \$319,591**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ingard, K. V. LARC/Hubbard, H. H. 41-Aero Engr  
Kerrebrock, J. L.

**NAS 1-15268** **Massachusetts Institute of Technology** **2488**  
Air transportation research and analysis  
*Period* *Obligations*  
03/15/78-03/14/81 *FY79: \$50,000* **TOTAL: \$141,977**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Taneja, N. K. LARC/Maddalon, D. V. 41-Aero Engr  
Ausrotas, R. A.

**NAS 2-9473** **Massachusetts Institute of Technology** **2489**  
Pioneer/Venus data analysis of the radar altimeter experiment  
*Period* *Obligations*  
01/20/77-09/30/79 *FY79: \$103,100* **TOTAL: \$293,660**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Pettingill, G. H. ARC/Hall, C. F. 11-Astronomy  
ARC/Porter, D. L.

**NAS 2-9476** **Massachusetts Institute of Technology** **2490**  
Pioneer/Venus data analysis  
*Period* *Obligations*  
07/12/77-12/31/79 *FY79: \$110,000* **TOTAL: \$294,680**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Counselman, C. C., III ARC/Hall, C. F. 11-Astronomy  
Pettengill, G. H. ARC/Porter, D. L.  
Shapiro, I. I.

**NAS 2-9483** **Massachusetts Institute of Technology** **2491**  
Pioneer/Venus data analysis of the Orbiting Celestial Mechanics (OCM) experiment  
*Period* *Obligations*  
02/17/78-09/30/79 *FY79: \$116,400* **TOTAL: \$176,262**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Shapiro, I. I. ARC/Hall, C. F. 11-Astronomy  
ARC/Porter, D. L.

**NAS 3-20473** **Massachusetts Institute of Technology** **2492**  
Testing a NASA 20-inch stage and an air force mass flow stage  
*Period* *Obligations*  
10/29/76-03/12/80 *FY79: \$60,953* **TOTAL: \$482,116**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kerrebrock, J. L. LERC/Crouse, J. E. 41-Aero Engr  
Epstein, A. H.  
Thompkins, W. T., Jr.

**NAS 5-11062** **Massachusetts Institute of Technology** **2493**  
IMP H&J plasma experiment  
*Period* *Obligations*  
05/17/68-10/31/79 *FY79: \$130,000* **TOTAL: \$2,409,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bridges, H. S. GSFC/Davis, M. A. 13-Physics

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**NAS 5-11450** Massachusetts Institute of Technology 2494  
An experiment to perform X-ray astronomy on the SAS-C spacecraft

<i>Period</i>	<i>Obligations</i>	
06/16/71-09/30/78	FY79: TOTAL: \$11,330,941	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Clark, G. W.	GSFC/Rice, C. F.	11-Astronomy

**NAS 5-24493** Massachusetts Institute of Technology 301  
Design studies for far infrared absolute spectrophotometer for the cosmic background Explorer satellite

<i>Period</i>	<i>Obligations</i>	
03/01/78-02/01/80	FY79: \$71,590 TOTAL: \$190,082	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Weiss, R.	GSFC/Nace, D. A.	11-Astronomy
	GSFC/Donohoe, M. J.	

**NAS 5-21980** Massachusetts Institute of Technology 2495  
Nimbus F scanning microwave spectrometer data reduction and analysis

<i>Period</i>	<i>Obligations</i>	
01/25/74-09/30/79	FY79: TOTAL: \$623,816	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Staelin, D. H.	GSFC/Theon, J. S.	31-Atmos Sci

**NAS 5-25091** Massachusetts Institute of Technology 2502  
Broadband communications satellite study group

<i>Period</i>	<i>Obligations</i>	
08/25/78-11/30/79	FY79: TOTAL: \$70,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Staelin, D. H.	GSFC/Ippolitto, L.	45-Elec Engr

**NAS 5-22915** Massachusetts Institute of Technology 2496  
Nimbus-G experiment team support for solar backscattered ultraviolet and total ozone mapping system

<i>Period</i>	<i>Obligations</i>	
01/28/76-12/27/80	FY79: TOTAL: \$120,610	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cunnold, D. M.	GSFC/Heath, D. F.	41-Aero Engr
	GSFC/Nelsen, E. D.	

**NAS 5-25543** Massachusetts Institute of Technology 2503  
Mission definition and software analysis study for a very long base interferometry utilizing the space shuttle

<i>Period</i>	<i>Obligations</i>	
04/10/79-02/10/80	FY79: \$83,000 TOTAL: \$83,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burke, B. F.	GSFC/Clark, T. C.	11-Astronomy
	GSFC/Stone, R. G.	

**NAS 5-22929** Massachusetts Institute of Technology 2497  
Nimbus-G scanning multichannel microwave radiometer sensor

<i>Period</i>	<i>Obligations</i>	
01/28/76-09/27/80	FY79: \$40,000 TOTAL: \$162,843	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Staelin, D. H.	GSFC/Gloersen, P.	41-Aero Engr

**NAS 5-25717** Massachusetts Institute of Technology 2504  
Long wavelength photodiode development

<i>Period</i>	<i>Obligations</i>	
06/20/79-12/20/79	FY79: \$69,918 TOTAL: \$69,918	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Spears, D. L.	GSFC/Kostiuk, T.	47-Materials Engr
	GSFC/Mumma, M. J.	

**NAS 5-23677** Massachusetts Institute of Technology 2498  
Feasibility study for a microwave spectrometer for meteorological observations from synchronous satellites

<i>Period</i>	<i>Obligations</i>	
09/28/76-06/30/79	FY79: TOTAL: \$155,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Staelin, D. H.	GSFC/Shiue, J. C.	11-Astronomy

**NAS 8-27972** Massachusetts Institute of Technology 2505  
Design, development, & operations of the AXR-2 integrated modulation collimator experiment under the HEAO program

<i>Period</i>	<i>Obligations</i>	
06/23/72-09/30/80	FY79: \$284,000 TOTAL: \$1,388,493	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bradt, H. V.	MSFC/Manning, H. S.	11-Astronomy
	MSFC/Gustin, R. A.	

**NAS 5-24139** Massachusetts Institute of Technology 2499  
Study of radar reflectivity of snow covered ground in relationship between the radar reflectivity and certain snowpack aromatics

<i>Period</i>	<i>Obligations</i>	
07/26/77-07/25/80	FY79: \$25,000 TOTAL: \$65,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kong, J. A.	GSFC/Shiue, J. C.	45-Elec Engr

**NAS 8-27975** Massachusetts Institute of Technology 2506  
Design and development of the AGR-5 high energy X-ray experiment under the HEAO program

<i>Period</i>	<i>Obligations</i>	
06/23/72-09/30/80	FY79: \$387,000 TOTAL: \$2,202,672	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lewin, W. H.	MSFC/Manning, H. S.	11-Astronomy
	MSFC/Jones, J. B., Jr.	

**NAS 5-24441** Massachusetts Institute of Technology 2500  
Reduction and analysis of data from MIT X-ray observatory on-board SAS-3 spacecraft

<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/80	FY79: \$1,129,535 TOTAL: \$1,392,995	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Clark, G. W.	GSFC/Corrigan, J. P.	11-Astronomy

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**NAS 8-30537** Massachusetts Institute of Technology 2507  
Solidification (crystal growth) in the absence of gravitational forces

<i>Period</i>	<i>Obligations</i>	
12/03/73-08/31/78	FY79: TOTAL: \$270,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gatos, H. C.	MSFC/Davidson, M. C.	
Whitt, A. F.	MSFC/Schafer, C. F.	47-Materials Engr

**NAS 8-33137** Massachusetts Institute of Technology 2513  
Apollo telescope mount guest investigator program for studying coronal sources of the intra stream structure of the solar wind

<i>Period</i>	<i>Obligations</i>	
10/30/78-10/29/79	FY79: \$17,620 TOTAL: \$17,620	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sullivan, J. D.	MSFC/DeLoach, A. C.	13-Physics
	MSFC/Snoddy, W. C.	

**NAS 8-30752** Massachusetts Institute of Technology 2508  
Design, development and operations of the HEAO mission B telescope experiment

<i>Period</i>	<i>Obligations</i>	
06/01/74-05/17/80	FY79: \$312,000 TOTAL: \$2,758,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Clark, G. W.	MSFC/Manning, H. S.	11-Astronomy
Bradt, H. V.	MSFC/Power, J. A.	
Cabizares, C. R.		

**NAS 8-33138** Massachusetts Institute of Technology 2514  
Apollo telescope mount guest investigator program for modeling of quasi-static coronal loops and arcad

<i>Period</i>	<i>Obligations</i>	
09/20/78-03/31/80	FY79: \$56,250 TOTAL: \$56,250	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Frankenthal, S.	MSFC/DeLoach, A. C.	13-Physics
	MSFC/Snoddy, W. C.	

**NAS 8-31350** Massachusetts Institute of Technology 2509  
Uniform dispersions of crystallization processing

<i>Period</i>	<i>Obligations</i>	
07/01/75-03/31/79	FY79: \$1,719 TOTAL: \$472,527	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Uhlmann, D. R.	MSFC/Reeves, F. A.	47-Materials Engr
	MSFC/Williams, J. R.	

**NAS 9-15343** Massachusetts Institute of Technology 2515  
Definition of Spacelab I experiment on vestibular experiments

<i>Period</i>	<i>Obligations</i>	
04/04/77-06/30/81	FY79: \$281,500 TOTAL: \$527,500	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Young, L. R.	JSC/Luczowski, S. M.	59-Life Sci, NEC
	JSC/Huffstetler, W. J.	

**NAS 8-31552** Massachusetts Institute of Technology 2510  
Contact and coalescence of viscous and viscoelastic bodies

<i>Period</i>	<i>Obligations</i>	
11/01/75-03/31/79	FY79: TOTAL: \$128,161	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Uhlmann, D. R.	MSFC/Reeves, F. A.	47-Materials Engr
	MSFC/Snyder, R. S.	

**NCA 2-425801** Massachusetts Institute of Technology 2516  
Participation of transfer RNA in the origin of protein biosynthesis

<i>Period</i>	<i>Obligations</i>	
11/01/77-09/30/80	FY79: \$10,000 TOTAL: \$27,500	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rich, A.	ARC/MacElroy, R. D.	51-Biological Sci

**NAS 8-32925** Massachusetts Institute of Technology 2511  
Study for extraterrestrial processing and manufacturing of large space systems

<i>Period</i>	<i>Obligations</i>	
06/20/78-07/31/79	FY79: \$29,998 TOTAL: \$109,224	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miller, R. H.	MSFC/VonTiesenhausen, G. F.	
Smith, D. B.	MSFC/Priest, C. C.	47-Materials Engr
Akin, D. L.		

**NCC 1 23** Massachusetts Institute of Technology 2517  
Cockpit Display of Traffic Information (CDTI) crew function assessment

<i>Period</i>	<i>Obligations</i>	
07/01/79-01/31/80	FY79: \$38,555 TOTAL: \$38,555	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tole, J. R.	LARC/Harris, R. L., Sr.	41-Aero Engr
Young, L. R.		

**NAS 8-32994** Massachusetts Institute of Technology 2512  
Research study growth of solid solution semiconductors

<i>Period</i>	<i>Obligations</i>	
07/17/78-10/17/79	FY79: TOTAL: \$40,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hitt, A. F.	MSFC/Davidson, M. C.	13-Physics
	MSFC/Bass, B. G.	

**NCC 3 1** Massachusetts Institute of Technology 2518  
Molecular-orbital studies of metal-insulator interfaces

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$33,000 TOTAL: \$33,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Johnson, K. H.	LERC/Pepper, S. V.	19-Phys Sci, NEC
Wallace, S.		

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<b>NCC 5 8</b>	<b>Massachusetts Institute of Technology</b>	<b>2519</b>
Geophysical study of the structures and processes of the continental convergence zones		
<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY79: \$49,800	TOTAL: \$49,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Molnar, P. Toksoz, M. N.	GSFC/Mead, G. D.	32-Geological Sci
<b>NGL 22-009-521</b>	<b>Massachusetts Institute of Technology</b>	<b>2525</b>
Composition and structure of planetary atmospheres		
<i>Period</i>	<i>Obligations</i>	
08/10/70-06/30/80	FY79: \$92,050	TOTAL: \$651,307
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lewis, J. S.	HQ-SL/Murphy, R. F. HQ-SL/Brunk, W. F.	31-Atmos Sci
<b>NGL 22-009-638</b>	<b>Massachusetts Institute of Technology</b>	<b>2526</b>
Research in space science		
<i>Period</i>	<i>Obligations</i>	
03/03/72-02/28/82	FY79: \$250,000	TOTAL: \$1,800,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bridge, H. S.	HQ-SP/Tate, F.	99-Multi-Discip
<b>NGL 22-009-640</b>	<b>Massachusetts Institute of Technology</b>	<b>2527</b>
Joint university research program on future air transportation technological needs		
<i>Period</i>	<i>Obligations</i>	
11/16/71-01/31/83	FY79: \$75,000	TOTAL: \$568,332
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Simpson, R. W.	LARC/Downing, D. R. LARC/MacE, W. D.	41-Aero Engr
<b>NGL 22-009-015</b>	<b>Massachusetts Institute of Technology</b>	<b>2521</b>
Theoretical and experimental investigations of interplanetary medium and in gamma ray astronomy		
<i>Period</i>	<i>Obligations</i>	
01/01/63-12/31/80	FY79: \$230,000	TOTAL: \$4,826,339
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bridge, H. S.	HQ-ST/Cauffman, D. P. HQ-ST/Schmerling, E. R.	13-Physics
<b>NGL 22-009-124</b>	<b>Massachusetts Institute of Technology</b>	<b>2522</b>
Control optimization stabilization and computation of algorithms for space applications		
<i>Period</i>	<i>Obligations</i>	
03/30/66-12/31/81	FY79: \$95,000	TOTAL: \$932,289
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Athans, M. Willsky, A. S.	ARC/Doolin, B. J.	49-Engr, NEC
<b>NGL 22-009-308</b>	<b>Massachusetts Institute of Technology</b>	<b>2523</b>
Maturation and development of mechanisms of orientation and postural control		
<i>Period</i>	<i>Obligations</i>	
12/01/67-11/30/80	FY79:	TOTAL: \$824,646
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Held, R. M.	ARC/Daunton, N. G.	69-Psych, NEC
<b>NGL 22-009-383</b>	<b>Massachusetts Institute of Technology</b>	<b>2524</b>
Research in propulsion and power generation		
<i>Period</i>	<i>Obligations</i>	
01/16/69-08/31/81	FY79:	TOTAL: \$1,038,167
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kerrebrock, J. L. Epstein, A. H. Thompkins, W. T., Jr.	LERC/McNally, W. D.	41-Aero Engr
<b>NGR 22-009-005</b>	<b>Massachusetts Institute of Technology</b>	<b>2528</b>
Detection & identification of organic matter by mass spectrometry		
<i>Period</i>	<i>Obligations</i>	
12/01/61-09/30/79	FY79: \$80,000	TOTAL: \$1,113,262
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Biemann, K.	HQ-SB/Young, R. S.	51-Biological Sci
<b>NGR 22-009-277</b>	<b>Massachusetts Institute of Technology</b>	<b>2529</b>
The prebiotic synthesis of polynucleotides and polynucleotide-directed polypeptides		
<i>Period</i>	<i>Obligations</i>	
12/01/67-09/30/79	FY79: \$40,000	TOTAL: \$559,802
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rich, A.	HQ-SB/Young, R. S.	12-Chemistry
<b>NGR 22-009-339</b>	<b>Massachusetts Institute of Technology</b>	<b>2530</b>
Investigation of containment/control of fragments from bursting turbine rotors		
<i>Period</i>	<i>Obligations</i>	
06/14/68-12/14/79	FY79: \$72,413	TOTAL: \$815,865
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Witmer, I. A.	LERC/Holms, A. G. LERC/Weiss, S.	41-Aero Engr
<b>NGR 22-009-526</b>	<b>Massachusetts Institute of Technology</b>	<b>2531</b>
Astronomy in the region between 1 mm to 0.1 mm wavelengths		
<i>Period</i>	<i>Obligations</i>	
09/22/70-09/30/79	FY79: \$51,304	TOTAL: \$467,404
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Weiss, R.	HQ-SC/Boggett, N. W. HQ-SC/Roman, N. G.	11-Astronomy

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**NGR 22-009-540 Massachusetts Institute of Technology 2532**  
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
02/08/71-06/30/79	FY79: TOTAL: \$501,325	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Simmons, M. G.	JSC/Harris, J. W.	13-Physics

**NGR 22-009-730 Massachusetts Institute of Technology 2539**  
X-ray astronomy experiments from sounding rockets

<i>Period</i>	<i>Obligations</i>	
03/22/72-08/31/80	FY79: \$180,000 TOTAL: \$1,260,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rappaport, S. A.	GSFC/Bissell, E. E.	11-Astronomy
Boughan, E.	HQ-SC/Opp, A. G.	
LeVine, A.		

**NGR 22-009-551 Massachusetts Institute of Technology 2533**  
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
02/11/71-09/30/79	FY79: \$20,000 TOTAL: \$453,300	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burns, R. G.	JSC/Harris, J. W.	12-Chemistry

**NGR 22-009-798 Massachusetts Institute of Technology 2540**  
Role of brain areas controlling eye-head coordination in monkeys

<i>Period</i>	<i>Obligations</i>	
09/01/73-12/31/79	FY79: \$30,000 TOTAL: \$168,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bizzi, E.	ARC/Daunton, N. G.	51-Biological Sci

**NGR 22-009-627 Massachusetts Institute of Technology 2534**  
Control of serotonin-containing neurons in the brain, by plasma tryptophan

<i>Period</i>	<i>Obligations</i>	
08/04/71-10/31/79	FY79: \$64,000 TOTAL: \$495,360	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wurtman, R. J.	ARC/Winget, C. M.	56-Medical Sciences
Furnstrom, J. D.		

**NGR 22-009-826 Massachusetts Institute of Technology 2541**  
Neural orientation growth and maintenance

<i>Period</i>	<i>Obligations</i>	
09/01/73-11/30/79	FY79: \$20,000 TOTAL: \$158,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nauta, W. J.	ARC/Daunton, N. G.	51-Biological Sci
Graybiel, A. M.		
Hein, A. V.		

**NGR 22-009-646 Massachusetts Institute of Technology 2535**  
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
06/16/71-09/30/79	FY79: \$21,000 TOTAL: \$540,196	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Uhlmann, D. R.	JSC/Harris, J. W.	47-Materials Engr

**NGR 22-009-839 Massachusetts Institute of Technology 2542**  
Wideband recording system for very long baseline interferometry

<i>Period</i>	<i>Obligations</i>	
04/01/74-03/15/80	FY79: \$77,880 TOTAL: \$444,170	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Counselman, C. C., III	GSFC/Clark, T. A.	32-Geological Sci
Shapiro, I. I.	GSFC/Ryan, J. W.	

**NGR 22-009-672 Massachusetts Institute of Technology 2536**  
Ground-based radar study of the moon and planets

<i>Period</i>	<i>Obligations</i>	
03/06/72-10/31/80	FY79: \$126,420 TOTAL: \$414,320	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pettengill, G. H.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Murphy, R. E.	

**NSG 1048 Massachusetts Institute of Technology 2543**  
Wet photoelectric cells, conversion, transfer and storage of intense optical energy

<i>Period</i>	<i>Obligations</i>	
05/15/74-02/14/80	FY79: \$58,000 TOTAL: \$324,935	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wrighton, M. S.	LARC/Byvik, C. E.	13-Physics

**NGR 22-009-723 Massachusetts Institute of Technology 2537**  
Bosch process and evaluation of Bosch carbon as a sorbent

<i>Period</i>	<i>Obligations</i>	
09/19/72-12/31/79	FY79: \$35,855 TOTAL: \$198,994	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Reid, R. C.	ARC/Quattrone, P. D.	12-Chemistry

**NGR 22-009-727 Massachusetts Institute of Technology 2538**  
Study in numerical modeling of atmospheric phenomena

<i>Period</i>	<i>Obligations</i>	
02/01/73-12/31/79	FY79: \$162,700 TOTAL: \$733,563	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Charney, J. G.	GSFC/Halem, M.	31-Atmos Sci
Stone, P. H.		

**NSG 1190 Massachusetts Institute of Technology 2544**  
Characterization of high energy gap semiconductor

<i>Period</i>	<i>Obligations</i>	
10/01/75-09/30/78	FY79: TOTAL: \$50,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gatos, H. C.	LARC/Byvik, C. E.	47-Materials Engr
	LARC/Conway, E. J.	

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**NSG 1312**      **Massachusetts Institute of Technology**      **2545**  
Optimal design methods for multivariable sampled-data digital control systems

<i>Period</i>	<i>Obligations</i>	
07/01/76-05/31/79	FY79:	TOTAL: \$99,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stein, G.	LARC/Armstrong, E. S.	45-Elec Engr
Athans, M.	LARC/Elliott, J. R.	

**NSG 1323**      **Massachusetts Institute of Technology**      **2546**  
Research in algebraic manipulation

<i>Period</i>	<i>Obligations</i>	
07/01/76-06/30/80	FY79: \$19,000	TOTAL: \$153,984
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moses, J.	LARC/Shoosmith, J. N.	22-Computer Science

**NSG 1356**      **Massachusetts Institute of Technology**      **2547**  
Study of feasibility of applying superconducting coil technology to general purpose magnetic balance and suspension system

<i>Period</i>	<i>Obligations</i>	
01/01/77-03/31/80	FY79: \$75,543	TOTAL: \$248,811
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Covert, E. E.	LARC/Boyden, R. P.	41-Aero Engr
Haldeman, C. W.	LARC/Kilgore, R. A.	
Finston, M.		

**NSG 1413**      **Massachusetts Institute of Technology**      **2548**  
Distributed feedback and grating-coupled emission lead-tin telluride double heterojunction laser diodes

<i>Period</i>	<i>Obligations</i>	
05/01/77-08/31/79	FY79:	TOTAL: \$89,970
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fonstad, C. G.	LARC/Akey, N. D.	13-Physics
	LARC/Hutchby, J. A.	

**NSG 1453**      **Massachusetts Institute of Technology**      **2549**  
Magnetic confinement and precipitation of macroscopic particles injected into an aerodynamic boundary layer

<i>Period</i>	<i>Obligations</i>	
10/01/77-08/31/79	FY79: \$11,993	TOTAL: \$51,981
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Melcher, J. R.	LARC/Bushnell, D. M.	41-Aero Engr
	LARC/Hefner, J. N.	

**NSG 1502**      **Massachusetts Institute of Technology**      **2550**  
Closed-loop roll control for magnetic balance systems

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/80	FY79: \$80,338	TOTAL: \$160,423
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Covert, E. E.	LARC/Boyden, R. P.	41-Aero Engr
Haldeman, C. W.	LARC/Kilgore, R. A.	

**NSG 1504**      **Massachusetts Institute of Technology**      **2551**  
Toughening polyimide resins

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/80	FY79:	TOTAL: \$44,575
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McGarry, F. J.	LARC/Price, H. L.	47-Materials Engr
	LARC/Johnston, N. J.	

**NSG 1551**      **Massachusetts Institute of Technology**      **2552**  
Research on atomic hydrogen at cryogenic temperatures, with application to a hydrogen maser frequency standard

<i>Period</i>	<i>Obligations</i>	
10/01/78-10/31/79	FY79:	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Greytak, T. J.	LARC/Singh, J. J.	13-Physics
Kleppner, D.		

**NSG 1553**      **Massachusetts Institute of Technology**      **2553**  
Relationships between quadratic weights and linear quadratic regulator properties

<i>Period</i>	<i>Obligations</i>	
09/01/78-01/31/80	FY79:	TOTAL: \$48,900
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stein, G.	LARC/Armstrong, E. S.	45-Elec Engr
Athans, M.		

**NSG 1583**      **Massachusetts Institute of Technology**      **2554**  
Research on helicopter rotor broadband noise

<i>Period</i>	<i>Obligations</i>	
12/01/78-11/30/79	FY79: \$49,807	TOTAL: \$49,807
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ingard, K. V.	LARC/Greene, G. C.	13-Physics
	LARC/Pegg, R. J.	

**NSG 2010**      **Massachusetts Institute of Technology**      **2555**  
Study of impact of space shuttle on stratospheric ozone

<i>Period</i>	<i>Obligations</i>	
03/01/74-12/31/79	FY79: \$238,000	TOTAL: \$1,106,260
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Prinn, R. G.	ARC/Poppoff, L. G.	31-Atmos Sci
Cunnold, D. M.		
Alyea, F. N.		

**NSG 2032**      **Massachusetts Institute of Technology**      **2556**  
Research on habituation to novel visual-vestibular environments with particular reference to space flight

<i>Period</i>	<i>Obligations</i>	
07/01/74-01/14/80	FY79: \$75,000	TOTAL: \$421,003
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Vogel, F. L.	ARC/Daunton, N. G.	59-Life Sci, NEC

**NSG 2118**      **Massachusetts Institute of Technology**      **2557**  
Experimentation in supervisory controls flight management

<i>Period</i>	<i>Obligations</i>	
11/01/75-02/15/80	FY79: \$58,500	TOTAL: \$226,210
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sheridan, T. B.	ARC/Wempe, T. E.	99-Multi-Discip

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**NSG 2142**      **Massachusetts Institute of Technology**      **2558**  
Helicopter rotor noise

<i>Period</i>	<i>Obligations</i>	
07/01/76-09/15/80	FY79: \$52,321	TOTAL: \$187,973
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Widnall, S. E.	ARC/Johnson, W. R.	41-Aero Engr
	ARC/Rabbott, J. P., Jr.	

**NSG 2266**      **Massachusetts Institute of Technology**      **2564**  
An investigation of advanced helicopter rotors having individual blade-control

<i>Period</i>	<i>Obligations</i>	
11/01/77-10/31/80	FY79: \$199,915	TOTAL: \$299,821
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ham, N. D.	ARC/Johnson, W. R.	41-Aero Engr
	ARC/McCloud, J. L.	

**NSG 2172**      **Massachusetts Institute of Technology**      **2559**  
Far infrared observations of AFCRL sources to be made from the C-141

<i>Period</i>	<i>Obligations</i>	
07/01/76-10/31/79	FY79: \$19,428	TOTAL: \$51,868
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kleinman, S. G.	ARC/Haughney, L. C.	11-Astronomy

**NSG 2334**      **Massachusetts Institute of Technology**      **2565**  
Maximizing storage stability of foods: Evaluation of research needs

<i>Period</i>	<i>Obligations</i>	
09/01/78-08/31/79	FY79: \$4,408	TOTAL: \$24,123
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Karel, M.	ARC/Quattrone, P. D.	59-Life Sci, NEC

**NSG 2180**      **Massachusetts Institute of Technology**      **2560**  
Simulation evaluation of combined four-dimensional area navigation and airborne traffic situation displays and procedures applied to terminal area maneuvers

<i>Period</i>	<i>Obligations</i>	
09/01/76-08/31/80	FY79: \$56,000	TOTAL: \$223,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Athans, M.	ARC/Wempe, T. E.	99-Multi-Discip
Connelly, M. E.	ARC/Palmer, E. A.	

**NSG 2335**      **Massachusetts Institute of Technology**      **2566**  
Regeneration of plant nutrients from waste processing effluents

<i>Period</i>	<i>Obligations</i>	
08/01/78-09/30/79	FY79: \$21,705	TOTAL: \$41,992
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Meissner, H. P.	ARC/Quattrone, P. D.	59-Life Sci, NEC

**NSG 2342**      **Massachusetts Institute of Technology**      **2567**  
Opportunity observations of occultations and eclipses

<i>Period</i>	<i>Obligations</i>	
11/01/78-04/30/80	FY79: \$66,755	TOTAL: \$66,755
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Elliot, J. L.	ARC/Haughney, L. C.	11-Astronomy

**NSG 2196**      **Massachusetts Institute of Technology**      **2561**  
Stratospheric transport processes and the interpretation of data on minor constituents

<i>Period</i>	<i>Obligations</i>	
12/01/76-10/31/79	FY79:	TOTAL: \$96,710
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Alyea, F. N.	ARC/Poppoff, L. G.	31-Atmos Sci
Cunnold, D. M.		
Prinn, R. G.		

**NSG 2403**      **Massachusetts Institute of Technology**      **2568**  
Development of a prototype experiment for treating wastes to nutrients for plant growth

<i>Period</i>	<i>Obligations</i>	
09/01/79-11/30/79	FY79: \$90,000	TOTAL: \$90,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Modell, M.	ARC/Quattrone, P. D.	59-Life Sci, NEC

**NSG 2230**      **Massachusetts Institute of Technology**      **2562**  
Visual vestibular interaction and its application to flight simulation

<i>Period</i>	<i>Obligations</i>	
04/01/77-09/30/79	FY79:	TOTAL: \$119,888
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Young, L. R.	ARC/Stewart, J. D.	49-Engr, NEC
Oman, C. M.	ARC/Nagel, D. C.	

**NSG 3017**      **Massachusetts Institute of Technology**      **2569**  
Silicon surface phenomena related to energy conversion

<i>Period</i>	<i>Obligations</i>	
05/01/74-02/21/80	FY79: \$38,000	TOTAL: \$201,100
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gatos, H. C.	LERC/Weinberg, I.	47-Materials Engr
	LERC/Brandhorst, H. W., Jr.	

**NSG 2263**      **Massachusetts Institute of Technology**      **2563**  
Far infrared observations of optical regions

<i>Period</i>	<i>Obligations</i>	
10/01/77-06/30/80	FY79: \$13,800	TOTAL: \$25,660
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wright, E. L.	ARC/Haughney, L. C.	11-Astronomy

**NSG 3044**      **Massachusetts Institute of Technology**      **2570**  
Special finite elements for the analysis of flaw growth and fracture in fiber composites

<i>Period</i>	<i>Obligations</i>	
02/01/75-09/30/79	FY79:	TOTAL: \$249,195
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McGarry, F. J.	LERC/Chamis, C. C.	49-Engr, NEC
Mandell, J. F.	LERC/Smith, G. T.	

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<b>NSG 3046</b>	<b>Massachusetts Institute of Technology</b>	<b>2571</b>
Directional solidification of gamma/gamma prime-delta in situ composites		
<i>Period</i>	<i>Obligations</i>	
06/30/75-09/30/79	FY79: \$24,955	TOTAL: \$194,435
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Flemings, M. C.	LERC/Scheuermann, C. M.	47-Materials Engr
<b>NSG 3076</b>	<b>Massachusetts Institute of Technology</b>	<b>2572</b>
Effects of fuel composition on soot formation in combustors		
<i>Period</i>	<i>Obligations</i>	
09/01/75-09/30/79	FY79:	TOTAL: \$219,161
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hoult, D. P.	LERC/Brabbs, T. A.	41-Aero Engr
Rife, J. M.		
<b>NSG 3079</b>	<b>Massachusetts Institute of Technology</b>	<b>2573</b>
Development of techniques for turbomachinery flutter clearance		
<i>Period</i>	<i>Obligations</i>	
07/15/75-12/01/79	FY79: \$70,000	TOTAL: \$239,933
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kerrebrock, J. L.	LERC/Adamczyk, J. J.	41-Aero Engr
Dugundji, J.		
<b>NSG 3129</b>	<b>Massachusetts Institute of Technology</b>	<b>2574</b>
Studies of flow noise and acoustic power flow in lined ducts		
<i>Period</i>	<i>Obligations</i>	
11/01/76-10/31/79	FY79:	TOTAL: \$51,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ungard, K. U.	LERC/Baumeister, K. J.	41-Aero Engr
	LERC/Feiler, C. E.	
<b>NSG 3175</b>	<b>Massachusetts Institute of Technology</b>	<b>2575</b>
Development of electromagnetic mass drivers		
<i>Period</i>	<i>Obligations</i>	
12/01/77-11/30/79	FY79: \$50,710	TOTAL: \$81,510
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kolm, H. H.	LERC/Domitz, S.	42-Astro Engr
	LERC/Myers, I. T.	
<b>NSG 3187</b>	<b>Massachusetts Institute of Technology</b>	<b>2576</b>
Theoretical and experimental study of the shear layer between two swirling streams		
<i>Period</i>	<i>Obligations</i>	
04/01/78-03/31/80	FY79: \$39,018	TOTAL: \$80,347
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kerrebrock, J. L.	LERC/Braun, W. H.	49-Engr, NEC
<b>NSG 3208</b>	<b>Massachusetts Institute of Technology</b>	<b>2577</b>
Strut induced aerodynamic forging functions		
<i>Period</i>	<i>Obligations</i>	
07/05/78-08/31/80	FY79: \$35,000	TOTAL: \$70,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Greitzer, E. M.	LERC/Adamczyk, J. J.	41-Aero Engr
<b>NSG 3210</b>	<b>Massachusetts Institute of Technology</b>	<b>2578</b>
Wave propagation in fiber composites relating to acoustic-ultrasonic NDE techniques		
<i>Period</i>	<i>Obligations</i>	
08/01/78-11/30/79	FY79:	TOTAL: \$59,905
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Williams, J. H., Jr.	LERC/Vary A.	47-Materials Engr
<b>NSG 3234</b>	<b>Massachusetts Institute of Technology</b>	<b>2579</b>
Viscous flow in transonic compressors		
<i>Period</i>	<i>Obligations</i>	
12/15/78-11/15/79	FY79: \$74,050	TOTAL: \$74,050
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kerrebrock, J. L.	LERC/McNally, W. D.	41-Aero Engr
Thompkins, W. T., Jr.		
Epstein, A. H.		
<b>NSG 3245</b>	<b>Massachusetts Institute of Technology</b>	<b>2580</b>
Combustion and operating characteristics of spark-ignition engines		
<i>Period</i>	<i>Obligations</i>	
01/15/79-01/14/80	FY79: \$49,984	TOTAL: \$49,984
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Heywood, J. B.	LERC/Cassidy, J. F.	46-Mech Engr
	LERC/Kempke, E. E.	
<b>NSG 3286</b>	<b>Massachusetts Institute of Technology</b>	<b>2581</b>
Viscous flow and crystallization behavior of hydrocarbon mixtures		
<i>Period</i>	<i>Obligations</i>	
08/02/79-08/01/80	FY79: \$48,976	TOTAL: \$48,976
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Uhlmann, D. R.	LERC/Antoine, A. C.	12-Chemistry
<b>NSG 3303</b>	<b>Massachusetts Institute of Technology</b>	<b>2582</b>
Development of a methodology for horizontal axis wind turbine dynamic analysis		
<i>Period</i>	<i>Obligations</i>	
08/15/79-08/14/80	FY79: \$65,902	TOTAL: \$65,902
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miller, R. H.	LERC/Janetzke, D. C.	41-Aero Engr
Dugundji, J.	LERC/Spera, D. A.	
Sanchez, M. M.		
<b>NSG 5076</b>	<b>Massachusetts Institute of Technology</b>	<b>2583</b>
Numerical study of the atmospheric circulation of Venus		
<i>Period</i>	<i>Obligations</i>	
08/17/75-05/31/80	FY79: \$29,989	TOTAL: \$127,700
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rivas, F. K.	GSFC/Hansen, J. E.	11-Astronomy
Stone, P. H.		
<b>NSG 5113</b>	<b>Massachusetts Institute of Technology</b>	<b>2584</b>
Research in stratospheric dynamics		
<i>Period</i>	<i>Obligations</i>	
07/01/76-06/30/80	FY79: \$54,400	TOTAL: \$176,903
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stone, P. H.	GSFC/Hansen, J. E.	31-Atmos Sci



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**NSG 5157**      **Massachusetts Institute of Technology**      **2585**  
 High speed correlation algorithms for massively parallel machines

<i>Period</i>		<i>Obligations</i>	
02/01/77-06/30/78	FY79:	TOTAL:	\$52,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
McClellan, J. H.	GSFC/Schaefer, D. H.	45-Elec Engr	

**NSG 7077**      **Massachusetts Institute of Technology**      **2591**  
 Chemical aspects of lunar origin and physical studies of lunar and meteoritic materials

<i>Period</i>		<i>Obligations</i>	
07/01/74-05/31/78	FY79:	TOTAL:	\$58,900
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Suomi, V. E.	HQ-SL/Williams, R.	32-Geological Sci	
Brecher, A.			
Skibo, D. N.			

**NSG 5166**      **Massachusetts Institute of Technology**      **2586**  
 Theoretical and numerical study of climate and climate change

<i>Period</i>		<i>Obligations</i>	
03/21/77-09/20/82	FY79: \$68,500	TOTAL:	\$243,986
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Charney, J. G.	GSFC/Halem, M	31-Atmos Sci	
Stone, P. H.			

**NSG 7081**      **Massachusetts Institute of Technology**      **2592**  
 Models of the composition, structure and evolution of the lunar interior

<i>Period</i>		<i>Obligations</i>	
06/01/74-02/29/80	FY79: \$299,479	TOTAL:	\$899,960
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Toksoz, M. N.	HQ-SL/Quaide, W. L.	32-Geological Sci	
	HQ-SL/French, B. M.		

**NSG 5253**      **Massachusetts Institute of Technology**      **2587**  
 Research of gravity field over the Indian Ocean

<i>Period</i>		<i>Obligations</i>	
03/15/78-10/31/79	FY79:	TOTAL:	\$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Sclater, J. G.	GSFC/Smith, D. E.	32-Geological Sci	
Munsci, C.			

**NSG 7186**      **Massachusetts Institute of Technology**      **2593**  
 An observatory search for and study of new IR sources reported in the AFCRL catalogue

<i>Period</i>		<i>Obligations</i>	
12/01/75-01/31/80	FY79: \$36,883	TOTAL:	\$126,883
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Kleinman, S. G.	HQ-SC/Bogges, N. W.	11-Astronomy	
	HQ-SC/Roman, N. G.		

**NSG 5260**      **Massachusetts Institute of Technology**      **2588**  
 Geophysical study of the structure and processes of the continental convergence zones

<i>Period</i>		<i>Obligations</i>	
04/01/78-04/30/79	FY79:	TOTAL:	\$40,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Molnar, P.	GSFC/Frey, H. V.	32-Geological Sci	
Toksoz, M. N.	GSFC/Mead, G. D.		

**NSG 7297**      **Massachusetts Institute of Technology**      **2594**  
 Studies of stress history of terrestrial lithospheres

<i>Period</i>		<i>Obligations</i>	
01/01/77-12/31/79	FY79: \$30,000	TOTAL:	\$72,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Solomon, S. C.	HQ-SL/Dwornik, S. E.	32-Geological Sci	
	HQ-SL/Boyce, J. M.		

**NSG 5306**      **Massachusetts Institute of Technology**      **2589**  
 Inference of effective soil properties from observed vegetal canopy density

<i>Period</i>		<i>Obligations</i>	
11/15/78-01/31/80	FY79: \$40,023	TOTAL:	\$40,023
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Eagleson, P. S.	GSFC/Halem, M.	32-Geological Sci	

**NSG 7328**      **Massachusetts Institute of Technology**      **2595**  
 Research on integrated silicon balometers

<i>Period</i>		<i>Obligations</i>	
03/01/77-02/28/80	FY79: \$55,000	TOTAL:	\$168,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Weiss, R	HQ-SC/Bogges, N. W.	11 Astronomy	
	HQ-SC/Roman, N. G.		

**NSG 7010**      **Massachusetts Institute of Technology**      **2590**  
 Precision selenodesy and lunar libration through very long baseline interferometry: Observation of ALSEPS

<i>Period</i>		<i>Obligations</i>	
01/01/74-12/31/79	FY79: \$45,000	TOTAL:	\$355,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Counselman, C. C., III	HQ-SL/Quaide, W. L.	32-Geological Sci	
	HQ-SL/French, B. M.		

**NSG 7329**      **Massachusetts Institute of Technology**      **2596**  
 Application of lunar laser ranging data to a study of plate tectonic driving forces

<i>Period</i>		<i>Obligations</i>	
04/01/78-02/31/80	FY79:	TOTAL:	\$125,820
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Soloman, S. C.	HQ-ES/Flinn, E. A.	32-Geological Sci	
Toksoz, M. N.	HQ-SL/Quaide, W. L.		



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**NSG 1295**                      **University of Lowell**                      **2611**  
Structural response and input identification

<i>Period</i>	<i>Obligations</i>	
04/01/76-11/30/79	FY79:	TOTAL: \$88,827
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McElman, J. A.	LARC/Fralich, R. W.	41-Aero Engr
O'Callahan, J. C.	LARC/Pinson, L. D.	
Shepard, G. D.		

**NSG 7571**                      **University of Massachusetts - Amherst**                      **2618**  
Structural evolution and stress history of the Tharsis region of Mars

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY79: \$23,460	TOTAL: \$23,460
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wise, D.	HQ-SL/Dwornik, S. E. 32-Geological Sci	
	HQ-SL/Boyce, J. M.	

**NAS 2-9129**                      **University of Massachusetts - Amherst**                      **2612**  
Interdisciplinary scientist and radar team member

<i>Period</i>	<i>Obligations</i>	
01/22/76-09/30/80	FY79: \$22,000	TOTAL: \$68,456
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McGill, G. E.	ARC/Hall, C. F.	11-Astronomy
	ARC/Porter, D. L.	

**NSG 9069**                      **University of Massachusetts - Amherst**                      **2619**  
Comparative geochemical and petrological study of lunar and terrestrial basaltic volcanism

<i>Period</i>	<i>Obligations</i>	
05/15/78-01/31/80	FY79: \$27,384	TOTAL: \$49,091
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rhodes, J. M.	JSC/Harris, J. W.	32-Geological Sci

**NGL 22-010-023**                      **University of Massachusetts - Amherst**                      **2613**  
Theoretical studies of diffuse reflection and transmission of radiation in planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
05/24/67-08/31/81	FY79: \$97,980	TOTAL: \$556,929
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Irvine, W. M.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Murphy, R. E.	

**NSG 5376**                      **Wheaton College**                      **2620**  
Ultraviolet spectrophotometry of planetary nebulae

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$6,100	TOTAL: \$6,100
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Barker, T.	GSFC/Bogges, A.	11-Astronomy

**NGL 22-010-089**                      **University of Massachusetts - Amherst**                      **2614**  
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
03/16/71-09/30/79	FY79: \$14,000	TOTAL: \$191,875
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Haggerty, S. E.	JSC/Harris, J. W.	13-Physics

**NSG 5218**                      **Williams College**                      **2621**  
Effects of hydrogen atom spin exchange collisions on atomic hydrogen maser oscillation frequency

<i>Period</i>	<i>Obligations</i>	
12/01/77-11/30/79	FY79: \$12,000	TOTAL: \$23,700
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Crampton, S. B.	GSFC/Reinhardt, V. S.	13-Physics

**NGR 22-010-076**                      **University of Massachusetts - Amherst**                      **2615**  
Reconnaissance study of large geologic ring structures on Mars

<i>Period</i>	<i>Obligations</i>	
05/19/70-01/31/80	FY79: \$43,684	TOTAL: \$262,675
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McGill, G. E.	HQ-SL/Dwornik, S. E. 32-Geological Sci	
	HQ-SL/Boyce, J. M.	

**NSG 3137**                      **Worcester Polytechnic Institute**                      **2622**  
Investigation of the 1.15 micron photoconductive response of silicon devices

<i>Period</i>	<i>Obligations</i>	
02/01/77-05/31/79	FY79	TOTAL: \$87,361
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lanyon, H. P.	LERC/Godlewski, M. P.	45-Elec Engr
	LERC/Brandhorst, H. W., Jr.	

**NSG 7197**                      **University of Massachusetts - Amherst**                      **2616**  
Surface chemistry and the search for life on Mars

<i>Period</i>	<i>Obligations</i>	
10/01/77-09/30/79	FY79: \$36,320	TOTAL: \$64,881
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Huggins, R. L.	HQ-SB/Young, R. S.	12-Chemistry
	HQ-SL/Dwornik, S. E.	

**NSG 7154**                      **Worcester Polytechnic Institute**                      **2623**  
Mission-oriented studies of planetary biology

<i>Period</i>	<i>Obligations</i>	
10/01/75-09/30/80	FY79: \$100,000	TOTAL: \$436,390
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Danielli, J. F.	HQ-SB/Young, R. S.	51-Biological Sci

**NSG 7405**                      **University of Massachusetts - Amherst**                      **2617**  
Mineralogy and weathering processes on Mars

<i>Period</i>	<i>Obligations</i>	
10/01/77-09/30/79	FY79: \$30,000	TOTAL: \$64,868
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Huguenin, R. L.	HQ-SL/Dwornik, S. E. 32-Geological Sci	
	HQ-SL/Boyce, J. M.	

**NSG 7392**                      **Worcester Polytechnic Institute**                      **2624**  
Martian chemistry relevant to biological activity and the Viking labeled release experiments

<i>Period</i>	<i>Obligations</i>	
12/15/77-11/30/79	FY79: \$18,315	TOTAL: \$68,023
<i>Prn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Plumb, R. C.	HQ-SB/Young, R. S.	12-Chemistry

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<b>NGL 23-004-083</b>	<b>Michigan State University</b>	<b>2625</b>
Use of remote sensing for land use policy formulation		
<i>Period</i>	<i>Obligations</i>	
06/08/72-05/31/82	FY79: \$110,000	TOTAL: \$990,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Boylan, M. G.	HQ-ET/Vitale, J. A.	39-Env Sci, NEC
<b>NSG 3299</b>	<b>Michigan State University</b>	<b>2626</b>
Generation of free radicals and ions for spacecraft propulsion		
<i>Period</i>	<i>Obligations</i>	
08/15/79-02/14/80	FY79: \$78,760	TOTAL: \$78,760
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Asmussen, J. Hawley, M. C. Kerber, R. L.	LERC/Nakanishi, S.	19-Phys Sci, NEC
<b>NSG 7293</b>	<b>Michigan State University</b>	<b>2627</b>
Radiative fluid dynamic studies of the sun and compact H-II regions		
<i>Period</i>	<i>Obligations</i>	
10/01/76-12/31/79	FY79: \$17,270	TOTAL: \$42,270
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stein, R. F.	HQ-ST/Bohlin, J. D.	13-Physics
<b>NSG 3215</b>	<b>Michigan Technological University</b>	<b>2628</b>
Diffusion modeling of cyclic oxidation transport processes in Ni-base alloys		
<i>Period</i>	<i>Obligations</i>	
08/01/78-07/31/80	FY79: \$29,086	TOTAL: \$55,861
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Heckel, R. W.	LERC/Barrett, C. A.	47-Materials Engr LERC/Lowell, C. E.
<b>NAS 1-14394</b>	<b>University of Michigan - Ann Arbor</b>	<b>2629</b>
Science support for the limb infrared monitor of the stratosphere experiment		
<i>Period</i>	<i>Obligations</i>	
04/09/76-10/31/80	FY79: \$54,509	TOTAL: \$110,509
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Drayson, S. R.	LARC/Russell, J. M., III LARC/James, R. L., Jr.	31-Atmos Sci
<b>NAS 1-15333</b>	<b>University of Michigan - Ann Arbor</b>	<b>2630</b>
High-toughness graphite/epoxy composite material experiment for the Long Duration Exposure Facility (LDEF), phases I and II		
<i>Period</i>	<i>Obligations</i>	
03/31/78-05/29/80	FY79: \$12,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Felbeck, D. K. Durant, W. H.	LARC/Jones, J. L.	47-Materials Engr
<b>NAS 2-9126</b>	<b>University of Michigan - Ann Arbor</b>	<b>2631</b>
Interdisciplinary scientist, Pioneer/Venus program		
<i>Period</i>	<i>Obligations</i>	
02/10/76-09/30/80	FY79: \$135,000	TOTAL: \$240,628
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Donahue, T. M.	ARC/Hall, C. F. ARC/Porter, D. L.	11-Astronomy
<b>NAS 2-9130</b>	<b>University of Michigan - Ann Arbor</b>	<b>2632</b>
Interdisciplinary scientist, Pioneer/Venus program		
<i>Period</i>	<i>Obligations</i>	
02/09/76-09/30/80	FY79: \$110,620	TOTAL: \$175,311
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nagy, A. F.	ARC/Hall, C. F. ARC/Porter, D. L.	11-Astronomy
<b>NAS 5-11376</b>	<b>University of Michigan - Ann Arbor</b>	<b>2633</b>
AE-C, D, & E Pelz experiment		
<i>Period</i>	<i>Obligations</i>	
01/07/71-11/29/79	FY79: \$39,000	TOTAL: \$1,118,933
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carignan, G. R.	GSFC/Hedin, A. E. GSFC/Spencer, N. W.	31-Atmos Sci
<b>NAS 5-11380</b>	<b>University of Michigan - Ann Arbor</b>	<b>2634</b>
AE-C, D, and E neutral temperature experiment		
<i>Period</i>	<i>Obligations</i>	
02/03/71-11/29/79	FY79: \$39,000	TOTAL: \$1,089,320
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carignan, G. R.	GSFC/Spencer, N. W.	31-Atmos Sci
<b>NAS 5-20939</b>	<b>University of Michigan - Ann Arbor</b>	<b>2635</b>
Laboratory tests and development of mass spectrometer sub-systems		
<i>Period</i>	<i>Obligations</i>	
02/13/75-12/31/78	FY79:	TOTAL: \$229,571
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carignan, G. R. Kennedy, B. R.	GSFC/Cooley, J. E. GSFC/Niemann, H. B.	31-Atmos Sci
<b>NAS 5-23006</b>	<b>University of Michigan - Ann Arbor</b>	<b>2636</b>
Atmosphere Explorer visual airglow photometer		
<i>Period</i>	<i>Obligations</i>	
08/24/71-09/30/80	FY79: \$48,593	TOTAL: \$1,652,178
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hays, P. B. Carignan, G. R.	GSFC/Rice, C. F.	31-Atmos Sci
<b>NAS 5-24295</b>	<b>University of Michigan - Ann Arbor</b>	<b>2637</b>
Neutral atmosphere composition experiment for the Dynamic Explorer (DE) spacecraft		
<i>Period</i>	<i>Obligations</i>	
07/26/77-04/30/81	FY79: \$258,000	TOTAL: \$461,245
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carignan, G. R.	GSFC/Fellerman, K. D. GSFC/Lidston, J. M.	13-Physics

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MICHIGAN (Continued)**

**NAS 5-24296** University of Michigan - Ann Arbor **2638**  
 Fabry-Perot interferometer for the Dynamic Explorer  
*Period* *Obligations*  
 07/26/77-08/31/81 FY79: \$516,000 TOTAL: \$951,576  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Hays, P. B. GSFC/Fellerman, K. D. 13-Physics  
 GSFC/Lidston, J. M.

**NAS 5-25153** University of Michigan - Ann Arbor **2645**  
 Fabrication of electronic system for the Galileo probe neutral mass spectrometer  
*Period* *Obligations*  
 08/10/78-04/19/82 FY79: \$246,200 TOTAL: \$348,200  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Carignan, G. R. GSFC/Niemann, H. B. 31-Atmos Sci

**NAS 5-24331** University of Michigan - Ann Arbor **2639**  
 Theoretical investigation to identify and develop specific aeronomic studies and problems adaptable to the AE satellite  
*Period* *Obligations*  
 12/01/77-09/30/80 FY79: \$79,469 TOTAL: \$181,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Walker, J. GSFC/Rice, C. F. 31-Atmos Sci  
 Torr, D. G.

**NAS 5-25158** University of Michigan - Ann Arbor **2646**  
 Cmos Radiation Effects Measurement (CREM) experiment and associated Ground Support Equipment (GSE)  
*Period* *Obligations*  
 08/16/78-07/31/81 FY79: \$163,236 TOTAL: \$227,236  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Fresh, F. GSFC/Haykin, D. 13-Physics  
 GSFC/Cliff, R.

**NAS 5-24454** University of Michigan - Ann Arbor **2640**  
 Design of electronic system for Jupiter orbiter probe  
*Period* *Obligations*  
 02/14/78-10/01/78 FY79: TOTAL: \$98,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Carignan, G. R. GSFC/Niemann, H. B. 11-Astronomy  
 GSFC/Cooley, J. E.

**NAS 5-25409** University of Michigan - Ann Arbor **2647**  
 Protoflight Langmuir probe instrument for Dynamic Explorer  
*Period* *Obligations*  
 11/27/78-03/31/81 FY79: \$50,000 TOTAL: \$50,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Carignan, G. R. GSFC/Krehbiel, J. P. 13-Physics  
 GSFC/Busboso, E. R.

**NAS 5-25002** University of Michigan - Ann Arbor **2641**  
 Wind and temperature spectrometer for the Dynamic Explorer (DE) spacecraft  
*Period* *Obligations*  
 03/30/78-02/28/81 FY79: \$210,000 TOTAL: \$381,903  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Carignan, G. R. GSFC/Spencer, N. W. 31-Atmos Sci

**NAS 5-25916** University of Michigan - Ann Arbor **2648**  
 Atmosphere Explorer, Dynamic Explorer, and San Marco data software development  
*Period* *Obligations*  
 09/27/79-09/26/82 FY79: \$6,000 TOTAL: \$6,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Carignan, G. R. GSFC/Spencer, N. W. 13-Physics  
 GSFC/Way, S.

**NAS 5-25031** University of Michigan - Ann Arbor **2642**  
 Develop, fabricate, test, and support hardware for the San Marco/wind and temperature experiment  
*Period* *Obligations*  
 05/05/78-03/31/82 FY79: \$143,000 TOTAL: \$393,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Carignan, G. R. GSFC/Spencer, N. W. 31-Atmos Sci

**NAS 6-2794** University of Michigan - Ann Arbor **2649**  
 Design, fabricate and test five payloads  
*Period* *Obligations*  
 10/15/76-09/30/79 FY79: \$159,427 TOTAL: \$506,551  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Horvath, J. J. WFC/Frostrom, R. J., Jr. 31-Atmos Sci  
 WFC/Perry, T. W., Jr.

**NAS 5-25038** University of Michigan - Ann Arbor **2643**  
 Theory formulation and analysis support for the Dynamic Explorer (DE) spacecraft  
*Period* *Obligations*  
 08/22/78-02/28/83 FY79: \$23,000 TOTAL: \$33,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Nagy, A. F. GSFC/Hoffman, R. A. 13-Physics  
 GSFC/Smith, P. H.

**NAS 8-31987** University of Michigan - Ann Arbor **2650**  
 Mass spectrometer for induced environment contamination monitor  
*Period* *Obligations*  
 04/30/76-11/29/79 FY79: \$42,851 TOTAL: \$728,651  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Carignan, G. R. MSFC/Ruff, R. C. 19-Phys Sci, NEC  
 Maurer, J. C. MSFC/Naumann, R. J.  
 Eusch, T. A.

**NAS 5-25145** University of Michigan - Ann Arbor **2644**  
 Electronic system parts for Galileo probe neutral mass spectrometer  
*Period* *Obligations*  
 07/31/78-01/31/80 FY79: \$38,400 TOTAL: \$143,400  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Carignan, G. R. GSFC/Niemann, H. B. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
MICHIGAN (Continued)**

**NAS 8-32332** University of Michigan - Ann Arbor **2651**  
Retarding ion mass spectrometer on the high altitude Electrodynamic Explorer

<i>Period</i>	<i>Obligations</i>	
01/17/77-01/31/80	FY79: \$33,638	TOTAL: \$48,614
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carignan, G. R.	MSFC/Chappell, C. R.	MSFC/Thomas, P. E. 19-Phys Sci, NEC

**NAS 8-32569** University of Michigan - Ann Arbor **2652**  
Spacelab mission 1 experiment 24, an imaging spectrometric observatory for Spacelab 1

<i>Period</i>	<i>Obligations</i>	
04/15/77-05/31/82	FY79: \$1,284,000	TOTAL: \$2,911,962
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Torr, M. R.	MSFC/Jones, C. T.	19-Phys Sci, NEC
	MSFC/Isa, R.	

**NAS 8-32661** University of Michigan - Ann Arbor **2653**  
Spacelab outgassing

<i>Period</i>	<i>Obligations</i>	
09/20/77-01/19/81	FY79: \$60,000	TOTAL: \$120,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shyn, T. W.	MSFC/Ruff, R. C.	39-Env Sci, NEC
Taesch, D.	MSFC/Shriver, E. L.	
Carignan, G. R.		

**NAS 9-15244** University of Michigan - Ann Arbor **2654**  
Evaluations of postural mechanisms under dynamic conditions

<i>Period</i>	<i>Obligations</i>	
02/01/77-09/01/80	FY79: \$30,000	TOTAL: \$159,871
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, D. J.	JSC/Homick, J. L.	56-Medical Sciences
Tugh, J.		

**NAS 9-15375** University of Michigan - Ann Arbor **2655**  
Definition of Spacelab 1 experiment for adaptation of vestibulo-spinal reflex mechanisms during space flight

<i>Period</i>	<i>Obligations</i>	
06/01/77-04/01/80	FY79:	TOTAL: \$81,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, D. J.	JSC/Reschke, M. F.	59-Life Sci, NEC

**NAS 9-15663** University of Michigan - Ann Arbor **2656**  
Design and development of linear accelerator

<i>Period</i>	<i>Obligations</i>	
08/01/78-03/01/80	FY79:	TOTAL: \$38,588
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, D. J.	JSC/Reschke, M. F.	56-Medical Sciences

**NSG 23-005-275** University of Michigan - Ann Arbor **2657**  
Solar research program of McMath-Hulbert Observatory and improvement of photoheliographic telescope

<i>Period</i>	<i>Obligations</i>	
04/08/68-09/30/79	FY79: \$79,589	TOTAL: \$769,589
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mohler, O. C.	HQ-ST/Bohlin, J. D.	11-Astronomy

**NGR 23-005-015** University of Michigan - Ann Arbor **2658**  
Theoretical investigation of space charge waves in ionosphere and space plasma sheaths

<i>Period</i>	<i>Obligations</i>	
10/28/63-06/30/79	FY79:	TOTAL: \$1,522,805
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nagy, A. F.	HQ-ST/Cauffman, D. P.	31-Atmos Sci
	HQ-ST/Schmerling, E. R.	

**NGR 23-005-094** University of Michigan - Ann Arbor **2659**  
An investigation of plasma kinetics, with emphasis on the interaction between rarefied plasmas and moving bodies

<i>Period</i>	<i>Obligations</i>	
06/26/64-08/31/79	FY79: \$23,500	TOTAL: \$406,101
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liu, V. C.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

**NGR 23-005-320** University of Michigan - Ann Arbor **2660**  
Theoretical and experimental studies of spacecraft space plasma interactions

<i>Period</i>	<i>Obligations</i>	
01/29/69-07/31/80	FY79: \$87,000	TOTAL: \$534,557
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Samir, U.	HQ-ST/Hedin, A. E.	13-Physics
	HQ-ST/Schmerling, E. R.	

**NGR 23-005-360** University of Michigan - Ann Arbor **2661**  
A program in aeronomy

<i>Period</i>	<i>Obligations</i>	
12/29/69-11/30/79	FY79: \$177,400	TOTAL: \$1,628,501
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sharp, W. E.	GSFC/Bissell, E. E.	13-Physics
	HQ-ST/Schmerling, E. R.	

**NGR 23-005-464** University of Michigan - Ann Arbor **2662**  
Optical studies of galactic X-ray sources

<i>Period</i>	<i>Obligations</i>	
03/02/71 02/28/79	FY79: \$18,643	TOTAL: \$1,546,888
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hiltner, W. A.	HQ-SC/Rosendhal, J. D.	11-Astronomy
	HQ-SC/Roman, N. G.	

**NGR 23-005-528** University of Michigan - Ann Arbor **2663**  
Fiber-reinforced solids possessing great fracture toughness & the role of interfacial strength

<i>Period</i>	<i>Obligations</i>	
07/26/72-10/31/79	FY79: \$32,126	TOTAL: \$179,198
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Felbeck, D. K.	LARC/Fichter, W. B.	47-Materials Engr

**NSG 1243** University of Michigan - Ann Arbor **2664**  
Rain scavenging of solid rocket motor exhaust clouds

<i>Period</i>	<i>Obligations</i>	
10/01/75-09/30/79	FY79: \$6,474	TOTAL: \$217,735
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dingle, A. N.	LARC/Pellett, G. L.	31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
MICHIGAN (Continued)**

**NSG 1306** University of Michigan - Ann Arbor 2665  
Models and techniques for evaluating the effectiveness of aircraft computing systems  
*Period* *Obligations*  
05/01/76-05/31/80 FY79: \$58,728 TOTAL: \$232,593  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Meyer, J. F. LARC/Migneault, G. E. 45-Elec Engr

**NSG 1326** University of Michigan - Ann Arbor 2666  
Study of shock boundary layer interaction in transonic flow  
*Period* *Obligations*  
08/01/76-10/31/79 FY79: TOTAL: \$75,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Adamson, T. C., Jr LARC/South, J. C., Jr. 41-Aero Engr  
Sichel, M.  
Messiter, A. F.

**NSG 1373** University of Michigan - Ann Arbor 2667  
Halogen occultation experiment, phase I and II  
*Period* *Obligations*  
12/01/76-12/31/79 FY79: \$37,537 TOTAL: \$81,801  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Drayson, S. R. LARC/Sullivan, E. M. 31-Atmos Sci  
LARC/Russell, J. M., III

**NSG 1448** University of Michigan - Ann Arbor 2668  
Trajectories optimization in hypersonic flight  
*Period* *Obligations*  
09/01/77-02/29/80 FY79: TOTAL: \$57,015  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Vinh, N. X. LARC/Dunning, R. S. 41-Aero Engr  
LARC/Elliott, J. R.

**NSG 1482** University of Michigan - Ann Arbor 2669  
Application of earth's albedo measurements to climate studies  
*Period* *Obligations*  
01/01/78-10/31/79 FY79: TOTAL: \$29,300  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bartman, F. L. LARC/Smith, G. L. 31-Atmos Sci  
LARC/Suttles, J. T.

**NSG 1494** University of Michigan - Ann Arbor 2670  
Analysis and prediction of dynamic aircraft tire data from static measurements  
*Period* *Obligations*  
03/01/78-03/31/80 FY79: \$14,268 TOTAL: \$39,348  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Clark, S. K. LARC/McCarty, J. L. 41-Aero Engr  
LARC/Tanner, J. A.

**NSG 1607** University of Michigan - Ann Arbor 2671  
Transient temperatures in aircraft tires  
*Period* *Obligations*  
09/01/79-03/31/81 FY79: \$53,333 TOTAL: \$53,333  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Clark, S. K. LARC/McCarty, J. L. 41-Aero Engr  
LARC/Tanner, J. A.

**NSG 2018** University of Michigan - Ann Arbor 2672  
Graduate research aeronautics program  
*Period* *Obligations*  
04/01/74-04/30/79 FY79: TOTAL: \$250,671  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kroeger, R. A. ARC/Feistel, T. W. 41-Aero Engr

**NSG 2113** University of Michigan - Ann Arbor 2673  
Improvement of light aircraft propulsion efficiency  
*Period* *Obligations*  
10/01/75-04/30/79 FY79 TOTAL: \$294,550  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kroeger, R. A. ARC/Anderson, S. B. 41-Aero Engr  
Eagle, D.

**NSG 2333** University of Michigan - Ann Arbor 2674  
Crash-impact fire of fiber reinforced composites  
*Period* *Obligations*  
08/15/78-11/30/79 FY79 \$4,000 TOTAL: \$39,387  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Springer, G. S. ARC/Fish, R. H. 49-Engr, NEC  
ARC/Mansfield, J. A.

**NSG 3148** University of Michigan - Ann Arbor 2675  
Fundamental aspects of gas turbine combustion  
*Period* *Obligations*  
05/01/77-04/30/79 FY79 TOTAL: \$132,310  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Nicholls, J. A. LERC/Cooper, L. P. 41-Aero Engr

**NSG 3161** University of Michigan - Ann Arbor 2676  
Ignition and combustion low compression ratio, high output diesel  
*Period* *Obligations*  
10/01/77-04/30/79 FY79: \$15,271 TOTAL: \$100,224  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bolt, J. A. LERC/Beam, L. W. 46-Mech Engr  
Mirsky, W., Sr LERC/Wintucky, W. T.

**NSG 3165** University of Michigan - Ann Arbor 2677  
A study of local parameters affecting emissions from gas turbine engines  
*Period* *Obligations*  
11/01/77-11/01/79 FY79: TOTAL \$70,605  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kauffman, C. W. LERC/Ercegovic, D. E. 41-Aero Engr

**NSG 3192** University of Michigan - Ann Arbor 2678  
Morphology of Kevlar fibers  
*Period* *Obligations*  
04/10/78-09/08/79 FY79: TOTAL: \$30,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Yeh, G. S. LERC/Lauver, R. W. 47-Materials Engr

**NASA'S UNIVERSITY PROGRAM  
MICHIGAN (Continued)**

**NSG 5171** University of Michigan - Ann Arbor 2679  
Studies of odd nitrogen in the mesosphere and lower thermosphere

<i>Period</i>	<i>Obligations</i>	
04/01/77-07/31/79	FY79:	TOTAL: \$30,817
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rusch, D. W.	GS. C/Stolarski, R. S.	31-Atmos Sci

**NSG 5189** University of Michigan - Ann Arbor 2680  
Direct measurements of photolysis rates of stratospheric constituents

<i>Period</i>	<i>Obligations</i>	
08/01/77-07/31/80	FY79: \$54,077	TOTAL: \$150,681
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Siedman, D. H.	GSFC/Reed, E. I	31-Atmos Sci

**NSG 5206** University of Michigan - Ann Arbor 2681  
Measurement of vertical distribution of stars

<i>Period</i>	<i>Obligations</i>	
09/01/77-08/31/78	FY79:	TOTAL: \$11,695
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Donahue, T. M.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

**NSG 5232** University of Michigan - Ann Arbor 2682  
Search of hot spots at the foot of IO associated flux tube in Jupiter

<i>Period</i>	<i>Obligations</i>	
02/19/78-02/18/79	FY79:	TOTAL: \$3,200
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Atreya, S. K.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

**NSG 5281** University of Michigan - Ann Arbor 2683  
Interactions of precipitating electrons with the ionosphere using characteristic spectral parameters

<i>Period</i>	<i>Obligations</i>	
07/01/78-08/31/80	FY79: \$23,000	TOTAL: \$47,733
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fontheim, E. G.	GSFC/Spencer, N. W.	31-Atmos Sci
Ong, R. S.		

**NSG 5282** University of Michigan - Ann Arbor 2684  
Chemical and dynamics processing at high latitudes

<i>Period</i>	<i>Obligations</i>	
07/01/78-09/30/79	FY79:	TOTAL: \$22,322
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nagy, A. F.	GSFC/Spencer, N. W.	31-Atmos Sci
Banks, P. M.		

**NSG 5366** University of Michigan - Ann Arbor 2685  
Research of Supernova remnants and nucleosynthesis

<i>Period</i>	<i>Obligations</i>	
05/08/79-05/07/80	FY79: \$2,571	TOTAL: \$2,571
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kirshner, R.	GSFC/Bogges, A.	11-Astronomy
Chevalier, R. A.		

**NSG 7209** University of Michigan - Ann Arbor 2686  
A program of stratospheric research

<i>Period</i>	<i>Obligations</i>	
01/01/76-03/31/80	FY79: \$197,054	TOTAL: \$594,030
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Donahue, Y. M.	HQ-ST/Newton, G. P.	31-Atmos Sci
	HQ-ST/Tillford, S. G.	

**NSG 7308** University of Michigan - Ann Arbor 2687  
The physical and chemical properties of the prebiotic atmosphere

<i>Period</i>	<i>Obligations</i>	
02/01/77-01/31/80	FY79: \$25,000	TOTAL: \$74,106
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kuhn, W. R.	HQ-SB/Young, R. S.	31-Atmos Sci

**NSG 7404** University of Michigan - Ann Arbor 2688  
A program for research in planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
10/01/77-01/31/80	FY79: \$60,000	TOTAL: \$118,936
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Atreya, S. K.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

**NSG 7452** University of Michigan - Ann Arbor 2689  
Bio-chirality search with variable helicity positrons

<i>Period</i>	<i>Obligations</i>	
07/01/78-06/30/80	FY79:	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rich, A.	HQ-SB/Young, R. S.	51-Biological Sci

**NSG 7492** University of Michigan - Ann Arbor 2690  
Global-solar-terrestrial electrostatic coupling

<i>Period</i>	<i>Obligations</i>	
09/01/78-08/31/79	FY79: \$13,200	TOTAL: \$13,200
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hays, P. B.	HQ-ST/Cauffman, D. P.	31-Atmos Sci
	HQ-ST/Schmerling, E. R.	

**NSG 7587** University of Michigan - Ann Arbor 2691  
Neutral mass spectrometry development for a cometary mission

<i>Period</i>	<i>Obligations</i>	
04/01/79-12/31/79	FY79: \$50,000	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carignan, G. R.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

**NSG 7608** University of Michigan - Ann Arbor 2692  
An investigation of halos surrounding spiral galaxies

<i>Period</i>	<i>Obligations</i>	
06/01/79-03/31/80	FY79: \$15,909	TOTAL: \$15,909
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hegy, D. J.	HQ-SC/Weiler, E. J.	11-Astronomy
	HQ-SC/Roman, N. G.	



**NASA'S UNIVERSITY PROGRAM  
MICHIGAN (Continued)**

**NSG 9047** University of Michigan - Ann Arbor 2693  
Mammalian gravity receptors: Structure and metabolism  
*Period* 11/01/76-10/31/79 *Obligations* FY79: \$46,000 TOTAL: \$128,000  
*Prin Invest* Ross, M. D. *NASA Tech Officer* HQ-SB/Halstead, T. W. *CASE Category* 51-Biological Sci

**NSG 1330** Wayne State University 2694  
Analytical modeling of noise source in a moving jet  
*Period* 08/17/76-09/30/79 *Obligations* FY79: \$7,437 TOTAL: \$29,598  
*Prin Invest* Chow, P. L. *NASA Tech Officer* LARC/Maestrello, L. *CASE Category* 41-Aero Engr  
LARC/Liu, C. H.

**NSG 2008** Wayne State University 2695  
Mathematical models of in vivo measurement of human ulnar strength  
*Period* 02/01/74-09/30/79 *Obligations* FY79: TOTAL \$75,500  
*Prin Invest* Orne, D. *NASA Tech Officer* ARC/Young, D. R. *CASE Category* 56-Medical Sciences

**MINNESOTA**

**NSG 5285** Augsburg College 2696  
Analysis of long-term density variations of atomic nitrogen  
*Period* 07/01/78-09/30/80 *Obligations* FY79: \$7,750 TOTAL: \$26,270  
*Prin Invest* Engebretson, M. J. *NASA Tech Officer* GSFC/Spencer, N. W. *CASE Category* 31-Atmos Sci

**NAS 2-8812** Univ of Minnesota - Minneapolis-St Paul 2697  
Design and development of the bus neutral mass spectrometer  
*Period* 06/17/75-11/30/79 *Obligations* FY79: \$18,513 TOTAL: \$50,496  
*Prin Invest* Nier, A. O. *NASA Tech Officer* ARC/Hall, C. F. *CASE Category* 31-Atmos Sci  
Mauersberger, K. ARC/Porter, D. L.

**NAS 5-11310** Univ of Minnesota - Minneapolis-St Paul 2698  
Ac electric fields experiment Helios  
*Period* 06/29/70-08/31/80 *Obligations* FY79: \$46,167 TOTAL: \$1,515,222  
*Prin Invest* Jee, W. S. *NASA Tech Officer* GSFC/Gemmell, J. D. *CASE Category* 11-Astronomy  
Kimmel, D. B.

**NAS 5-11438** Univ of Minnesota - Minneapolis-St Paul 2699  
Open source neutral mass spectrometers for AE spacecraft, mission C, D, & E  
*Period* 06/15/71-09/30/79 *Obligations* FY79: \$105,269 TOTAL: \$1,340,000  
*Prin Invest* Neir, J. A. *NASA Tech Officer* GSFC/Findlay, J. A. *CASE Category* 31-Atmos Sci

**NAS 5-23703** Univ of Minnesota - Minneapolis-St Paul 2700  
ATS-6 environmental measurements experiment data reduction and analysis  
*Period* 11/15/76-08/31/79 *Obligations* FY79: TOTAL \$103,335  
*Prin Invest* Winckler, J. R. *NASA Tech Officer* GSFC/Wende, C. D. *CASE Category* 31-Atmos Sci

**NAS 5-25151** Univ of Minnesota - Minneapolis-St Paul 2701  
Interim study report for the plasma wave receivers for the solar polar mission  
*Period* 08/01/78-09/30/79 *Obligations* FY79: \$171,300 TOTAL: \$206,924  
*Prin Invest* Kellogg, P. J. *NASA Tech Officer* GSFC/Stone, R. G. *CASE Category* 11-Astronomy

**NAS 5-25389** Univ of Minnesota - Minneapolis-St Paul 2702  
Dynamic Explorer A&B magnetometer experiment support  
*Period* 11/08/78-11/08/80 *Obligations* FY79: \$8,000 TOTAL: \$8,000  
*Prin Invest* Cahill, L. J., Jr. *NASA Tech Officer* GSFC/Sugiura, M. *CASE Category* 13-Physics

**NAS 5-25753** Univ of Minnesota - Minneapolis-St Paul 2703  
Selected hardware for unified radio and plasma wave experiment for international solar polar mission  
*Period* 07/03/79-09/30/83 *Obligations* FY79: \$156,700 TOTAL: \$156,700  
*Prin Invest* Kellogg, P. J. *NASA Tech Officer* GSFC/Stone, R. G. *CASE Category* 11-Astronomy

**NAS 8-27977** Univ of Minnesota - Minneapolis-St Paul 2704  
Design, development, & operation of Cerenkov portion of the ACR-7 heavy nuclei experiment under the HEAO program  
*Period* 06/16/72-09/30/80 *Obligations* FY79: \$93,000 TOTAL: \$1,360,000  
*Prin Invest* Waddington, C. J. *NASA Tech Officer* MSFC/Talley, D. *CASE Category* 11-Astronomy

**NAS 9-12560** Univ of Minnesota - Minneapolis-St Paul 2705  
Storage stability & improvement of intermediate moisture foods  
*Period* 03/23/72-02/28/75 *Obligations* FY79: TOTAL: \$279,606  
*Prin Invest* Mitchell, J. R. *NASA Tech Officer* JSC/Smith, M. C., Jr. *CASE Category* 59-Life Sci, NEC

**NGL 24-005-009** Univ of Minnesota - Minneapolis-St Paul 2706  
Development and application of mass spectrometers to studies of earth's upper atmosphere and planetary atmospheres  
*Period* 08/01/62-06/30/80 *Obligations* FY79: \$69,226 TOTAL: \$1,691,705  
*Prin Invest* Nier, A. O. *NASA Tech Officer* HQ-SL/Murphy, R. E. *CASE Category* 31-Atmos Sci  
HQ-SL/Brunk, W. E.

**NASA'S UNIVERSITY PROGRAM  
MINNESOTA (Continued)**

**NGL 24-005-225** Univ of Minnesota - Minneapolis-St Paul 2707  
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
01/26/71-01/31/80	FY79: \$120,669	TOTAL: \$836,249
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pepin, R. O.	JSC/Harris, J. W.	13-Physics
Alexander, E. C., Jr.		

**NGL 24-005-263** Univ of Minnesota - Minneapolis-St Paul 2708  
Study of Minnesota forests and lakes using data from earth resources technology satellites

<i>Period</i>	<i>Obligations</i>	
07/06/72-06/30/82	FY79: \$165,000	TOTAL: \$595,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shepherd, W. G.	HQ-ET/Vitale, J. A.	39-Env Sci, NEC

**NGR 24-005-050** Univ of Minnesota - Minneapolis-St Paul 2709  
Measurement of the gamma ray flux of various celestial point sources from high altitude balloons

<i>Period</i>	<i>Obligations</i>	
04/21/65-12/31/79	FY79: \$89,621	TOTAL: \$948,508
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Waddington, C. J.	HQ-SC/Kaluzienski, L. J.	11-Astronomy
Freier, P. S.	HQ-SC/Opp, A. G.	

**NGR 24-005-223** Univ of Minnesota - Minneapolis-St Paul 2710  
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
05/22/71-01/31/80	FY79: \$20,000	TOTAL: \$663,675
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Murthy, V. R.	JSC/Harris, J. W.	13-Physics

**NSG 1431** Univ of Minnesota - Minneapolis-St Paul 2711  
Neutral constituent measurements in the stratosphere

<i>Period</i>	<i>Obligations</i>	
07/01/77-09/30/79	FY79	TOTAL: \$209,740
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mauersberger, K.	LARC/Beswick, A. G.	31-Atmos Sci

**NSG 2014** Univ of Minnesota - Minneapolis-St Paul 2712  
Exploratory astrophysics and infrared astronomy

<i>Period</i>	<i>Obligations</i>	
02/01/74-03/30/80	FY79: \$70,000	TOTAL: \$375,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ney, E.	HQ-SC/Bogges, N. W.	11-Astronomy
	HQ-SC/Roman, N. G.	

**NSG 3041** Univ of Minnesota - Minneapolis-St Paul 2713  
Ion beam sputter etch and deposition study

<i>Period</i>	<i>Obligations</i>	
01/01/75-02/29/80	FY79: \$35,000	TOTAL: \$204,385
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wehner, G. K.	LERC/Sovey, J. S.	13-Physics

**NSG 3094** Univ of Minnesota - Minneapolis-St Paul 2714  
Investigations of negative and positive cesium ion species

<i>Period</i>	<i>Obligations</i>	
02/01/76-10/31/78	FY79:	TOTAL: \$92,350
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chanin, L. M.	LERC/Morris, J. F.	19-Phys Sci, NEC

**NSG 5088** Univ of Minnesota - Minneapolis-St Paul 2715  
Magnetospheric physics phenomena using sounding rockets

<i>Period</i>	<i>Obligations</i>	
11/01/75-12/31/80	FY79 \$240,000	TOTAL: \$539,593
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Winckler, J. R.	GSFC/Bissell, E. F.	13-Physics
	HQ-ST/Cauffman, D. P.	

**NSG 5237** Univ of Minnesota - Minneapolis-St Paul 2716  
Investigation of interstellar carbon

<i>Period</i>	<i>Obligations</i>	
03/01/78-02/28/79	FY79	TOTAL: \$7,469
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Black, J. H.	GSFC/Bogges, A.	11-Astronomy
	GSFC/West, D. K.	

**NSG 5373** Univ of Minnesota - Minneapolis-St Paul 2717  
Experiments employing a rocket-borne electron accelerator

<i>Period</i>	<i>Obligations</i>	
06/15/79-06/14/80	FY79 \$27,800	TOTAL: \$27,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kellogg, P. J.	GSFC/Bissell, E. F.	13-Physics
Bernstein, W.	HQ-ST/Cauffman, D. P.	

**NSG 5397** Univ of Minnesota - Minneapolis-St Paul 2718  
Observations of emission lines in the Crab nebula

<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/80	FY79: \$2,020	TOTAL: \$2,020
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Davidson, K.	GSFC/Bogges, A.	11-Astronomy
Gull, T. R.		

**NSG 6005** Univ of Minnesota - Minneapolis-St Paul 2719  
Investigations of electrical currents in the auroral ionosphere

<i>Period</i>	<i>Obligations</i>	
10/01/75-12/31/78	FY79:	TOTAL: \$194,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arnoldy, R. J.	WFC/Ballance, C. W., Jr.	
Cahill, L. J., Jr.	WFC/Gray, J. W.	19-Phys Sci, NEC

**NSG 6009** Univ of Minnesota - Minneapolis-St Paul 2720  
Study of neutral composition of upper atmosphere with rocket-borne mass spectrometers

<i>Period</i>	<i>Obligations</i>	
07/01/75-12/31/79	FY79:	TOTAL: \$126,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nier, A. O.	WFC/Gray, J. W.	19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM  
MINNESOTA (Continued)**

**NSG 6021 Univ of Minnesota - Minneapolis-St Paul 2721**  
 Rocket study of auroral processes  
*Period* *Obligations*  
 06/01/78-12/31/79 FY79: TOTAL: \$101,398  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Cahill, L. J., Jr. WFC/Gray, J. W. 19-Phys Sci, NEC  
 WFC/Pless, R. H.

**NSG 7005 Univ of Minnesota - Minneapolis-St Paul 2722**  
 Energetic particles in the magnetosphere and space  
*Period* *Obligations*  
 07/01/73-09/30/80 FY79: TOTAL: \$837,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Winckler, J. R. HQ-ST/King, J. H. 39-Env Sci, NEC  
 HQ-ST/Schmerling, E. R.

**NSG 7108 Univ of Minnesota - Minneapolis-St Paul 2723**  
 Research of waves and fields in plasma  
*Period* *Obligations*  
 12/01/74-06/30/78 FY79: TOTAL: \$50,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Kellogg, P. J. HQ-ST/Taylor, W. H. 19-Phys Sci, NEC

**NSG 7221 Univ of Minnesota - Minneapolis-St Paul 2724**  
 Neutral constituent measurements in stratosphere  
*Period* *Obligations*  
 03/16/76-09/30/79 FY79: TOTAL: \$88,243  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Mauersberger, K. HQ-EB/Seals, R. K., Jr. 31-Atmos Sci  
 Nier, A. O. HQ-ST/Tilford, S. G.

**NSG 7237 Univ of Minnesota - Minneapolis-St Paul 2725**  
 Interpretation of data obtained with the Explorer 45 spacecraft:  
 Major objective is understanding of magnetic storms  
*Period* *Obligations*  
 06/01/76-03/31/80 FY79: TOTAL: \$72,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Cahill, L. J., Jr. HQ-ST/Cauffman, D. P. 19-Phys Sci, NEC  
 HQ-ST/Schmerling, E. R.

**NSG 7296 Univ of Minnesota - Minneapolis-St Paul 2726**  
 Triaxial drop shapes rotating and charged liquid drops  
*Period* *Obligations*  
 12/15/76-12/15/79 FY79: \$34,722 TOTAL: \$95,310  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Scriven, L. E. HQ-RS/Lundholm, J. G., Jr. 13-Physics  
 JPL/Saffren, M. M.

**NSG 7575 Univ of Minnesota - Minneapolis-St Paul 2727**  
 Cometary mass spectrometry  
*Period* *Obligations*  
 04/01/79-03/31/80 FY79: \$70,864 TOTAL: \$70,864  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Nier, A. O. HQ-SL/Murphy, R. E. 31-Atmos Sci  
 HQ-SL/Brunk, W. E.

**NSG 9050 Univ of Minnesota - Minneapolis-St Paul 2728**  
 Petrologic study of returned lunar samples  
*Period* *Obligations*  
 02/01/77-01/31/80 FY79: TOTAL: \$51,300  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Webblen, P. W. JSC/Harris, J. W. 32-Geological Sci

**MISSISSIPPI**

**NSR 25-012-001 Alcorn State University 2729**  
 Radio tracking of geostationary satellites  
*Period* *Obligations*  
 09/01/73-06/30/80 FY79: \$30,047 TOTAL: \$214,285  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Paul, M. P. GSFC/Grebowsky, J. 31-Atmos Sci

**NSG 8036 Alcorn State University 2730**  
 Bio-gas production from alligator weeds  
*Period* *Obligations*  
 06/01/76-08/31/80 FY79: \$23,052 TOTAL: \$88,213  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Latif, A. NSTL/Wolverton, B. C. 51-Biological Sci

**NSG 736 Jackson State University 2731**  
 LANDSAT study of urban land use Jackson, MS  
*Period* *Obligations*  
 08/13/79-08/12/80 FY79: \$93,684 TOTAL: \$93,684  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Lang, M. NSTL/Atwell, B. H. 32-Geological Sci

**NSG 8026 Jackson State University 2732**  
 Aquatic plants as filtration systems for chlorinated hydrocarbons  
*Period* *Obligations*  
 06/01/75-05/31/80 FY79: \$59,617 TOTAL: \$162,997  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Garrity, E. NSTL/Wolverton, B. C. 39-Env Sci, NEC  
 NSTL/Estess, R.

**NAS 8-26749 Mississippi State University 2733**  
 A study of trends and techniques for space base electronics  
*Period* *Obligations*  
 01/12/71-06/10/79 FY79: TOTAL: \$200,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Trotter, D. MSFC/Hollis, B. R., Jr. 13-Physics  
 MSFC/Routh, D. E.

**NAS 8-31373 Mississippi State University 2734**  
 Study of digital holographic filter generation  
*Period* *Obligations*  
 03/20/75-12/31/78 FY79: TOTAL: \$28,024  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Ingels, F. M. MSFC/Wallace, G. R. 45-Elec Engr  
 MSFC/McDonough, G. F.

**NASA'S UNIVERSITY PROGRAM  
MISSISSIPPI (Continued)**

**NAS 8-32810** Mississippi State University 2735  
Development of a computerized algorithm for establishing harmonic balance

<i>Period</i>	<i>Obligations</i>	
01/01/78-05/31/79	FY79: TOTAL: \$30,031	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mitchell, J. R.	MSFC/Darden, J. H.	
Barror, O. L.	MSFC/Mink, H. J.	22-Computer Science

**NAS 8-32912** Mississippi State University 2736  
Development of a computer program to compute the flow field, aerodynamic forces and heating rate of arbitrary shaped bodies

<i>Period</i>	<i>Obligations</i>	
05/25/78-05/24/80	FY79: \$20,000 TOTAL: \$68,787	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kassner, J. L., Jr.	MSFC/Sims, J. L.	49-Engr, NEC
	MSFC/Donehoo, L. K.	

**NAS 8-33448** Mississippi State University 2737  
High density circuits technology

<i>Period</i>	<i>Obligations</i>	
07/13/79-07/12/80	FY79: \$35,810 TOTAL: \$35,810	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wade, T. E.	MSFC/Hollis, B. R., Jr.	45-Elec Engr

**NAS 8-33450** Mississippi State University 2738  
Electron lithography star design guidelines

<i>Period</i>	<i>Obligations</i>	
08/02/79-06/01/80	FY79: \$25,069 TOTAL: \$25,069	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Causey, W. H., Jr.	MSFC/Edge, T. M.	45-Elec Engr

**NAS 8-33570** Mississippi State University 2739  
Research study: Analysis of space telescope collection systems

<i>Period</i>	<i>Obligations</i>	
07/26/79-09/25/80	FY79: \$10,000 TOTAL: \$10,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ingels, F. M.	MSFC/Atherton, J. R.	11-Astronomy
	MSFC/Thomas, J. H.	

**NAS 8-131** Mississippi State University 2740  
Design of mechanism for referencing rear drum of long wall shearer

<i>Period</i>	<i>Obligations</i>	
01/11/78-07/10/78	FY79: TOTAL: \$4,800	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jones, E. W.	MSFC/Broussard, P. H.	46-Mech Engr
	MSFC/Kent, M. I.	

**NGL 25-001-054** Mississippi State University 2741  
Application of remotely sensed data to state and regional problems

<i>Period</i>	<i>Obligations</i>	
11/01/73-10/31/80	FY79: \$200,000 TOTAL: \$800,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miller, W. F.	HQ-ET/Vitale, J. A.	39-Env Sci, NEC

**NGR 25-001-055** Mississippi State University 2742  
Numerical solution of the Navier-Stokes equations for arbitrary two-dimensional multi-element airfoils

<i>Period</i>	<i>Obligations</i>	
01/01/74-02/29/80	FY79: \$36,800 TOTAL: \$182,262	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Thompson, J. F.	LARC/South, J. C., Jr.	41-Aero Engr

**NSG 1083** Mississippi State University 2743  
An exploratory investigation of the cooling drag associated with general aviation propulsive systems

<i>Period</i>	<i>Obligations</i>	
09/01/74-02/29/80	FY79: \$69,300 TOTAL: \$295,259	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rogerson, A. C.	LARC/Hall, A. W.	41-Aero Engr
Brown, N. B., Jr.		

**NSG 1249** Mississippi State University 2744  
Flight test of a wing stall sensor and evaluation of its application to an aircraft stall deterrent system

<i>Period</i>	<i>Obligations</i>	
09/15/75-12/31/79	FY79: \$41,401 TOTAL: \$199,165	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bennett, A. G., Jr.	LARC/Stewart, E. C.	41-Aero Engr
Owens, J. K.		

**NSG 1402** Mississippi State University 2745  
Propeller propulsion integration

<i>Period</i>	<i>Obligations</i>	
04/01/77-03/31/80	FY79: \$30,000 TOTAL: \$116,662	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bennett, A. G., Jr.	LARC/Hassell, J. L., Jr.	41-Aero Engr
Miley, S. J.	LARC/Johnson, J. L.	

**NSG 1454** Mississippi State University 2746  
Investigation of a flight test method for determining airplane drag utilizing a propeller wake survey rake

<i>Period</i>	<i>Obligations</i>	
09/01/77-11/30/79	FY79: \$5,011 TOTAL: \$18,633	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bennett, A. G., Jr.	LARC/Judd, J. H.	41-Aero Engr
Miley, S. J.		

**NSG 1511** Mississippi State University 2747  
Full scale flow visualization for agricultural aircraft

<i>Period</i>	<i>Obligations</i>	
04/01/78-06/30/79	FY79: TOTAL: \$30,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cross, E. J.	LARC/Holmes, B. J.	41-Aero Engr

**NSG 1577** Mississippi State University 2748  
Transformation of two and three-dimensional regions by elliptic systems

<i>Period</i>	<i>Obligations</i>	
11/15/78-11/14/79	FY79: \$20,580 TOTAL: \$20,580	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Thompson, J. F.	LARC/Smith, R. E.	21-Mathematics
Mastin, C. W.	LARC/Shoosmith, J. N.	

**NASA'S UNIVERSITY PROGRAM**  
**MISSISSIPPI (Continued)**

**NSG 1623** **Mississippi State University** 2749  
Theoretical investigation of high-lift aerodynamics

Period	Obligations	TOTAL
08/20/79-08/19/80	FY79: \$52,100	\$52,100
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Bennett, A. G., Jr.	LARC/Thomas, J. L.	41-Aero Engr

**NAS 8-33370** **Saint Louis University** 2755  
Kinetic energy budgets in areas of intense convections

Period	Obligations	TOTAL
04/01/79-03/31/80	FY79: \$24,665	\$24,665
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Fuelberg, H. E.	MSFC/Hill, C. K.	31-Atmos Sci
	MSFC/Thomas, P. E.	

**NSG 1539** **Mississippi University For Women** 2750  
Polyimide monomers and intermediates

Period	Obligations	TOTAL
06/15/78-10/31/79	FY79: \$18,657	\$25,565
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Pratt, J. R.	LARC/StClair, T. L.	12-Chemistry
	LARC/Johnston, N. J.	

**NAS 8-31150** **University of Missouri - Columbia** 2756  
Research study of microphysical processes in atmospheric clouds

Period	Obligations	TOTAL
02/11/75-08/31/80	FY79:	\$116,488
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Tung, C.	MSFC/Smith, R. E.	31-Atmos Sci
Hale, B. N.	MSFC/Anderson, B. J.	

**NAS13-81** **University of Southern Mississippi** 2751  
Evaluate the nutritional value of 'single cell protein' using water hyacinth extracts as substrate study

Period	Obligations	TOTAL
03/20/78-09/19/79	FY79:	\$10,000
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Stocks, P. K.	NSTL/Wolverton, B. C.	39-Env Sci, NEC

**NAS 8-31849** **University of Missouri - Columbia** 2757  
Cloud physics laboratory science simulator

Period	Obligations	TOTAL
04/29/76-11/14/80	FY79: \$10,000	\$279,958
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Kassner, J. L., Jr.	MSFC/Smith, R. E.	31-Atmos Sci
	MSFC/Thomas, P. E.	

**NAS13-95** **University of Southern Mississippi** 2752  
Demonstration and evaluation of EMS telemetry capability in remote areas using synchronous satellite communications technology

Period	Obligations	TOTAL
07/17/78-12/31/80	FY79: \$156,371	\$176,236
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Brundage, W. G.	NSTL/Hegwood, R. B.	49-Engr, NEC

**NAS 9-15477** **University of Missouri - Columbia** 2758  
Development and verification of simulation models for analyzing orbiter digital communications and data links

Period	Obligations	TOTAL
01/01/78-12/31/79	FY79:	\$25,000
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Tranter, W. H.	JSC/Eggleston, T. W.	45-Elec Engr

**NSG 1515** **University of Southern Mississippi** 2753  
Deconvolution of gas chromatographic data

Period	Obligations	TOTAL
04/01/78-09/30/79	FY79:	\$4,689
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Rayborn, G. H.	LARC/Wood, G. M.	19-Phys Sci, NEC
Hughes, W. E.		

**NAS 9-15896** **University of Missouri - Columbia** 2759  
Earth resources synthetic aperture radar applications development working group

Period	Obligations	TOTAL
09/17/79-08/31/80	FY79: \$50,000	\$50,000
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Rouse, J. W., Jr.	JSC/Harnage, M. J.	39-Env Sci, NEC

**NCA 2-450802** **University of Missouri - Columbia** 2760  
Investigation of nucleate boiling in normal and reduced gravity environments

Period	Obligations	TOTAL
07/01/78-12/31/79	FY79 \$7,052	\$16,507
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Miles, J. B.	ARC/Webbon, B. W.	46-Mech Engr

**MISSOURI**

**NAS 8-32838** **Saint Louis University** 2754  
Study of local storm convection

Period	Obligations	TOTAL
03/20/78-04/19/79	FY79:	\$19,997
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Fuelberg, H. E.	MSFC/Hill, C. K.	31-Atmos Sci
	MSFC/Turner, R. E.	

**NSG 1540** **University of Missouri - Columbia** 2761  
Study of stochastic processes occurring in the reliability analysis of fault-tolerant avionics computing systems

Period	Obligations	TOTAL
08/15/78-07/31/79	FY79:	\$17,928
<i>Pnn Invest</i>	NASA Tech Officer	CASE Category
Miller, D. R.	LARC/Migneault, G. E.	22-Computer Science
	LARC/Lupton, A. O.	

**NASA'S UNIVERSITY PROGRAM  
MISSOURI (Continued)**

**NSG 2193 University of Missouri - Columbia 2762**  
Electrochemical carbon oxide concentration using molten-salt electrolytes

<i>Period</i>	<i>Obligations</i>	
11/01/76-10/30/79	FY79: \$39,035	TOTAL: \$86,035
<i>Prm Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Winnick, J.	ARC/Quattrone, P. D.	59-Life Sci, NEC

**NSG 2375 University of Missouri - Rolla 2769**  
Aerodynamic-structural investigation of dual bladed rotor systems

<i>Period</i>	<i>Obligations</i>	
03/01/79-10/31/79	FY79: \$22,491	TOTAL \$22,491
<i>Prm Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Selberg, B. P.	ARC/Shockey, G. A.	41-Aero Engr
Cronin, D. L.		

**NSG 5338 University of Missouri - Columbia 2763**  
Research of optimum radiometer parameters for soil moisture monitoring

<i>Period</i>	<i>Obligations</i>	
04/01/79-03/31/80	FY79: \$29,484	TOTAL \$29,484
<i>Prm Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rouse, J. W., Jr.	GSFC/Schmugge, T. J.	39-Env Sci, NEC

**NSG 3113 University of Missouri - Rolla 2770**  
Theoretical study of starved elastohydrodynamic lubrication of line contacts with a detailed treatment of inlet and exit flow regions

<i>Period</i>	<i>Obligations</i>	
07/01/76-12/30/78	FY79:	TOTAL \$29,234
<i>Prm Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Medrow, R. A.	LERC/Wedeven, L. D.	46-Mech Engr

**NAS 8-32976 University of Missouri - Rolla 2764**  
Monodisperse cloud experiment

<i>Period</i>	<i>Obligations</i>	
04/03/78-12/31/81	FY79: \$25,000	TOTAL: \$60,000
<i>Prm Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hagen, D. E.	MSFC/Fallon, R. A.	31-Atmos Sci
Kassner, J. L., Jr.	MSFC/Smith, R. E.	
White, D. R.		

**NSG 3199 University of Missouri - Rolla 2771**  
Nucleate boiling from ion-beam textured surfaces coated with plasma deposited polymers

<i>Period</i>	<i>Obligations</i>	
06/15/78-09/16/79	FY79	TOTAL: \$15,366
<i>Prm Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Yasuda, H. K.	LERC/Weigand, A. J.	19-Phys Sci, NEC
Park, E. L.	LERC/Banks, B. A.	

**NAS 9-14848 University of Missouri - Rolla 2765**  
Development and verification of simulation models for analyzing orbiter digital communication and data links, and onboard monitoring parameter correlations

<i>Period</i>	<i>Obligations</i>	
01/01/76-11/30/77	FY79:	TOTAL: \$28,892
<i>Prm Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tranter, W. H.	JSC/Dawson, C. T.	45-Elec Engr

**NSG 3231 University of Missouri - Rolla 2772**  
Transmission of sound in high speed flows

<i>Period</i>	<i>Obligations</i>	
01/01/77-09/30/78	FY79: \$26,645	TOTAL: \$26,645
<i>Prm Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Eversman, W.	LERC/Rice, E. J.	41-Aero Engr
	LERC/Baumeister, K. J.	

**NCA 2-450801 University of Missouri - Rolla 2766**  
Prediction of buffet response of 1/6 scale models of F-111 tactical wings

<i>Period</i>	<i>Obligations</i>	
10/01/77-12/31/79	FY79:	TOTAL: \$8,982
<i>Prm Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cronin, D. L.	ARC/Coe, C. F.	41-Aero Engr

**NSG 8055 University of Missouri - Rolla 2773**  
Coal interface detection

<i>Period</i>	<i>Obligations</i>	
09/01/77-09/30/78	FY79:	TOTAL \$21,395
<i>Prm Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Summers, D. A.	MSFC/Geller, G.	47-Materials Engr
Barker, C. R.		

**NSG 1369 University of Missouri - Rolla 2767**  
Transport properties in the atmosphere of Jupiter

<i>Period</i>	<i>Obligations</i>	
01/01/77-12/31/79	FY79: \$15,063	TOTAL: \$32,980
<i>Prm Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Biolzi, L.	LARC/Graves, R. A., Jr.	12-Chemistry
	LARC/Jones, J. J.	

**NSG 5151 University of Missouri - Saint Louis 2774**  
Observations of ultraviolet emission lines in gaseous nebulae

<i>Period</i>	<i>Obligations</i>	
01/01/77-12/31/78	FY79:	TOTAL \$873
<i>Prm Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schwartz, R. D.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

**NSG 1452 University of Missouri - Rolla 2768**  
Study of gas-solid airflow over a flat plate

<i>Period</i>	<i>Obligations</i>	
10/01/77-11/30/79	FY79: \$62,219	TOTAL: \$132,449
<i>Prm Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Patterson, G. K.	LARC/Hefner, J. N.	41-Aero Engr
Oetting, R. B.	LARC/Bushnell, D. M.	

**NSG 5400 University of Missouri - Saint Louis 2775**  
Research of mass loss in the ultraviolet spectrum

<i>Period</i>	<i>Obligations</i>	
07/09/79-07/08/80	FY79: \$11,700	TOTAL \$11,700
<i>Prm Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lamb, S. A.	GSFC/Boggett, A.	11-Astronomy
Sargent, W. L.		

**NASA'S UNIVERSITY PROGRAM**  
**MISSOURI (Continued)**

**NSG 7563** University of Missouri - Saint Louis 2776  
Condensate phenomena in the polar regions of Mars  
*Period* Obligations  
03/01/79-09/30/79 FY79: \$12,595 TOTAL: \$12,595  
*Prin Invest* NASA Tech Officer CASE Category  
James, P. B. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/Dwornik, S. E.

**NAS 1-13889** Washington University 2777  
Viking/Lander imaging studies  
*Period* Obligations  
05/05/75-09/30/78 FY79: TOTAL: \$191,748  
*Prin Invest* NASA Tech Officer CASE Category  
Arvidson, R. E. LARC/Williams, T. S., Jr.  
LARC/Glenny, W. R. 39-Env Sci, NEC

**NAS 2-10177** Washington University 2778  
Bone growth in the rat mandible during spaceflight  
*Period* Obligations  
02/12/79-08/10/80 FY79: \$92,957 TOTAL: \$92,957  
*Prin Invest* NASA Tech Officer CASE Category  
Simmons, D. ARC/Souza, K. A. 51-Biological Sci  
ARC/Holton, E. M.

**NAS 8-27976** Washington University 2779  
Design, development and operation of a heavy nuclei experiment  
under the HEAO program  
*Period* Obligations  
06/16/72-09/30/80 FY79: \$136,000 TOTAL: \$576,754  
*Prin Invest* NASA Tech Officer CASE Category  
Barcus, J. MSFC/Talley, D. 11-Astronomy  
Sutton, J.

**NAS 8-32354** Washington University 2780  
Data base management applications  
*Period* Obligations  
01/19/77-05/19/78 FY79: \$2,103 TOTAL: \$102,103  
*Prin Invest* NASA Tech Officer CASE Category  
Eastwood, L. MSFC/Daniels, J. L., Jr. 39-Env Sci, NEC  
MSFC/Wallace, G. R.

**NSG 26-008-065** Washington University 2781  
Lunar sample analysis  
*Period* Obligations  
02/01/71-01/31/81 FY79: \$79,621 TOTAL: \$2,541,902  
*Prin Invest* NASA Tech Officer CASE Category  
Walker, R. M. JSC/Harris, J. W. 13-Physics

**NSG 26-008-001** Washington University 2782  
Determination of characteristics of high altitude primary cosmic  
radiation at low latitudes  
*Period* Obligations  
09/01/61-10/31/79 FY79: \$139,000 TOTAL: \$1,665,540  
*Prin Invest* NASA Tech Officer CASE Category  
Israel, M. H. HQ-SC/Kaluzienski, L. J. 11-Astronomy  
Klarman, J. HQ-SC/Opp, A. G.

**NSG 1601** Washington University 2783  
Non-destructive evaluation of composite structures using Fourier  
analysis of ultrasonic signals  
*Period* Obligations  
03/15/79-03/14/80 FY79: \$49,815 TOTAL: \$49,815  
*Prin Invest* NASA Tech Officer CASE Category  
Miller, J. G. LARC/Heyman, J. S. 13-Physics  
O'Donnell, M. LARC/Cantrell, J. H., Jr.

**NSG 1640** Washington University 2784  
Application of adaptive finite element analysis of integrated design  
and analysis of aircraft structures  
*Period* Obligations  
10/01/79-09/30/80 FY79: \$95,012 TOTAL: \$95,012  
*Prin Invest* NASA Tech Officer CASE Category  
Szabo, B. A. LARC/Giles, G. L. 49-Engr, NEC  
LARC/Rogers, J. L.

**NSG 5187** Washington University 2785  
Copernicus observations for determinations of abundance of  
ratios  
*Period* Obligations  
07/01/77-06/30/78 FY79: TOTAL: \$6,159  
*Prin Invest* NASA Tech Officer CASE Category  
Smith, W. H. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 7016** Washington University 2786  
Lunar data analysis and synthesis program on lunar surface  
dynamics  
*Period* Obligations  
12/01/73-01/31/80 FY79: \$85,285 TOTAL: \$496,156  
*Prin Invest* NASA Tech Officer CASE Category  
Hohenberg, C. M. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. E.

**NSG 7087** Washington University 2787  
Computerized analysis of Martian crater and aeolian feature  
data  
*Period* Obligations  
08/01/74-12/31/79 FY79: \$89,276 TOTAL: \$228,156  
*Prin Invest* NASA Tech Officer CASE Category  
Arvidson, R. E. HQ-SL/Dwornik, S. E. 32-Geological Sci  
HQ-SL/Boyce, J. M.

**NSG 7334** Washington University 2788  
Planetary observations using a new Fabry-Perot interferometric  
method  
*Period* Obligations  
04/01/77-03/31/80 FY79: \$90,000 TOTAL: \$236,588  
*Prin Invest* NASA Tech Officer CASE Category  
Smith, W. H. HQ-SL/Brunk, W. E. 11-Astronomy  
HQ-SL/Murphy, R. E.

**NASA'S UNIVERSITY PROGRAM  
MISSOURI (Continued)**

**NSG 7372** Washington University 2789  
Interferometric spectral observations of the interstellar medium  
in the near ultraviolet

<i>Period</i>	<i>Obligations</i>	
07/01/77-06/30/80	FY79: \$32,812	TOTAL: \$85,574
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, W. H.	HQ-SC/Weiler, E. J.	11-Astronomy
	HQ-SC/Roman, N. G.	

**NSG 7545** Washington University 2790  
Multispectral, topographic, and photogeologic studies of aeolian  
phenomena on Mars

<i>Period</i>	<i>Obligations</i>	
03/01/79-10/31/79	FY79: \$44,954	TOTAL: \$44,954
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arvidson, R. E.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Boyce, J. M.	

**NSG 7578** Washington University 2791  
Evolution of Mars

<i>Period</i>	<i>Obligations</i>	
03/01/79-02/28/80	FY79: \$37,724	TOTAL: \$37,724
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goettal, K. A.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/Dwornik, S. E.	

**NSG 9055** Washington University 2792  
Chemical studies of materials and processes in the lunar regolith  
and of lunar and terrestrial igneous differentiation

<i>Period</i>	<i>Obligations</i>	
02/01/77-01/31/81	FY79:	TOTAL: \$373,495
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Haskin, L. A.	JSC/Harris, J. W.	32-Geological Sci
Blanchard, D. P.		

**NSG 9073** Washington University 2793  
Electrochemical separations for obtaining metals and oxygen from  
lunar samples

<i>Period</i>	<i>Obligations</i>	
09/01/78-08/31/79	FY79:	TOTAL: \$24,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Haskin, L. A.	JSC/Williams, R.	19-Phys Sci, NEC
Lindstrom, D. J.		

**MONTANA**

**NSR 27-001-040** Montana State University 2794  
Establishment of a mission-oriented gravitation research center

<i>Period</i>	<i>Obligations</i>	
06/28/71-08/31/79	FY79:	TOTAL: \$163,312
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nordtvedt, K., Jr.	HQ-SC/Roman, N. G.	11-Astronomy
	HQ-SC/Rosendhal, J. D.	

**NSG 8061** Montana State University 2795  
Beta decay clock experiment

<i>Period</i>	<i>Obligations</i>	
06/15/78-12/14/78	FY79:	TOTAL: \$3,442
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nordtvedt, K.	MSFC/Eby, P. B.	13-Physics

**NAS 5-23891** University of Montana 2796  
Data analysis and computer mapping

<i>Period</i>	<i>Obligations</i>	
02/24/77-09/30/79	FY79: \$2,602	TOTAL: \$25,102
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Craighead, J. J.	GSFC/Oseroff, H.	39-Env Sci, NEC

**NEBRASKA**

**NGL 28-004-020** University of Nebraska - Lincoln 2797  
Applications of remote sensing in resource management in  
Nebraska

<i>Period</i>	<i>Obligations</i>	
04/20/72-04/30/82	FY79: \$100,000	TOTAL: \$775,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carlson, M. P.	HQ-ET/Vitale, J. A.	39-Env Sci, NEC

**NSR 28-004-021** University of Nebraska - Lincoln 2798  
Interaction of radiation with planetary gases

<i>Period</i>	<i>Obligations</i>	
02/23/73-01/31/80	FY79:	TOTAL: \$309,731
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Samson, J. A.	HQ-SL/Fellows, R. F.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

**NSG 1506** University of Nebraska - Lincoln 2799  
Load deflection characteristics of inflatable structures

<i>Period</i>	<i>Obligations</i>	
03/15/78-11/14/78	FY79:	TOTAL: \$5,327
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Baumgarten, J. R.	LARC/Tanner, J. A.	46-Mech Engr

**NSG 5332** University of Nebraska - Lincoln 2800  
Research of chromospheres of classical Cepheids

<i>Period</i>	<i>Obligations</i>	
02/01/79-01/31/81	FY79: \$1,500	TOTAL: \$1,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schmidt, E. G.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

**NSG 5391** University of Nebraska - Lincoln 2801  
Ultraviolet spectrophotometry of Cepheids

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$11,800	TOTAL: \$11,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schmidt, E. G.	GSFC/Bogges, A.	11-Astronomy
Weiler, E. J.		



**NASA'S UNIVERSITY PROGRAM  
NEVADA**

**NEVADA**

**NAS 8-31470** Univ. of Nevada - Desert Res. Inst. 2802  
Study of zero-gravity atmospheric cloud physics lab chamber development

<i>Period</i>	<i>Obligations</i>	
05/13/75-06/30/78	FY79: \$108,782	TOTAL: \$108,782
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Squires, P.	MSFC/Smith, R. E.	31-Atmos Sci
	MSFC/Schrick, B. J.	

**NAS 8-32975** Univ. of Nevada - Desert Res. Inst. 2803  
Atmospheric cloud physics laboratory cloud forming experiment for the first (ACPL) mission

<i>Period</i>	<i>Obligations</i>	
03/01/78-12/31/81	FY79: \$120,000	TOTAL: \$268,900
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kocmond, W. C.	MSFC/Fallon, R. A.	31-Atmos Sci
Squires, P.	MSFC/Smith, R. E.	

**NAS 8-32977** Univ. of Nevada - Desert Res. Inst. 2804  
Atmospheric cloud physics laboratory ice crystal growth experiment for mission I

<i>Period</i>	<i>Obligations</i>	
03/01/78-12/31/81	FY79: \$40,000	TOTAL: \$65,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hallett, J.	MSFC/Fallon, R. A.	31-Atmos Sci
	MSFC/Smith, R. E.	

**NAS 8-33273** Univ. of Nevada - Desert Res. Inst. 2805  
Complex aerosol nucleation experiment ACPL-2

<i>Period</i>	<i>Obligations</i>	
02/16/79-02/16/80	FY79: \$30,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kocmond, W. C.	MSFC/Fallon, R. A.	31-Atmos Sci
	MSFC/Smith, R. E.	

**NAS 8-33295** Univ. of Nevada - Desert Res. Inst. 2806  
Design, fabricate, test and deliver one static diffusion chamber

<i>Period</i>	<i>Obligations</i>	
07/01/79-11/07/79	FY79: \$35,535	TOTAL: \$35,535
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hallett, J.	MSFC/Anderson, B. J.	31-Atmos Sci
	MSFC/Keller, V.	

**NCC 2 6** Univ. of Nevada - Desert Res. Inst. 2807  
Proposal to participate in the testing and evaluation of a total viral monitoring instrument

<i>Period</i>	<i>Obligations</i>	
04/01/79-12/31/79	FY79: \$28,337	TOTAL: \$28,337
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hall, M. R.	ARC/Johnson, R. D.	59-Life Sci, NEC
Whitcomb, B. M.	ARC/Dalton, B. P.	
Koch, D. L.		

**NSG 2140** University of Nevada - Las Vegas 2808  
Prediction of unsteady airloads in two-dimensional subsonic compressible flow

<i>Period</i>	<i>Obligations</i>	
06/01/76-05/31/80	FY79: \$31,023	TOTAL: \$102,460
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fromme, J. A.	ARC/Davis, S. S.	41-Aero Engr
Goldberg, M. A.		

**NAS 8-31441** University of Nevada - Reno 2809  
Zero-8 cloud drop coalescence experiment

<i>Period</i>	<i>Obligations</i>	
04/21/75-10/31/78	FY79	TOTAL \$144,149
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Telford, J. W.	MSFC/Smith, R. E.	19-Phys Sci, NEC
	MSFC/Anderson, B. J.	

**NAS 8-32313** University of Nevada - Reno 2810  
Study to perform preliminary experiments to evaluate particle generation and characterization techniques for zero gravity cloud physics experiments

<i>Period</i>	<i>Obligations</i>	
12/13/76-11/30/79	FY79:	TOTAL: \$150,447
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kocmond, W. C.	MSFC/Schrick, B. J.	31-Atmos Sci
	MSFC/Smith, R. E.	

**NSG 2291** University of Nevada - Reno 2811  
Computations and turbulent flow modeling in support of helicopter rotor technology

<i>Period</i>	<i>Obligations</i>	
12/01/77-11/30/79	FY79: \$39,128	TOTAL: \$75,454
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rose, W. C.	ARC/Presley, L. L.	41-Aero Engr
Kleppe, J. A.	ARC/Murphy, J. D.	

**NSG 2395** University of Nevada - Reno 2812  
Investigation of solid state deposition technology applied to aerodynamic instrumentation

<i>Period</i>	<i>Obligations</i>	
05/20/79-08/20/79	FY79: \$32,770	TOTAL: \$32,770
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rose, W. C.	ARC/Johnson, D. A.	41-Aero Engr
Johnson, B. P.		
Kleppe, J. A.		

**NEW HAMPSHIRE**

**NSG 2397** Dartmouth College 2813  
Optical constants of transition metals

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/03/80	FY79: \$40,665	TOTAL: \$40,665
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Christy, R. W.	ARC/Cooper, D. M.	13-Physics

**NASA'S UNIVERSITY PROGRAM  
NEW HAMPSHIRE (Continued)**

<b>NSG 3253</b>	<b>Dartmouth College</b>	<b>2814</b>	<b>NAS 5-24354</b>	<b>University of New Hampshire</b>	<b>2821</b>
Thermomechanical effects in high speed seal rubs			Analysis and interpretation of Pioneer 10 and 11 data		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/26/79-02/26/80	FY79 \$28,500	TOTAL: \$28,500	10/16/77-10/15/79	FY79: \$23,998	TOTAL: \$46,248
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kennedy, F. E., Jr	LERC/Bill, R. C.	47-Materials Engr	Webber, W. R.	GSFC/Trainor, J. H.	13-Physics
	LERC/Ludwig, L. P.				
<b>NSG 5014</b>	<b>Dartmouth College</b>	<b>2815</b>	<b>NAS 5-25420</b>	<b>University of New Hampshire</b>	<b>2822</b>
Geological applications of ERTS data			Design and develop a compton telescope for the Gamma Ray Observatory (GRO) mission		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/74-12/31/79	FY79: \$135,000	TOTAL: \$1,019,605	10/25/78-10/31/79	FY79: \$66,200	TOTAL: \$66,200
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stoiber, R. E.	GSFC/Ongar, S. G.	39-Env Sci, NEC	Lockwood, J. A.	GSFC Davis, M. A.	11-Astronomy
Birnie, R. W.					
<b>NSG 5145</b>	<b>Dartmouth College</b>	<b>2816</b>	<b>NAS 5-25642</b>	<b>University of New Hampshire</b>	<b>2823</b>
Investigation of volcanic gases and dust (aerosols) in the stratosphere			Cosmic ray experiment data analysis and interpretation		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/01/76-01/31/80	FY79: \$40,000	TOTAL: \$120,291	04/03/79-05/02/80	FY79: \$8,000	TOTAL \$8,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Self, S.	GSFC/Hansen, J. E.	31-Atmos Sci	Fisk, L. A.	GSFC/VonRosenvinge, T. T	13-Physics
Decker, R. W.					
<b>NSG 5348</b>	<b>Dartmouth College</b>	<b>2817</b>	<b>NCA 2-512901</b>	<b>University of New Hampshire</b>	<b>2824</b>
Magnetopause studies using satellite data			Development of mathematical models of specific closed ecosystem functions		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/01/79-04/31/80	FY79: \$30,416	TOTAL: \$30,416	02/01/79-01/31/81	FY79: \$21,991	TOTAL \$21,991
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sonnerup, B. U.	GSFC/Kupperian, J. E., Jr.	32-Geological Sci	Moore, B.	ARC/MacElroy, R. D.	21-Mathematics
<b>NSG 7292</b>	<b>Dartmouth College</b>	<b>2818</b>	<b>NGL 30-002-018</b>	<b>University of New Hampshire</b>	<b>2825</b>
Magnetopause-structure from satellite observations			Investigation of energy levels in foil excited atomic beams		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/01/76-09/30/79	FY79:	TOTAL: \$40,000	03/15/65-09/30/78	FY79	TOTAL: \$207,354
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sonnerup, B. U.	HQ-ST/King, J. H.	39-Env Sci, NEC	Chupp, E. L.	HQ-ST/Bohlin, J. D.	13-Physics
	HQ-ST/Schmerling, E. R.				
<b>NAS 5-23761</b>	<b>University of New Hampshire</b>	<b>2819</b>	<b>NGL 30-002-021</b>	<b>University of New Hampshire</b>	<b>2826</b>
Hardware phase of the solar gamma ray experiment for the solar maximum mission			Investigation and development of techniques for solar neutron and gamma ray detection		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/01/76-09/30/81	FY79: \$435,125	TOTAL: \$3,196,726	02/28/66-01/31/80	FY79: \$125,000	TOTAL: \$1,327,365
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chupp, E. L.	GSFC/Donley, J. L.	31-Atmos Sci	Chupp, E. L.	HQ-SC/Kaluzienski, L. J	11-Astronomy
				HQ-SC/Opp, A. G.	
<b>NAS 5-24328</b>	<b>University of New Hampshire</b>	<b>2820</b>	<b>NGL 30-002-052</b>	<b>University of New Hampshire</b>	<b>2827</b>
Data reduction and analysis of the environmental measurement experiment			Research program in area of cosmic ray and X-ray astronomy		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/01/77-09/30/79	FY79: \$22,500	TOTAL: \$67,500	02/12/70-09/30/79	FY79: \$110,000	TOTAL: \$1,080,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arnoldy, R. L.	GSFC/Wende, C. D.	19-Phys Sci, NEC	Webber, W. R.	HQ-SC/Fishman, G. J.	11-Astronomy
				HQ-SC/Kaluzienski, L. J.	

**NASA'S UNIVERSITY PROGRAM  
NEW HAMPSHIRE (Continued)**

**NSG 5316**                      **University of New Hampshire**                      **2828**  
Collaborative research of solar phenomena: Solar maximum mission

<i>Period</i>	<i>Obligations</i>	
07/01/79-03/31/80	FY79: \$7,900	TOTAL: \$7,900
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fisk, L. A.	GSFC/Donley, J. L.	31-Atmos Sci

**NAS 1-13502**                      **Princeton University**                      **2834**  
In-flight evaluation of decoupler longitudinal controls for a STOL transport aircraft

<i>Period</i>	<i>Obligations</i>	
08/19/74-11/30/78	FY79	TOTAL: \$178,945
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Socketel, E.	LARC/Miller, G. K.	41-Aero Engr
Ellis, D. R.	LARC/Queijo, M. J.	

**NSG 6022**                      **University of New Hampshire**                      **2829**  
Rocket study of auroral processes

<i>Period</i>	<i>Obligations</i>	
05/01/78-06/30/80	FY79: \$72,814	TOTAL: \$150,836
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Arnoldy, R. L.	WFC/Gray, J. W.	19-Phys Sci, NEC
Kaufmann, R. L.	WFC/Pless, R. H.	

**NAS 1-15758**                      **Princeton University**                      **2835**  
Navion modification and flight test support

<i>Period</i>	<i>Obligations</i>	
03/30/79-06/13/80	FY79: \$93,000	TOTAL: \$93,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stengel, R. F.	LARC/Downing, D. R.	41-Aero Engr
	LARC/Bryant, W. H.	

**NSG 7411**                      **University of New Hampshire**                      **2830**  
Theoretical studies in solar particle physics

<i>Period</i>	<i>Obligations</i>	
10/01/77-09/30/79	FY79: \$36,000	TOTAL: \$61,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fisk, L. A.	HQ-ST/Bohlin, J. D.	13-Physics

**NAS 1-15764**                      **Princeton University**                      **2836**  
Investigation of flying qualities criteria for single pilot instrument flight operations

<i>Period</i>	<i>Obligations</i>	
04/05/79-06/19/80	FY79: \$79,139	TOTAL: \$79,139
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stengel, R. F.	LARC/Niessen, F. R.	41-Aero Engr
	LARC/Garren, J. F., Jr.	

**NSG 7481**                      **University of New Hampshire**                      **2831**  
Application of a double compton telescope to measurements of the 1-15 MeV extra-terrestrial gamma rays

<i>Period</i>	<i>Obligations</i>	
03/01/78-02/28/80	FY79: \$59,100	TOTAL: \$59,100
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lockwood, J. A.	HQ-SC/Kaluzienski, L. J.	11-Astronomy
Webber, W. R.	HQ-SC/Opp, A. G.	

**NAS 5-22360**                      **Princeton University**                      **2837**  
Spectroscopy using the one meter ultraviolet optical telescope for Spacelab astronomy missions

<i>Period</i>	<i>Obligations</i>	
04/18/75-06/30/80	FY79:	TOTAL: \$19,277
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jenkins, E. B.	GSFC/Wilson, L.	32-Geological Sci

**NEW JERSEY**

**NAS 5-23576**                      **Princeton University**                      **2838**  
Orbital operations, data reduction and analysis, and OAO guest investigator program

<i>Period</i>	<i>Obligations</i>	
09/01/76-09/30/81	FY79: \$883,000	TOTAL: \$2,647,655
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Spitzer, L., Jr.	GSFC/Corrigan, J. P.	11-Astronomy

**NAS 5-25483**                      **Fairleigh Dickinson University**                      **2832**  
Design and fabricate far infrared filters for diffused infrared background experiment

<i>Period</i>	<i>Obligations</i>	
02/17/79-08/16/79	FY79: \$15,000	TOTAL: \$15,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moeller, K. D.	GSFC/Heaney, J. B.	11-Astronomy

**NAS 5-24486**                      **Princeton University**                      **2839**  
Microwave and theoretical studies for cosmic background Explorer satellite

<i>Period</i>	<i>Obligations</i>	
03/01/78-03/01/80	FY79: \$29,926	TOTAL: \$88,077
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilkinson, D. T.	GSFC/Nace, D. A.	11-Astronomy
	GSFC/Donohoe, M. J.	

**NAS 1-9705**                      **Princeton University**                      **2833**  
Participation in the science planning for the Viking 1975 missions in the area of magnetic properties

<i>Period</i>	<i>Obligations</i>	
04/03/70-02/28/79	FY79:	TOTAL: \$267,863
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hargraves, R. B.	LARC/Williams, T. S., Jr.	
	LARC/Glenny, W. R.	19-Phys Sci, NEC

**NAS 5-25084**                      **Princeton University**                      **2840**  
Data and operations team leader for the space telescope project

<i>Period</i>	<i>Obligations</i>	
05/23/78-12/31/84	FY79: \$80,000	TOTAL: \$133,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Groth, E. J.	GSFC/Hobbs, R. W.	11-Astronomy
	GSFC/Martin, J. B.	

**NASA'S UNIVERSITY PROGRAM  
NEW JERSEY (Continued)**

<b>NAS 8-32614</b>	<b>Princeton University</b>	<b>2841</b>
Develop and test mathematical models of the three-dimensional flow field and particle motions		
<i>Period</i>	<i>Obligations</i>	
08/23/77-12/10/79	FY79: \$96,126	TOTAL: \$178,586
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Saville, D. A.	MSFC/Neuschaefer, R.	13-Physics
	MSFC/Snyder, R. S.	
<b>NAS 8-33102</b>	<b>Princeton University</b>	<b>2842</b>
The evaluation of candidate metals in a simulated space shuttle main engine environment for application as turbine blade dampers		
<i>Period</i>	<i>Obligations</i>	
09/11/78-02/10/79	FY79:	TOTAL: \$14,856
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Caveny, L. H.	MSFC/McPherson, W. B.	49-Engr, NEC
	MSFC/Schuerer, P. H.	
<b>NAS 8-33345</b>	<b>Princeton University</b>	<b>2843</b>
Investigate accretion flows in the Perseus cluster galaxies		
<i>Period</i>	<i>Obligations</i>	
02/14/79-08/13/80	FY79: \$3,499	TOTAL: \$3,499
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cowie, L. L.	MSFC/Jones, J. B., Jr.	11-Astronomy
Fabian, A. C.		
Nulsen, P. J.		
<b>NGL 31-001-005</b>	<b>Princeton University</b>	<b>2844</b>
Formation & stability of magnetogasdynamic front in a pitch discharge		
<i>Period</i>	<i>Obligations</i>	
09/24/62-09/30/79	FY79:	TOTAL: \$2,422,912
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jahn, R. G.	HQ-RP/Lazar, J.	42-Astro Engr
Clark, K. E.		
<b>NGL 31-001-007</b>	<b>Princeton University</b>	<b>2845</b>
Theoretical & experimental studies of ultraviolet phenomena of astronomical interest & galactic gas dynamics		
<i>Period</i>	<i>Obligations</i>	
05/06/63-03/31/82	FY79: \$184,239	TOTAL: \$2,067,982
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Spitzer, L., Jr.	HQ-SC/Roman, N. G.	11-Astronomy
	HQ-SC/Weiler, E. J.	
<b>NGL 31-001-252</b>	<b>Princeton University</b>	<b>2846</b>
Air traffic control technology		
<i>Period</i>	<i>Obligations</i>	
11/15/71-01/31/83	FY79: \$150,000	TOTAL: \$643,333
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Graham, D.	LARC/Downing, D. R.	41-Aero Engr
	LARC/MacE, W. D.	
<b>NGR 31-001-202</b>	<b>Princeton University</b>	<b>2847</b>
Lunar retro-reflector ranging		
<i>Period</i>	<i>Obligations</i>	
05/27/70-05/14/78	FY79:	TOTAL: \$15,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dicke, R. H.	HQ-SC/Bogges, N. W.	13-Physics
<b>NSG 1070</b>	<b>Princeton University</b>	<b>2848</b>
Resonant Doppler velocimeter		
<i>Period</i>	<i>Obligations</i>	
07/01/74-10/31/79	FY79: \$50,699	TOTAL: \$224,280
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miles, R. B.	LARC/Honaker, W. C.	13-Physics
<b>NSG 1253</b>	<b>Princeton University</b>	<b>2849</b>
Sound transmission analysis for determining interior sound levels		
<i>Period</i>	<i>Obligations</i>	
11/01/75-09/30/79	FY79:	TOTAL: \$137,561
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dowell, E. H.	LARC/Mixson, J. S.	41-Aero Engr
<b>NSG 1587</b>	<b>Princeton University</b>	<b>2850</b>
Command and stability augmentation techniques for aircraft with control saturation		
<i>Period</i>	<i>Obligations</i>	
01/01/79-06/30/80	FY79 \$25,230	TOTAL: \$25,230
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stengel, R. F.	LARC/Schy, A. A.	41-Aero Engr
	LARC/Young, J. W.	
<b>NSG 1630</b>	<b>Princeton University</b>	<b>2851</b>
Preliminary investigation of the external flow analysis for density measurements at high altitude		
<i>Period</i>	<i>Obligations</i>	
07/01/79-10/31/79	FY79: \$17,027	TOTAL: \$17,027
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bienkowski, G. K.	LARC/Jones, J. J.	41-Aero Engr
<b>NSG 2062</b>	<b>Princeton University</b>	<b>2852</b>
Studies of space colonization		
<i>Period</i>	<i>Obligations</i>	
01/01/75-09/30/79	FY79: \$75,000	TOTAL: \$348,805
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
O'Neill, G. K.	ARC/Gilbreath, W. P.	99-Multi-Discip
	ARC/Sadin, S. R.	
<b>NSG 2194</b>	<b>Princeton University</b>	<b>2853</b>
Transonic flow around wings, bodies and wing-body configurations		
<i>Period</i>	<i>Obligations</i>	
11/01/76-10/31/79	FY79: \$44,935	TOTAL: \$162,941
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dowell, E. H.	ARC/Davis, S. S.	41-Aero Engr
	ARC/Chapman, G. T.	

**NASA'S UNIVERSITY PROGRAM  
NEW JERSEY (Continued)**

**NSG 2299** Princeton University **2854**  
A comprehensive program of compressible turbulent boundary layer research

Period	Obligations	TOTAL
02/01/78-01/31/80	FY79: \$74,997	\$149,992
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bogdonoff, S. M.	ARC/Horstman, C. C.	41-Aero Engr
Settles, G. S.	ARC/Marvin, J. G.	

**NSG 5382** Princeton University **2861**  
Velocity distribution of interstellar clouds in distant spiral arms and in magellanic clouds

Period	Obligations	TOTAL
07/01/79-06/30/80	FY79: \$5,800	\$5,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
York, D. G.	GSFC/Boggett, A.	11-Astronomy
Cowie, L. L.		

**NSG 2366** Princeton University **2855**  
Turbulence measurements in high speed flows by resonant fluorescence

Period	Obligations	TOTAL
01/01/79-12/31/79	FY79: \$42,000	\$42,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miles, R. B.	ARC/McKenzie, R. L.	13-Physics

**NSG 5415** Princeton University **2862**  
Study of the fluctuations in the cosmic X-ray background

Period	Obligations	TOTAL
09/14/79-09/13/80	FY79: \$11,498	\$11,498
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Turners, E. L.	GSFC/Corrigan, J. P.	11-Astronomy

**NSG 3176** Princeton University **2856**  
Mass driver development

Period	Obligations	TOTAL
12/01/77-11/30/79	FY79: \$100,000	\$139,200
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
O'Neill, G. K.	LERC/Domitz, S.	42-Astro Engr
	LERC/Myers, I. T.	

**NSG 7080** Princeton University **2863**  
Study of elastic wave propagation in the moon

Period	Obligations	TOTAL
07/01/74-02/28/80	FY79: \$3,504	\$180,288
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Phinney, R. A.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. M.	

**NSG 3178** Princeton University **2857**  
Internal combustion engine flame propagation and emissions; Small scale turbulence modeling and large scale eddy resolution

Period	Obligations	TOTAL
12/15/77-12/14/79	FY79: \$100,000	\$199,343
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sirignano, W. A.	LERC/Cassidy, J. F.	46-Mech Engr
Gany, A.	LERC/Kempke, E. E.	

**NSG 7256** Princeton University **2864**  
Research in extragalactic astrophysics

Period	Obligations	TOTAL
07/01/76-12/31/79	FY79: \$11,388	\$28,388
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bahecall, N. A.	HQ-SC/Roman, N. G.	11-Astronomy
	HQ-SC/Weiler, E. J.	

**NSG 3292** Princeton University **2858**  
Unsteady transonic aerodynamics of cascades

Period	Obligations	TOTAL
10/01/79-09/31/80	FY79: \$30,530	\$30,530
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dowell, E. H.	LERC/Braun, W. H.	41-Aero Engr
Williams, M. H.		

**NSG 7280** Princeton University **2865**  
The effect of gravity and weightlessness on the development and regeneration of the giant Coenocyte Caulerpa

Period	Obligations	TOTAL
1/3/01/76-09/30/79	FY79: \$50,000	\$130,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jacobs, W. P.	HQ-SB/Halstead, T. W.	51-Biological Sci
	HQ-SB/Geib, D. S.	

**NSG 5248** Princeton University **2859**  
Observational research on the IUE satellite

Period	Obligations	TOTAL
03/01/78-02/29/80	FY79:	\$20,312
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jenkins, E. B.	GSFC/Boggett, A.	11-Astronomy
Spitzer, L., Jr.	GSFC/West, D. K.	

**NSG 7283** Princeton University **2866**  
Condensed matter in astrophysics

Period	Obligations	TOTAL
10/01/76-11/30/78	FY79:	\$44,466
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smoluchowski, R.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Boycce, J. M.	

**NSG 5277** Princeton University **2860**  
Oblique magnetic focusing

Period	Obligations	TOTAL
07/01/78-08/31/80	FY79: \$35,799	\$72,312
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lowrance, J. L.	GSFC/Williams, J. T.	13-Physics
York, D. G.		

**NSG 7302** Princeton University **2867**  
New radiometers for balloon 3 K isotropy experiment

Period	Obligations	TOTAL
11/15/76-12/31/79	FY79: \$29,700	\$79,321
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilkinson, D. T.	HQ-SC/Boggett, N. W.	11-Astronomy
	HQ-SC/Roman, N. G.	

**NASA'S UNIVERSITY PROGRAM  
NEW JERSEY (Continued)**

**NSG 7379** Princeton University 2868  
Large area charged coupled device image sensors for space astronomy  
*Period* Obligations  
11/01/77-02/28/79 FY79: TOTAL: \$98,775  
*Pnn Invest* NASA Tech Officer CASE Category  
Schwarzschild, M. HQ-SC/Rosendhal, J. D. 11-Astronomy  
HQ-SC/Roman, N. G.

**NSG 7568** Princeton University 2869  
The geomorphic role of water ice on Mars  
*Period* Obligations  
03/15/79-03/14/80 FY79: \$30,310 TOTAL: \$30,310  
*Pnn Invest* NASA Tech Officer CASE Category  
Judson, S. HQ-SL/Dwornik, S. E. 32-Geological Sci  
HQ-SL/Boyce, J. M.

**NSG 7600** Princeton University 2870  
Support of international astronomical union colloquium no. 54  
Scientific Research with Space Telescope  
*Period* Obligations  
04/01/79-09/30/80 FY79: \$11,480 TOTAL: \$11,480  
*Pnn Invest* NASA Tech Officer CASE Category  
Spitzer, L., Jr. HQ-SC/Roman, N. G. 11-Astronomy  
HQ-SC/Weiler, E. J.

**NSG 7602** Princeton University 2871  
The origin of maghemite on Mars  
*Period* Obligations  
07/01/79-01/30/80 FY79: \$39,937 TOTAL: \$39,937  
*Pnn Invest* NASA Tech Officer CASE Category  
Hargraves, R. B. HQ-SL/French, B. M. 32-Geological Sci  
HQ-SL/Dwornik, S. E.

**NSG 7618** Princeton University 2872  
Photon counting image sensor development for astronomical applications  
*Period* Obligations  
07/01/79-06/30/80 FY79: \$94,000 TOTAL: \$94,000  
*Pnn Invest* NASA Tech Officer CASE Category  
Jenkins, E. B. HQ-SC/Roman, N. G. 11-Astronomy  
HQ-SC/Weiler, E. J.

**NSG 1566** Rutgers University - New Brunswick 2873  
Assessment of geophysical algorithms and regional application of data (SEASAT 1)  
*Period* Obligations  
11/01/78-10/31/79 FY79: \$9,217 TOTAL: \$9,217  
*Pnn Invest* NASA Tech Officer CASE Category  
Delnore, V. E. LARC/Jones, W. L. 33-Oceanography  
LARC/Schroeder, L. C.

**NSG 3280** Rutgers University - New Brunswick 2874  
The physics of turbulent flow  
*Period* Obligations  
06/01/79-06/01/80 FY79: \$15,000 TOTAL: \$15,000  
*Pnn Invest* NASA Tech Officer CASE Category  
Johnson, J. A. LERC/Claus, R. W. 41-Aero Engr

**NSG 5195** Rutgers University - New Brunswick 2875  
Investigation of the detailed light curves using SAS-3  
*Period* Obligations  
08/01/77-01/31/79 FY79: TOTAL: \$10,690  
*Pnn Invest* NASA Tech Officer CASE Category  
Matilsky, T. A. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 7327** Rutgers University - New Brunswick 2876  
Research and studies of metal silicate relationships in howardite breccias  
*Period* Obligations  
02/01/77-01/31/80 FY79: \$28,024 TOTAL: \$81,084  
*Pnn Invest* NASA Tech Officer CASE Category  
Hewins, R. H. HQ-SL/French, B. M. 32-Geological Sci  
HQ-SL/Quaide, W. L.

**NSG 7601** Rutgers University - New Brunswick 2877  
Covection in spherical shells  
*Period* Obligations  
03/15/79-03/14/80 FY79: \$17,572 TOTAL: \$17,572  
*Pnn Invest* NASA Tech Officer CASE Category  
Zebib, A. HQ-SL/Dwornik, S. E. 32-Geological Sci  
HQ-SL/Boyce, J. M.

**NSG 9065** Rutgers University - New Brunswick 2878  
Flow behavior of extraterrestrial materials  
*Period* Obligations  
02/01/78-09/30/79 FY79: \$6,000 TOTAL: \$26,415  
*Pnn Invest* NASA Tech Officer CASE Category  
Klein, L. C. JSC/Harris, J. W. 32-Geological Sci

**NSG 1619** Stevens Institute of Technology 2879  
Free stream disturbances, continuum eigenfunctions boundary layer instability and transition  
*Period* Obligations  
05/16/79-05/15/80 FY79: \$25,000 TOTAL: \$25,000  
*Pnn Invest* NASA Tech Officer CASE Category  
Salwen, H. LARC/Bushnell, D. M. 41-Aero Engr  
LARC/Hefner, J. N.

**NSG 3180** Trenton State College 2880  
Analytical modeling of flash-back phenomena  
*Period* Obligations  
01/01/78-11/05/79 FY79: \$24,948 TOTAL: \$35,377  
*Pnn Invest* NASA Tech Officer CASE Category  
Feng, C. C. LERC/Marek, C. J. 46-Mech Engr

**NASA'S UNIVERSITY PROGRAM  
NEW MEXICO**

**NEW MEXICO**

**NGT 32-010-001** New Mexico Highlands University 2881  
Training of undergraduate students in sciences and engineering

<i>Period</i>	<i>Obligations</i>	
06/01/74-05/31/78	FY79:	TOTAL: \$49,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zenick, H.	HQ-LU/Pohly, J. G.	99-Multi-Discip
	HQ-U/Jenkins, H. G.	

**NAS 8-33341** New Mexico Institute of Mining & Tech 2882  
The size and structure of the corona of RT lacertae and the X-ray variability of HR1099

<i>Period</i>	<i>Obligations</i>	
02/22/79-05/21/80	FY79: \$12,000	TOTAL: \$12,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gibson, D. M.	MSFC/Jones, J. B., Jr.	11-Astronomy

**NCA 5-64** New Mexico Institute of Mining & Tech 2883  
Research of cometary and astrophysical sciences

<i>Period</i>	<i>Obligations</i>	
04/30/76-09/30/77	FY79:	TOTAL: \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moore, E. P.	GSFC/Hobbs, R. W.	11-Astronomy

**NCA 5-69** New Mexico Institute of Mining & Tech 2884  
Cometary observations and research activities

<i>Period</i>	<i>Obligations</i>	
08/23/76-12/31/80	FY79:	TOTAL: \$5,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moore, E. P.	GSFC/Hobbs, R. W.	11-Astronomy

**NCA 5-71** New Mexico Institute of Mining & Tech 2885  
Cometary and astrophysical research activities

<i>Period</i>	<i>Obligations</i>	
11/01/76-09/30/79	FY79: \$20,000	TOTAL: \$60,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moore, E. P.	GSFC/Hobbs, R. W.	11-Astronomy

**NAS 5-24241** New Mexico State University - Las Cruces 2886  
Sounding rocket support

<i>Period</i>	<i>Obligations</i>	
08/01/77-07/31/80	FY79: \$1,320,137	TOTAL: \$2,694,076
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lawrence, H.	GSFC/Pincus, B. R.	49-Engr. NEC
Connell, H.	GSFC/Windsor, M.	

**NAS 6-2885** New Mexico State University - Las Cruces 2887  
Refinement of grid adjustment software for contour mapping studies

<i>Period</i>	<i>Obligations</i>	
03/01/78-02/28/79	FY79:	TOTAL: \$49,970
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Guard, K.	WFC/Krabill, W. B.	32-Geological Sci
	WFC/Walsh, W. J.	

**NAS 9-95482** New Mexico State University - Las Cruces 2888  
Study to test and evaluate residual SEASAT hardware for possible implementation for the OFT-2 SAR antenna

<i>Period</i>	<i>Obligations</i>	
09/23/77-12/01/79	FY79	TOTAL: \$58,942
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Henry, D. G.	JSC/Nitschke, H. A.	39-Env Sci, NEC

**NAS 9-95497** New Mexico State University - Las Cruces 2889  
Feasibility study to determine if a dual polarized L-band antenna for MW systems can be developed using microstrip and honeycomb techniques

<i>Period</i>	<i>Obligations</i>	
07/09/79-09/30/79	FY79: \$13,769	TOTAL: \$13,769
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carver, K.	JSC/Fenner, R. G.	39-Env Sci, NEC

**NGI 32-003-001** New Mexico State University - Las Cruces 2890  
Photographic patrol and study of physical conditions on the moon and planets

<i>Period</i>	<i>Obligations</i>	
04/15/61-06/30/80	FY79: \$69,850	TOTAL: \$1,958,801
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Beebe, R. F.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Murphy, R. E.	

**NSG 7346** New Mexico State University - Las Cruces 2891  
Two station meteor patrol for orbit determination and spectroscopy

<i>Period</i>	<i>Obligations</i>	
07/11/77-06/30/78	FY79	TOTAL: \$9,043
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Beebe, H. A.	HQ-SL/Donn, B. D.	11-Astronomy
	HQ-SL/Brunk, W. E.	

**NSG 7622** New Mexico State University - Las Cruces 2892  
Speed-dependent collision effects on radar back-scattering from the ionosphere

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/80	FY79: \$27,000	TOTAL: \$27,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Theimer, O. H.	HQ-ST/Hedin, A. E.	19-Phys Sci, NEC
	HQ-ST/Schmerling, E. R.	

**NSG 3092** University of Albuquerque 2893  
In situ analysis of trace metal ion pollutants in natural waters

<i>Period</i>	<i>Obligations</i>	
01/05/76-07/05/78	FY79:	TOTAL: \$94,648
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Urzendowski, R. M.	LERC/Fordyce, J. S.	12-Chemistry

**NASW 2936** University of New Mexico 2894  
Operation of NASA's Industrial Applications Center

<i>Period</i>	<i>Obligations</i>	
07/01/76-09/30/79	FY79: \$250,000	TOTAL: \$798,864
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Unavailable	HQ-ET/Bivins, R. G.	99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM  
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**NASW 3243** University of New Mexico **2895**  
Three-day symposium on aeronautics and space  
*Period* *Obligations*  
01/26/79-06/11/79 FY79: \$24,736 TOTAL: \$24,736  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sanchez, R. S. HQ-U/Ludi, A. J. 41-Aero Engr  
Garrett, M. A. HQ-U/Catron, D. B.

**NAS13-109** University of New Mexico **2896**  
Conduct short courses in remote sensing  
*Period* *Obligations*  
03/29/79-01/28/80 FY79: \$15,931 TOTAL: \$15,931  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Morain, S. R. NSTL/Atwell, B. H. 32-Geological Sci

**NGL 32-004-011** University of New Mexico **2897**  
Comparative study of lunar craters and terrestrial volcano-tectonic  
depressions in rhyolite ash-flow plateaus  
*Period* *Obligations*  
10/12/64-12/31/79 FY79: TOTAL: \$395,800  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Elston, W. E. HQ-SL/Dwornik, S. E. 32-Geological Sci

**NGL 32-004-063** University of New Mexico **2898**  
Lunar sample analysis  
*Period* *Obligations*  
01/06/71-01/31/81 FY79: \$43,510 TOTAL: \$844,928  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Keil, K. JSC/Harris, J. W. 12-Chemistry

**NGL 32-004-064** University of New Mexico **2899**  
Mineralogy and chemistry of polymict-brecciated stone meteor-  
ites  
*Period* *Obligations*  
06/14/71-02/29/81 FY79: \$114,190 TOTAL: \$593,327  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Keil, K. HQ-SL/French, B. M. 32-Geological Sci  
Fodor, R. V. HQ-SL/Quaide, W. L.  
Taylor, G. J.

**NGR 32-004-062** University of New Mexico **2900**  
Search for evidence of dynamic process  
*Period* *Obligations*  
06/22/70-12/31/79 FY79: \$26,920 TOTAL: \$206,090  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Elston, W. E. HQ-SL/Dwornik, S. E. 32-Geological Sci  
HQ-SL/Boyce, J. M.

**NGT 32-004-770** University of New Mexico **2901**  
A precooperative education program  
*Period* *Obligations*  
07/25/77-07/24/80 FY79: \$12,000 TOTAL: \$32,208  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Etter, D. M. HQ-LU/Pohly, J. G. 49-Engr, NEC  
HQ-U/Jenkins, H. G.

**NSG 7579** University of New Mexico **2902**  
Chemical weathering on Mars  
*Period* *Obligations*  
03/01/79-09/30/79 FY79: \$27,230 TOTAL: \$27,230  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Keil, K. HQ-SL/Quaide, W. L. 31-Atmos Sci

**NEW YORK**

**NSG 2088** Adelphi University **2903**  
Study of the thin turbulent shear layers on the optical transfer  
function of an imaging system  
*Period* *Obligations*  
09/01/75-08/31/79 FY79: TOTAL: \$77,946  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Steinmetz, W. J. ARC/Buell, D. A. 12-Chemistry

**NSG 1378** Brooklyn College **2904**  
Research in medium and high energy atomic physics theory  
*Period* *Obligations*  
12/03/76-06/30/80 FY79: TOTAL: \$42,170  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Franco, V. LARC/Meador, W. E., Jr. 13-Physics  
Thomas, B. K. LARC/Wilson, J. W.

**NAS 1-15669** City College of New York **2905**  
Verification of SEASAT wind speed and direction objectives and  
demonstration of global capability for extratropical cyclones  
*Period* *Obligations*  
02/27/79-05/11/80 FY79: \$80,000 TOTAL: \$80,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Pierson, W. J. LARC/Schroeder, L. C.  
Salfi, R. K. LARC/Jones, W. L. 33-Oceanography

**NAS 9-13642** City College of New York **2906**  
Joint meteorological, oceanographic and sensor evaluation  
program Skylab experiment S-193  
*Period* *Obligations*  
07/01/73-01/31/78 FY79 TOTAL: \$389,008  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Pierson, W. J. JSC/Byrns, Z. H. 13-Physics

**NAS 9-13940** City College of New York **2907**  
Communication systems analysis study  
*Period* *Obligations*  
04/04/74-10/01/79 FY79: \$30,000 TOTAL: \$239,892  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Schilling, D. L. JSC/Lind, C. K. 45-Elec Engr  
Scheinberg, N.  
Davidovici, S.



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NEW YORK (Continued)**

**NGL 33-013-040** City College of New York **2908**  
Theoretical research in astrophysics and astronomy  
*Period* *Obligations*  
04/23/69-09/30/81 FY79: \$15,000 TOTAL: \$394,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Erlbach, E. GSFC/Canuto, V. 11-Astronomy  
GSFC/Stothers, R.

**NGR 33-013-086** City College of New York **2909**  
Models for large scale meteorological prediction experiments  
*Period* *Obligations*  
10/01/73-12/31/79 FY79: \$43,991 TOTAL: \$270,933  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Spar, J. GSFC/Hansen, J. E. 31-Atmos Sci

**NSG 1485** City College of New York **2910**  
Theory of strong turbulence by renormalization into repeated-cascade  
*Period* *Obligations*  
01/15/78-01/14/80 FY79: \$28,398 TOTAL: \$53,398  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tchen, C. M. LARC/Hess, R. V. 39-Env Sci, NEC  
LARC/Maestrello, L.

**NSG 2348** City College of New York **2911**  
Theoretical problems of spiral galaxies  
*Period* *Obligations*  
11/01/78-11/30/79 FY79: \$39,926 TOTAL: \$39,926  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Yuan, C. ARC/Black, D. C. 11-Astronomy  
ARC/Smith, B. F.

**NSG 3174** City College of New York **2912**  
Analysis of turbulent coaxial flow with international energy generation  
*Period* *Obligations*  
10/03/77-01/31/80 FY79: TOTAL: \$78,583  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Weinstein, H. LERC/Braun, W. H. 49-Engr, NEC

**NSG 5013** City College of New York **2913**  
Efficient processing of video signals  
*Period* *Obligations*  
06/15/74-09/30/79 FY79: TOTAL: \$195,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Schilling, D. L. GSFC/Kahle, D. R. 45-Elec Engr

**NSG 5334** City Univ of Ny - Grad School & Univ Cen **2914**  
Relativistic effects in atoms  
*Period* *Obligations*  
02/01/79-01/31/80 FY79: \$19,935 TOTAL: \$19,935  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Mittleman, M. H. GSFC/Terkin, A. 13-Physics

**NAS 8-32944** Clarkson College of Technology **2915**  
Experiment for materials processing in space, physical phenomena in containerless glass processing  
*Period* *Obligations*  
02/23/78-02/23/83 FY79: \$107,000 TOTAL: \$255,502  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Subramanian, R. S. MSFC/Williams, J. R. 13-Physics  
Cole, R. MSFC/Johnson, J. L.

**NSG 1572** Clarkson College of Technology **2916**  
Convection effects during Bridgman growth of semiconductors  
*Period* *Obligations*  
12/01/78-04/09/80 FY79: \$43,981 TOTAL: \$43,981  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Carlson, F. LARC/Crouch, R. K. 13-Physics  
Wilcox, W. R. LARC/Fripp, A. L.

**NSG 3191** Clarkson College of Technology **2917**  
Design of a microprocessor-based high speed space borne message switch  
*Period* *Obligations*  
04/15/78-04/14/80 FY79: \$38,982 TOTAL: \$38,982  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Arozullah, M. LERC/Rotnem, J. O. 45-Elec Engr  
Christ, S. C.

**NSG 9059** Clarkson College of Technology **2918**  
Light flash phenomena induced by haze particles  
*Period* *Obligations*  
09/01/77-02/29/80 FY79: TOTAL: \$34,331  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
McNulty, P. JSC/Barnes, C. M. 13-Physics  
Pease, V.

**NAS 5-24152** Columbia University **2919**  
Data reduction and analysis of graphite crystal X-ray spectrometer OSO-I  
*Period* *Obligations*  
10/01/77-01/30/80 FY79: \$228,831 TOTAL: \$355,351  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Novick, R. GSFC/Gemmell, J. D. 11-Astronomy  
GSFC/Kupperian, J. E., Jr.

**NAS 5-24457** Columbia University **2920**  
Solar flare X-ray polarimeter experiment  
*Period* *Obligations*  
02/22/78-10/31/81 FY79: \$230,255 TOTAL: \$892,255  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Novick, R. GSFC/Eiband, A. M. 11-Astronomy  
Chanan, G. A.

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NAS 5-25422** Columbia University **2921**  
 Technical services operations and materials for the acquisitions,  
 processing and cataloging of books, periodicals and other literature  
 for Goddard Institute for Space Studies (GISS)  
*Period* *Obligations*  
 04/01/79-03/31/80 FY79: \$27,533 TOTAL: \$27,533  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Yavarkovsky, J. GSFC/Jennings, N. 99-Multi-Discip

**NAS 6-2519** Columbia University **2922**  
 GEOS-C research  
*Period* *Obligations*  
 10/16/74-07/31/78 FY79: TOTAL: \$283,517  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Talwani, M. WFC/Stanley, H. R. 32-Geological Sci  
 Watts, A. B. WFC/Rossi, L. C.

**NAS 8-30753** Columbia University **2923**  
 Design, development and operation of the HEAO mission B X-ray  
 telescope experiment  
*Period* *Obligations*  
 06/01/74-12/31/79 FY79: \$133,000 TOTAL: \$378,451  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Novick, R. MSFC/Manning, H. S. 11-Astronomy  
 Angel, J. R. MSFC/Hughes, J. C.  
 Kestenbaum, H. L.

**NAS 8-32212** Columbia University **2924**  
 Space vehicle control system  
*Period* *Obligations*  
 09/01/76-10/31/79 FY79: TOTAL: \$20,054  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Likins, P. A. MSFC/Seltzer, S. M. 19-Phys Sci, NEC  
 Longman, R. MSFC/Shelton, H. L.

**NAS 8-33378** Columbia University **2925**  
 Acoustic and gravity waves in the neutral atmosphere and the  
 ionosphere  
*Period* *Obligations*  
 04/18/79-04/17/80 FY79: \$77,618 TOTAL: \$77,618  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Balachandran, N. K. MSFC/West, G. S., Jr 31-Atmos Sci  
 MSFC/Thomas, P. E.

**NCC 1 5** Columbia University **2926**  
 The influence of auditory inputs on simulated flight operations  
*Period* *Obligations*  
 04/15/79-10/31/79 FY79: \$38,286 TOTAL: \$38,286  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Galanter, E. LARC/Harris, R. L., Sr. 41-Aero Engr

**NCC 5 3** Columbia University **2927**  
 Research of the relationship between gravity and bathymetry in  
 the Pacific Ocean  
*Period* *Obligations*  
 04/01/79-03/31/80 FY79: \$50,000 TOTAL: \$50,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Watts, A. B. GSFC/Wagner, C. A. 32-Geological Sci  
 McKenzie, D. P.

**NCC 5 16** Columbia University **2928**  
 Multidisciplinary research in space science  
*Period* *Obligations*  
 05/15/79-06/30/80 FY79: \$324,506 TOTAL: \$324,506  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Broecker, W. S. GSFC/Thaddeus, P. 31-Atmos Sci  
 Flynn, G. W.

**NGR 33-008-102** Columbia University **2929**  
 Research in X-ray astronomy  
*Period* *Obligations*  
 01/30/68-12/31/80 FY79: \$250,000 TOTAL: \$2,208,342  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Novick, R. GSFC/Bissell, E. E. 11-Astronomy  
 Long, K. S. HQ-SC/Opp, A. G.  
 Helfand, D. J.

**NGR 33-008-146** Columbia University **2930**  
 Study of strain buildup, release and earthquake prediction  
*Period* *Obligations*  
 02/09/71-04/30/80 FY79: \$36,995 TOTAL: \$555,486  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Scholz, C. H. GSFC/Smith, D. E. 19-Phys Sci, NEC  
 Johnson, T. L.  
 Bilham, R. G.

**NGR 33-008-177** Columbia University **2931**  
 Lunar sample analysis  
*Period* *Obligations*  
 11/01/72-09/30/79 FY79: \$7,000 TOTAL: \$144,040  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Horai, K. JSC/Harris, J. W. 13-Physics

**NSG 1450** Columbia University **2932**  
 Aircraft cabin noise, prediction and optimization  
*Period* *Obligations*  
 09/06/77-01/05/81 FY79 \$111,446 TOTAL: \$160,712  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Vaicaitis, R. LARC/Mixson, J. S. 41-Aero Engr  
 LARC/Stephens, D. G.

**NSG 1541** Columbia University **2933**  
 Influence of auditory inputs on simulated flight operations  
*Period* *Obligations*  
 06/15/78-06/30/79 FY79: TOTAL: \$73,794  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Galanter, E. LARC/Harris, R. L., Sr. 41-Aero Engr  
 LARC/Bergeron, H. P.

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**NSG 1550** Columbia University 2934  
Time-of-day effects on the numerical representation of community response to noise

<i>Period</i>	<i>Obligations</i>	
07/01/78-06/30/80	FY79: \$49,527	TOTAL: \$98,390
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Galanter, E.	LARC/Stephens, D. G.	49-Engr, NEC
	LARC/Cawthorn, J. M.	

**NSG 5200** Columbia University 2941  
Sounding rocket-borne X-ray research of temporal and spectral features

<i>Period</i>	<i>Obligations</i>	
08/01/77-07/31/78	FY79:	TOTAL: \$3,999
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Novick, R.	GSFC/Kupperian, J. E., Jr.	11-Astronomy
Wolff, R. S.		

**NSG 1616** Columbia University 2935  
Development of a detailed plan for a comprehensive field survey on community response to noise

<i>Period</i>	<i>Obligations</i>	
05/08/79-02/07/80	FY79: \$80,000	TOTAL: \$80,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Borsky, P. N.	LARC/Stephens, D. G.	49-Engr, NEC

**NSG 5222** Columbia University 2942  
Remote spectral analysis of mineral induced plant stress using airborne techniques

<i>Period</i>	<i>Obligations</i>	
01/16/78-07/15/79	FY79: \$31,294	TOTAL: \$55,332
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kuo, J. T.	GSFC/Labovitz, M.	32-Geological Sci
Collins, W. E.	GSFC/Schnetzler, C. C.	

**NSG 3050** Columbia University 2936  
Creep and stress rupture behavior of oxide dispersion strengthened super alloys

<i>Period</i>	<i>Obligations</i>	
06/01/75-11/30/78	FY79:	TOTAL: \$116,549
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tien, J. K.	LERC/Glasgow, T. K.	47-Materials Engr

**NSG 5273** Columbia University 2943  
Application of GEOS-3 altimeter data to solution of problems in earth dynamics

<i>Period</i>	<i>Obligations</i>	
07/01/78-06/30/79	FY79:	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Talwani, M.	GSFC/Smith, D. E.	32-Geological Sci
Watts, A. B.		

**NSG 5072** Columbia University 2937  
Surface deformation and elasticity studies

<i>Period</i>	<i>Obligations</i>	
08/01/75-01/31/79	FY79:	TOTAL: \$97,766
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bilham, R. G.	GSFC/Allenby, R. J.	32-Geological Sci
	GSFC/Mead, G. D.	

**NSG 7105** Columbia University 2944  
Calculation of collision cross sections of astrophysical interest

<i>Period</i>	<i>Obligations</i>	
12/01/74-11/30/79	FY79: \$35,000	TOTAL: \$178,056
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Flynn, G. W.	HQ-SC/Boggett, N. W.	11-Astronomy
	HQ-SC/Roman, N. G.	

**NSG 5080** Columbia University 2938  
Application of LANDSAT data to agricultural resource problems

<i>Period</i>	<i>Obligations</i>	
08/15/75-11/30/79	FY79: \$80,041	TOTAL: \$304,414
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
High, C. J.	GSFC/Ungar, S. G.	32-Geological Sci
Goward, S. N.		

**NSG 7194** Columbia University 2945  
A critical study of constraints imposed by existing observational data

<i>Period</i>	<i>Obligations</i>	
02/01/76-01/31/79	FY79:	TOTAL: \$93,855
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Keilm, S. J.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. E.	

**NSG 5163** Columbia University 2939  
Multidisciplinary research in the space studies

<i>Period</i>	<i>Obligations</i>	
03/01/77-09/30/79	FY79: \$90,400	TOTAL: \$928,435
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Happner, W.	GSFC/Thaddeus, P.	11-Astronomy
Broecker, W. S.	GSFC/Hansen, J. E.	

**NSG 7200** Columbia University 2946  
Rare-earth element abundance studies of chondritic meteorites

<i>Period</i>	<i>Obligations</i>	
03/01/76-04/30/79	FY79:	TOTAL: \$133,907
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Onions, R. K.	HQ-SL/French, B. M.	32-Geological Sci
Ridley, W. I.	HQ-SL/Quaide, W. L.	
Evenson, N. M.		

**NSG 5168** Columbia University 294:  
Simultaneous observations of the ultraviolet spectrum, the optical spectrum and the optical polarization of Orions

<i>Period</i>	<i>Obligations</i>	
04/01/77-03/31/78	FY79:	TOTAL: \$5,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hayes, D. P.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

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**NSG 7248** **Columbia University** **2947**  
Detailed studies of time variability of the galactic X-ray sources  
Cygnus X-1 and Scorpius X-1  
*Period* *Obligations*  
06/15/76-12/14/77 **FY79:** **TOTAL: \$20,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Weisskopf, M. C. HQ-SC/Sofia, S. 11-Astronomy  
HQ-SC/Opp, A. G.

**NSG 7434** **Columbia University** **2948**  
Phase stability and elastic wave velocity determinations for  
stoichiometric FeS  
*Period* *Obligations*  
02/01/78-01/31/80 **FY79:** **TOTAL: \$63,123**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Takahashi, T. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. E.

**NSG 7466** **Columbia University** **2949**  
Petrogenesis of chondrules and chondrites  
*Period* *Obligations*  
05/01/78-03/31/80 **FY79: \$62,149** **TOTAL: \$100,445**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Onions, R. K. HQ-SL/French, B. E. 32-Geological Sci  
HQ-SL/Quaide, W. L.

**NAS 1-9683** **Cornell University** **2950**  
Participation in the science planning for the Viking 1975 missions  
in the area of imaging  
*Period* *Obligations*  
04/08/70-09/30/78 **FY79:** **TOTAL: \$452,985**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sagan, C. E. LARC/Williams, T. S., Jr. 99-Multi-Discip  
LARC/Glenny, W. R.

**NAS 5-23236** **Cornell University** **2951**  
Feasibility study for infrared interferometer, spectrometer, &  
radiometer for Mariner/Jupiter 1977 launch  
*Period* *Obligations*  
05/01/73-10/31/81 **FY79: \$16,000** **TOTAL: \$61,300**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gierasch, P. J. GSFC/Conrath, B. J. 13-Physics  
GSFC/Hanel, R. A.

**NAS 5-23785** **Cornell University** **2952**  
Investigation of atmospheric planetary dynamics  
*Period* *Obligations*  
10/27/76-10/26/78 **FY79: \$12,000** **TOTAL: \$12,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gierasch, P. J. GSFC/Pirraglia, J. A. 31-Atmos Sci

**NCA 2-175801** **Cornell University** **2953**  
Interactions of planetary satellites: The capture and tidal  
acceleration of moons, and the dynamics of circumplanetary  
dust  
*Period* *Obligations*  
01/01/78-12/31/79 **FY79: \$7,480** **TOTAL: \$13,730**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Burns, J. A. ARC/Pollack, J. B. 11-Astronomy

**NCC 5 2** **Cornell University** **2954**  
Finite element research of the surface field adjacent to the San  
Andreas fault  
*Period* *Obligations*  
04/01/79-03/31/80 **FY79: \$31,899** **TOTAL: \$31,899**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Turcotte, D. L. GSFC/Cohen, S. C. 11-Astronomy  
Kulhawy, F. H.

**NCC 5 4** **Cornell University** **2955**  
Research of precise leveling, space geodesy and geodynamics  
*Period* *Obligations*  
04/01/79-03/31/80 **FY79: \$60,000** **TOTAL: \$60,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Oliver, J. GSFC/Allenby, R. J. 32-Geological Sci  
Brown, L. D.

**NGL 33-010-082** **Cornell University** **2956**  
The study of lunar and planetary surfaces and atmospheres  
*Period* *Obligations*  
09/23/68-08/31/80 **FY79: \$32,500** **TOTAL: \$723,718**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sagan, C. E. HQ-SL/Murphy, R. E. 31-Atmos Sci  
HQ-SL/Brunk, W. E.

**NGL 33-010-171** **Cornell University** **2957**  
A program in remote sensing  
*Period* *Obligations*  
02/14/72-05/31/82 **FY79: \$100,000** **TOTAL: \$900,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Liang, T. HQ-ET/Vitale, J. A. 39-Env Sci, NEC

**NGL 33-010-186** **Cornell University** **2958**  
Studies of thermal structure and motion of planetary at-  
mospheres  
*Period* *Obligations*  
04/18/73-06/14/81 **FY79: \$72,649** **TOTAL: \$267,509**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gierasch, P. J. HQ-SL/Murphy, R. E. 31-Atmos Sci  
HQ-SL/Brunk, W. E.

**NGR 33-010-081** **Cornell University** **2959**  
2 to 4 micron spectroscopy of Mars  
*Period* *Obligations*  
03/01/73-11/01/79 **FY79: \$104,690** **TOTAL: \$378,587**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Houck, J. R. ARC/Haughney, L. C. 11-Astronomy  
Forrest, W. J.  
Pollack, J. B.

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**NGR 33-010-101** **Cornell University** **2960**  
An integrated program in exobiology and problems related to origin of life  
*Period* *Obligations*  
10/09/69-09/30/79 **FY79: \$80,000** **TOTAL: \$779,945**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sagan, C. E. HQ-SB/Young, R. S. 12-Chemistry  
Khare, B. N.

**NGR 33-010-220** **Cornell University** **2967**  
Interdisciplinary investigations of Mariner 9 data  
*Period* *Obligations*  
12/05/73-09/31/79 **FY79: \$54,600** **TOTAL: \$307,791**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sagan, C. E. HQ-SL/Dwornik, S. E. 32-Geological Sci  
HQ-SL/Boyce, J. M.

**NGR 33-010-108** **Cornell University** **2961**  
Implications of convection within the moon  
*Period* *Obligations*  
05/18/70-01/31/80 **FY79: \$28,000** **TOTAL: \$199,220**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Turcotte, D. L. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. E.

**NSG 1642** **Cornell University** **2968**  
Fabrication of GAINASP microwave transistors  
*Period* *Obligations*  
07/15/79-07/14/80 **FY79: \$49,535** **TOTAL: \$49,535**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Frey, J. LARC/Hutchby, J. A. 45-Elec Engr  
LARC/Hendricks, H. D.

**NGR 33-010-146** **Cornell University** **2962**  
Submillimeter astronomical spectrometry from aircraft  
*Period* *Obligations*  
02/16/72-10/30/79 **FY79: \$10,000** **TOTAL: \$242,714**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Harwit, M. O. ARC/Cameron, R. M. 11-Astronomy  
ARC/Mason, R. H.

**NSG 1651** **Cornell University** **2969**  
Holographic fabrication of gratings in metal substrates  
*Period* *Obligations*  
08/15/79-08/14/80 **FY79: \$55,975** **TOTAL: \$55,975**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ballantyne, J. M. LARC/Cowway, E. J. 45-Elec Engr  
Wagner, D. K. LARC/Walker, G. H.

**NGR 33-010-161** **Cornell University** **2963**  
Studies of the magnetospheres of Earth and Jupiter  
*Period* *Obligations*  
01/18/72-06/30/79 **FY79: \$60,000** **TOTAL: \$287,790**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Farley, D. T. HQ-ST/Kaiser, M. L. 13-Physics  
HQ-ST/Schmerling, E. R.

**NSG 2331** **Cornell University** **2970**  
Broadband rotor noise  
*Period* *Obligations*  
08/15/78-03/01/79 **FY79:** **TOTAL: \$2,373**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
George, A. R. ARC/Yu, Y. H. 41-Aero Engr  
ARC/Schmitz, F. H.

**NGR 33-010-182** **Cornell University** **2964**  
16 to 40 micron spectroscopy of Jupiter  
*Period* *Obligations*  
12/20/72-10/31/80 **FY79: \$10,000** **TOTAL: \$245,084**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Houck, J. R. ARC/Cameron, R. M. 11-Astronomy  
Forrest, W. J. ARC/Mason, R. H.  
Pollack, J. B.

**NSG 2347** **Cornell University** **2971**  
Far infrared spectral line observations from the G. P. Kuiper airborne observatory  
*Period* *Obligations*  
10/01/78-10/31/79 **FY79 \$90,500** **TOTAL: \$90,500**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Harwit, M. O. ARC/Haughney, L. C. 11-Astronomy

**NGR 33-010-188** **Cornell University** **2965**  
Astrophysical material science theory  
*Period* *Obligations*  
08/01/72-09/30/78 **FY79:** **TOTAL: \$236,371**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ashcroft, N. W. LERC/Flood, D. J. 13-Physics  
Krumhansl, J. A.

**NSG 2360** **Cornell University** **2972**  
Helicopter blade-vortex interaction and broadband noise  
*Period* *Obligations*  
02/01/79-08/31/80 **FY79: \$34,807** **TOTAL: \$34,807**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
George, A. R. ARC/Schmitz, F. H. 41-Aero Engr

**NGR 33-010-189** **Cornell University** **2966**  
Ultra pressure materials science  
*Period* *Obligations*  
08/01/75-09/30/78 **FY79:** **TOTAL: \$677,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ruoff, A. L. LERC/Aron, P. R. 47-Materials Engr

**NSG 2382** **Cornell University** **2973**  
A study to assess the potential for using long chain polymers dissolved in water to study turbulence  
*Period* *Obligations*  
05/01/79-05/31/80 **FY79: \$25,000** **TOTAL: \$25,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lumley, J. L. ARC/Chapman, G. T. 41-Aero Engr

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**NSG 2389** **Cornell University** **2974**  
An evaluation of metal oxide semiconductor field effect transistor and metal semiconductor field effect transistor devices as preamplifiers at liquid helium temperatures

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/80	FY79: \$29,751	TOTAL: \$29,751
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lee, C. A.	ARC/McCreight, C. R.	45-Elec Engr
Houck, J. R.	ARC/Lum, H.	

**NSG 2399** **Cornell University** **2975**  
Hydrogen and fatigue properties of steel

<i>Period</i>	<i>Obligations</i>	
08/15/79-08/14/80	FY79: \$45,000	TOTAL: \$45,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Johnson, H. H.	ARC/Nelson, H. G.	47-Materials Engr

**NSG 2408** **Cornell University** **2976**  
Aerobic biological waste treatment for closed ecological life support systems

<i>Period</i>	<i>Obligations</i>	
09/15/79-01/14/80	FY79: \$15,000	TOTAL: \$15,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shuler, M. L.	ARC/Wydeven, T. J.	39-Env Sci, NEC

**NSG 3019** **Cornell University** **2977**  
Flow processes in combustors

<i>Period</i>	<i>Obligations</i>	
07/01/74-07/31/81	FY79: \$65,000	TOTAL: \$456,102
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gouldin, F. C.	LERC/Marek, C. J.	41-Aero Engr
Leibovich, S.	LERC/Diehl, L. A.	
McLean, W. J.		

**NSG 5060** **Cornell University** **2978**  
Comparison between calculated gravity anomalies for dynamic processes in the mantle and observations

<i>Period</i>	<i>Obligations</i>	
04/01/75-09/30/79	FY79:	TOTAL: \$110,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Turcotte, D. L.	GSAFC/Cohen, S. C.	32-Geological Sci

**NSG 6020** **Cornell University** **2979**  
Rocket investigation of neutral atmosphere ionosphere coupling and planetary electrodynamic

<i>Period</i>	<i>Obligations</i>	
03/01/78-02/29/80	FY79: \$57,048	TOTAL: \$108,023
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wray, J. D.	WFC/Gray, J. W.	19-Phys Sci, NEC
Henize, K. G.	WFC/Pless, R. H.	

**NSG 7126** **Cornell University** **2980**  
High spatial resolution multicolor observation of Neptune during occultation by the Moon

<i>Period</i>	<i>Obligations</i>	
01/01/75-03/31/79	FY79:	TOTAL: \$108,428
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Veverka, J.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Quaide, W. L.	

**NSG 7156** **Cornell University** **2981**  
Physical studies of planetary surfaces

<i>Period</i>	<i>Obligations</i>	
07/01/75-09/30/80	FY79: \$44,231	TOTAL: \$141,231
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Veverka, J.	HQ-SL/Boyce, J. M.	32-Geological Sci
	HQ-SL/Quaide, W. L.	

**NSG 7235** **Cornell University** **2982**  
Light-induced amino acid transport by envelope vesicles of halobacterium halobium cells

<i>Period</i>	<i>Obligations</i>	
03/01/76-01/31/80	FY79:	TOTAL: \$100,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
MacDonald, R. E.	HQ-SB/Young, R. S.	51-Biological Sci

**NSG 7268** **Cornell University** **2983**  
Gravitational time delay in orthogonally polarized radiation passing by the sun

<i>Period</i>	<i>Obligations</i>	
09/01/76-08/31/78	FY79:	TOTAL: \$29,980
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Harwit, M. O.	HQ-SL/Kochendorfer, F. D.	
	HQ-SC/Opp, A. G.	32-Geological Sci

**NSG 7324** **Cornell University** **2984**  
Bolometer system

<i>Period</i>	<i>Obligations</i>	
04/01/77-07/31/79	FY79: \$28,370	TOTAL: \$88,270
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Houck, J. R.	HQ-SC/Bogges, N. W.	11-Astronomy
	HQ-SC/Roman, N. G.	

**NSG 7348** **Cornell University** **2985**  
Analysis of erosion and transportation features from lunar orbiter and Apollo photography

<i>Period</i>	<i>Obligations</i>	
06/15/77-07/31/78	FY79:	TOTAL: \$23,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gold, T.	HQ-SL/Goldstein, B. E.	
	HQ-SL/Quaide, W. L.	32-Geological Sci

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**NSG 7445** **Cornell University** **2986**  
Consequences of past lunar tides, heating surface processes and orbital evolution

<i>Period</i>	<i>Obligations</i>	
04/01/78-04/30/80	FY79: \$27,263	TOTAL: \$48,863
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burns, J. A.	HQ-SL/Quaide, W. E.	31-Atmos Sci
	HQ-SL/French, B. M.	

**NSG 7593** **Cornell University** **2993**  
Dynamical studies of Phobos and Deimos

<i>Period</i>	<i>Obligations</i>	
03/01/79-02/29/80	FY79: \$20,452	TOTAL: \$20,452
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burns, J. A.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/Dwornik, S. E.	

**NSG 7487** **Cornell University** **2987**  
Astrophysical materials science theory

<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/79	FY79: \$65,000	TOTAL: \$65,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ashcroft, N. W.	HQ-RS/Lundholm, J. G., Jr.	13-Physics
Oliva, J.		

**NSG 7606** **Cornell University** **2994**  
Effects of photometric geometry on spectral reflectance measurements

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY79: \$42,210	TOTAL: \$42,210
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Veverka, J.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. M.	

**NSG 7488** **Cornell University** **2988**  
Research on ultrahigh pressure materials science

<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/79	FY79: \$200,000	TOTAL: \$200,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ruoff, A. L.	HQ-RS/Lundholm, J. G., Jr.	47-Materials Engr

**NSG 7612** **Cornell University** **2995**  
Participation in the Mars data analysis program: Analysis of cloud forms in Viking and Mariner 9 images

<i>Period</i>	<i>Obligations</i>	
04/01/79-09/30/79	FY79: \$20,000	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gierasch, P. J.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

**NSG 7498** **Cornell University** **2989**  
Establish and operate a Spacecraft Planetary Imagery Facility (SPIF) at Cornell

<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/80	FY79: \$85,247	TOTAL: \$85,247
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Veverka, J.	HQ-SL/Boyce, J. M.	32-Geological Sci
	HQ-SL/Quaide, W. L.	

**NSG 2259** **Cornell University - Medical Center** **2996**  
Central neural and neurochemical mechanisms subserving postural cardiovascular changes

<i>Period</i>	<i>Obligations</i>	
10/01/77-09/30/80	FY79: \$50,000	TOTAL: \$150,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Reis, D. J.	ARC/Keil, L. C.	59-Life Sci, NEC

**NSG 7529** **Cornell University** **2990**  
Phylogeny of photosynthetic bacteria

<i>Period</i>	<i>Obligations</i>	
02/01/79-01/31/80	FY79: \$9,363	TOTAL: \$9,363
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gibson, J.	HQ-SB/Young, R. S.	51-Biological Sci

**NSG 5325** **Hunter College** **2997**  
Monitoring tropical vegetation succession with LANDSAT data

<i>Period</i>	<i>Obligations</i>	
02/01/79-01/31/80	FY79: \$10,727	TOTAL: \$10,727
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coiner, J. C.	GSFC/Ungar, S. G.	32-Geological Sci

**NSG 7546** **Cornell University** **2991**  
Participation in the Mars data analysis program: Global & regional studies of wind-indicators on the surface of Mars

<i>Period</i>	<i>Obligations</i>	
04/01/79-09/30/80	FY79: \$30,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Veverka, J.	HQ-SL/Boyce, J. M.	32-Geological Sci
	HQ-SL/Quaide, W. L.	

**NAS 8-33099** **New York University** **2998**  
Electrophoresis separation (77-E)

<i>Period</i>	<i>Obligations</i>	
08/21/78-05/05/79	FY79:	TOTAL: \$5,354
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Johnson, A. J.	MSFC/Reeves, F. A.	59-Life Sci, NEC
	MSFC/Snyder, R. S.	

**NSG 7547** **Cornell University** **2992**  
Participation in the Mars data analysis comparative study of the surface of Phobos and Deimos

<i>Period</i>	<i>Obligations</i>	
03/01/79-09/30/80	FY79: \$25,000	TOTAL: \$25,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Veverka, J.	HQ-SL/Boyce, J. M.	32-Geological Sci
	HQ-SL/Quaide, W. L.	

**NCA 2-525901** **New York University** **2999**  
Application of high order accurate compact implicit methods to hyperbolic conservation laws

<i>Period</i>	<i>Obligations</i>	
06/01/79-08/31/79	FY79: \$12,384	TOTAL: \$12,384
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Harten, A.	ARC/Warming, R. F.	21-Mathematics

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**NGR 33-016-131** **New York University** **3000**  
Hypersonic engine airplane integration  
*Period* *Obligations*  
02/27/68-12/31/79 FY79: \$78,978 TOTAL: \$1,275,478  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Agnone, A. M. LARC/Huber, P. W. 41-Aero Engr  
LARC/Anderson, G. Y.

**NGR 33-016-196** **New York University** **3001**  
Physical properties of molecular clouds  
*Period* *Obligations*  
09/01/73-10/31/79 FY79: \$35,850 TOTAL: \$168,646  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Glassgold, A. E. HQ-SC/Roman, N. G. 13-Physics  
HQ-SC/Rosendhal, J. D.

**NGR 33-016-201** **New York University** **3002**  
Study of transonic flow over yawed wings  
*Period* *Obligations*  
05/29/73-10/31/79 FY79: \$50,000 TOTAL: \$303,127  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Garabedian, P. R. ARC/Hicks, R. M. 41-Aero Engr  
Jameson, A.  
Bauer, F.

**NSG 1444** **New York University** **3003**  
An experimental and analytical investigation of the aerodynamics of a hypersonic vehicle  
*Period* *Obligations*  
08/01/77-03/31/80 FY79: \$45,000 TOTAL: \$227,987  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Zakkay, V. LARC/Edwards, C. L. 41-Aero Engr  
Wang, C. R. LARC/Johnston, P. J.

**NSG 1469** **New York University** **3004**  
Scattering of acoustic waves by a body in motion  
*Period* *Obligations*  
12/01/77-05/31/80 FY79: \$35,000 TOTAL: \$70,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ting, L. LARC/Liu, C. H. 41-Aero Engr  
LARC/Maestrello, L.

**NSG 1576** **New York University** **3005**  
Nonlinear wave propagation and super boom analysis  
*Period* *Obligations*  
11/15/78-03/14/80 FY79: \$35,750 TOTAL: \$35,750  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ting, L. LARC/Darden, C. M. 13-Physics  
LARC/Carlson, H. W.

**NSG 1579** **New York University** **3006**  
Computational fluid dynamics on the star  
*Period* *Obligations*  
12/01/78-11/30/79 FY79: \$150,000 TOTAL: \$150,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Garabedian, P. R. LARC/South, J. C., Jr 21-Mathematics

**NSG 1610** **New York University** **3007**  
Definition and implementation of a compatible family of high level languages for coordination and control of concurrent and distributed processes in imbedded avionics and space applications  
*Period* *Obligations*  
04/15/79-04/14/80 FY79: \$48,250 TOTAL: \$48,250  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Schwartz, J. T. LARC/Knight, J. C. 21-Mathematics  
LARC/Harris, J. L.

**NSG 3059** **New York University** **3008**  
Analysis of experiments on hydrodynamic instability in the absence of gravity  
*Period* *Obligations*  
06/01/75-12/31/79 FY79: \$5,000 TOTAL: \$61,614  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Keller, J. B. LERC/Labus, T. L. 49-Engr, NEC

**NSG 5034** **New York University** **3009**  
Research program in climatology and meteorology  
*Period* *Obligations*  
01/01/75-11/30/79 FY79: \$122,000 TOTAL: \$423,113  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Isaacson, E. GSFC/Halem, M. 31-Atmos Sci  
Stoker, J. J., Jr.

**NSG 5130** **New York University** **3010**  
Short-term numerical weather prediction and very long term climate modeling  
*Period* *Obligations*  
10/01/76-09/30/81 FY79: \$50,000 TOTAL: \$70,312  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Isaacson, E. GSFC/Halem, M. 31-Atmos Sci  
Ghil, M.

**NSG 5133** **New York University** **3011**  
Air/sea interaction analysis applied to SFASAT data algorithm  
*Period* *Obligations*  
10/01/76-01/31/79 FY79: TOTAL: \$88,094  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hoffert, M. I. GSFC/Halem, M. 39-Env. Sci, NEC

**NSG 5411** **New York University** **3012**  
Multifrequency observations of selected galaxies and extragalactic sources  
*Period* *Obligations*  
10/01/79-09/30/80 FY79: \$5,000 TOTAL: \$5,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Huggins, P. J. GSFC/Boggess, A. 11-Astronomy



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**NSG 7591**                      **New York University**                      **3013**  
Modeling the Viking boundary layer and soil thermal measurements on Mars

<i>Period</i>	<i>Obligations</i>	
03/01/79-10/31/79	FY79: \$15,000	TOTAL: \$15,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hoffert, M. I.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

**NSG 7636**                      **New York University**                      **3014**  
Conduct research on the effectiveness of government-sponsored civilian research and development

<i>Period</i>	<i>Obligations</i>	
07/01/79-05/30/81	FY79: \$168,524	TOTAL: \$168,524
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fusfeld, H. I.	HQ-ET/Roberson, F. I.	99-Multi-Discip
Nelson, R. R.	HQ-ET/Ault, L. A.	

**NAS 5-25076**                      **Polytechnic Institute of New York**                      **3015**  
Wave propagation study

<i>Period</i>	<i>Obligations</i>	
06/01/78-04/01/79	FY79:	TOTAL: \$15,700
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gross, S. H.	GSFC/Pirraglia, J. A.	31-Atmos Sci

**NGR 33-006-068**                      **Polytechnic Institute of New York**                      **3016**  
Study of escape of gases from comets, planets, and satellites

<i>Period</i>	<i>Obligations</i>	
12/26/72-12/31/78	FY79:	TOTAL: \$198,118
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gross, S. H.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

**NGR 33-006-070**                      **Polytechnic Institute of New York**                      **3017**  
Synthesis of polypeptides, sugar phosphates and polynucleotides from intermediates under simulated conditions

<i>Period</i>	<i>Obligations</i>	
04/26/73-06/14/80	FY79: \$49,955	TOTAL: \$319,903
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Eirich, F. R.	HQ-SB/Young, R. S.	12-Chemistry

**NSG 1248**                      **Polytechnic Institute of New York**                      **3018**  
Calculation of supersonic flow past aircraft with shocks

<i>Period</i>	<i>Obligations</i>	
10/01/75-10/31/79	FY79: \$60,016	TOTAL: \$217,991
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Moretti, G.	LARC/Salas, M. D.	41-Aero Engr

**NSG 1559**                      **Polytechnic Institute of New York**                      **3019**  
Spine collocation for viscous flow over after body configurations

<i>Period</i>	<i>Obligations</i>	
11/01/78-10/31/79	FY79:	TOTAL: \$32,992
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rubin, S. G.	LARC/Swanson, R. C.	41-Aero Engr
	LARC/Putnam, L. E.	

**NSG 2147**                      **Polytechnic Institute of New York**                      **3020**  
Exploratory synthesis of new fire-safe polymeric materials

<i>Period</i>	<i>Obligations</i>	
05/01/76-05/31/80	FY79: \$43,664	TOTAL: \$236,588
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pearce, E. M.	ARC/Fohlen, G. M.	12-Chemistry
Zeldin, M.	ARC/Heimbuch, A. H.	
Emert, J.		

**NSG 2361**                      **Polytechnic Institute of New York**                      **3021**  
The study of epoxy blends and catalysts

<i>Period</i>	<i>Obligations</i>	
01/01/79-09/30/79	FY79: \$39,968	TOTAL: \$39,968
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pearce, E. M.	ARC/Fohlen, G. M.	12-Chemistry
	ARC/Parker, J. A.	

**NSG 2368**                      **Polytechnic Institute of New York**                      **3022**  
Characteristic theory and high frequency approximations in helicopter acoustics

<i>Period</i>	<i>Obligations</i>	
02/01/79-01/31/80	FY79: \$35,000	TOTAL: \$35,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Isom, M.	ARC/Schmitz, F. H.	41-Aero Engr
	ARC/Yu, Y. H.	

**NSG 3108**                      **Polytechnic Institute of New York**                      **3023**  
Application of Raman diagnostics to combustion

<i>Period</i>	<i>Obligations</i>	
06/01/76-05/31/79	FY79:	TOTAL: \$47,987
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lederman, S.	LERC/Will, H. A.	13-Physics

**NSG 5284**                      **Polytechnic Institute of New York**                      **3024**  
A morphological study of waves in the thermosphere

<i>Period</i>	<i>Obligations</i>	
07/01/78-07/31/80	FY79: \$23,000	TOTAL: \$47,652
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gross, S. H.	GSFC/Spencer, N. W.	31-Atmos Sci
Reber, C. A.		

**NSG 7321**                      **Queens College**                      **3025**  
Phase stability and elastic wave velocity determinations for stoichiometric FeS

<i>Period</i>	<i>Obligations</i>	
02/01/77-11/30/78	FY79: \$45,000	TOTAL: \$119,578
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Takahashi, T.	HQ-SL/Quaide, W. L.	32-Geological Sci

**NCA 2-625902**                      **Queensborough Community College**                      **3026**  
Analysis of interaction of age, sex, and bed rest reconditioning on cardiovascular parameters and predictive indices

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/01/80	FY79: \$18,426	TOTAL: \$18,426
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Yuster, R.	ARC/Goldwater, D.	56-Medical Sciences
	ARC/Sandler, H.	

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**NAS 8-26146**      **Rensselaer Polytechnic Institute**      **3027**  
Growth of single crystals by vapor transport in zero gravity environment  
*Period*      *Obligations*  
06/04/70-10/06/78      FY79:      **TOTAL: \$262,000**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Wiedmann, H.      MSFC/Davidson, M. C.      MSFC/Thomas, P. E. 47-Materials Engr

**NAS 8-32425**      **Rensselaer Polytechnic Institute**      **3028**  
Dendritic solidification at small supercooling  
*Period*      *Obligations*  
03/01/77-11/30/79      FY79:      **TOTAL: \$119,900**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Glicksman, M. E.      MSFC/Reeves, F. A.      MSFC/Chassay, R. P. 47-Materials Engr

**NAS 8-32639**      **Rensselaer Polytechnic Institute**      **3029**  
Space processing crystal growth from the vapor phase  
*Period*      *Obligations*  
09/20/77-12/31/78      FY79:      **TOTAL: \$37,689**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Wiedemeier, H.      MSFC/Davidson, M. C.      MSFC/Thomas, P. E. 19-Phys Sci, NEC

**NAS 8-32690**      **Rensselaer Polytechnic Institute**      **3030**  
Solidification processes involving solutes  
*Period*      *Obligations*  
07/24/78-10/31/79      FY79: \$1,000      **TOTAL: \$62,000**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Glicksman, M. E.      MSFC/Reeves, F. A.      MSFC/Lacy, L. L. 12-Chemistry

**NAS 8-32936**      **Rensselaer Polytechnic Institute**      **3031**  
Vapor growth of alloy-type semiconductor crystals experiment  
*Period*      *Obligations*  
03/20/78-03/20/83      FY79: \$127,000      **TOTAL: \$279,000**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Wiedemeier, H.      MSFC/Williams, J. R.      MSFC/Davidson, M. C. 47-Materials Engr  
Davidson, M. C.      MSFC/Davidson, M. C.  
Irene, E. A.

**NAS 8-33074**      **Rensselaer Polytechnic Institute**      **3032**  
Study nucleation and growth of immiscible phases  
*Period*      *Obligations*  
06/01/78-09/30/79      FY79:      **TOTAL: \$32,000**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Ross, S.      MSFC/Lacy, L. L.      13-Physics  
Ross, S.      MSFC/Witherow, W. K.  
Nishioka, G.

**NASW 3279**      **Rensselaer Polytechnic Institute**      **2033**  
Data acquisition and path selection decision making for an autonomous roving vehicle  
*Period*      *Obligations*  
03/01/79-02/28/80      FY79: \$40,600      **TOTAL: \$40,600**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Yerazunis, S. W.      HQ-RT/Gevarter, W. B.      31-Atmos Sci

**NGL 33-018-003**      **Rensselaer Polytechnic Institute**      **3034**  
Interdisciplinary materials research including fundamental physics & chemistry of materials, environmental effects, and related problems  
*Period*      *Obligations*  
09/01/70-04/30/82      FY79: \$400,000      **TOTAL: \$5,709,400**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Wiberly, S. E.      HQ-RW/Gilstad, D. A.      HQ-RW/Salkind, M. J. 47-Materials Engr  
Ansell, G. S.

**NGL 33-018-007**      **Rensselaer Polytechnic Institute**      **3035**  
Investigation of composition & chemical behavior of atmosphere of Venus  
*Period*      *Obligations*  
06/19/62-08/31/80      FY79:      **TOTAL: \$1,487,400**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Harteck, P.      HQ-SL/Fellows, R. F.      HQ-SL/Brunk, W. E. 31-Atmos Sci

**NGR 33-018-148**      **Rensselaer Polytechnic Institute**      **3036**  
Photochemical investigations of the atmosphere of other planets  
*Period*      *Obligations*  
08/27/70-10/31/79      FY79: \$43,690      **TOTAL: \$346,000**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Ferris, J. P.      HQ-SB/Young, R. S.      12-Chemistry

**NSG 1510**      **Rensselaer Polytechnic Institute**      **3037**  
Improved high modulus carbon fibers  
*Period*      *Obligations*  
04/01/78-09/30/79      FY79: \$75,850      **TOTAL: \$282,150**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Ansell, G. S.      LARC/Swann, R. T.      LARC/Brewer, W. D. 47-Materials Engr

**NSG 1624**      **Rensselaer Polytechnic Institute**      **3038**  
Investigation of passive shock wave-boundary layer control for transonic airfoil drag reduction  
*Period*      *Obligations*  
10/01/79-09/30/80      FY79: \$50,000      **TOTAL: \$50,000**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Nagamatsu, H. T.      LARC/Barnwell, R. W.      LARC/Whitcomb, R. T. 41-Aero Engr  
Brower, W. B.

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**NSG 1628** Rensselaer Polytechnic Institute 3039  
Free-electron laser from wave mechanical beats of two electron beams

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$42,200	TOTAL: \$42,200
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schwarz, H. J.	LARC/Meador, W. E., Jr.	13-Physics
	LARC/Hohl, F.	

**NSG 1636** Rensselaer Polytechnic Institute 3040  
Preliminary study on the potential usefulness of array processor techniques for structural synthesis

<i>Period</i>	<i>Obligations</i>	
07/15/79-02/14/80	FY79: \$19,995	TOTAL: \$19,995
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Feeser, L. J.	LARC/Rogers, J. L.	44-Civil Engr
	LARC/Giles, G. L.	

**NSG 3170** Rensselaer Polytechnic Institute 3041  
Determination of physical and chemical states of lubricants in concentrated contacts using infrared Fourier transform spectroscopy

<i>Period</i>	<i>Obligations</i>	
01/01/78-01/01/80	FY79: \$39,990	TOTAL: \$75,990
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lauer, J. L.	LERC/Jones, W. R., Jr.	13-Physics

**NSG 3262** Rensselaer Polytechnic Institute 3042  
Suggested programs for unsteady turbine heat transfer

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY79: \$60,520	TOTAL: \$60,520
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mayle, R. E.	LERC/Simoneau, R. J.	41-Aero Engr
	LERC/Graham, R. W.	

**NSG 7065** Rensselaer Polytechnic Institute 3043  
Structure-function studies on bacillus stearothermophilus

<i>Period</i>	<i>Obligations</i>	
06/01/74-08/30/79	FY79:	TOTAL: \$82,650
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wedler, F. C.	HQ-SB/Young, R. S.	51-Biological Sci

**NSG 7184** Rensselaer Polytechnic Institute 3044  
Data acquisition and path selection decision making for an autonomous roving vehicle

<i>Period</i>	<i>Obligations</i>	
11/01/75-02/28/79	FY79:	TOTAL: \$99,992
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shun, C. N.	HQ-RE/Gevarter, W. R.	
Yerazunis, S. W.	JPL/Paine, G.	19-Phys Sci, NEC

**NSG 7345** Rensselaer Polytechnic Institute 3045  
Biological adaptation to low temperature: A study of the molecular mechanism governing the responses of the protein synthesizing apparatuses to low temperature

<i>Period</i>	<i>Obligations</i>	
04/01/77-09/30/79	FY79:	TOTAL: \$69,100
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pope, D. H.	HQ-SB/Young, R. S.	51-Biological Sci

**NSG 7369** Rensselaer Polytechnic Institute 3046  
Autonomous control of roving vehicles for unmanned exploration of the planets

<i>Period</i>	<i>Obligations</i>	
06/01/77-08/31/79	FY79:	TOTAL: \$80,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Yerazunis, S. W.	HQ-RE/Gevarter, W. B.	49-Engr, NEC
	JPL/Paine, G.	

**NSG 2380** Rockefeller University 3047  
Vestibulocollic reflexes of otolith origin

<i>Period</i>	<i>Obligations</i>	
04/01/79-03/31/80	FY79: \$35,354	TOTAL: \$35,354
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilson, V. J.	ARC/Daunton, N. G.	51-Biological Sci

**NAS 8-32485** State Univ of New York - Albany 3048  
Skylab contamination results experiments

<i>Period</i>	<i>Obligations</i>	
06/16/77-12/15/77	FY79:	TOTAL: \$13,893
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schuerman, D.	MSFC/Clifton, K. S.	31-Atmos Sci
	MSFC/Shriver, E. L.	

**NAS 8-32893** State Univ of New York - Albany 3049  
Night-time and daytime orbital survey of lightning and convective phenomena experiment support

<i>Period</i>	<i>Obligations</i>	
05/03/78-05/02/80	FY79: \$15,000	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Vonnegut, B.	MSFC/Vaughan, O.H.	39-Env Sci, NEC
	MSFC/Anderson, B. J.	

**NAS 8-32947** State Univ of New York - Albany 3050  
Static tube zero g electrophoresis of human pancreatic islets of Langerhans cells

<i>Period</i>	<i>Obligations</i>	
04/07/78-11/14/80	FY79: \$45,800	TOTAL: \$133,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
VanOss, C. J.	MSFC/Williams, J. R.	59-Life Sci, NEC
	MSFC/Snyder, R. S.	

**NAS 8-33380** State Univ of New York - Albany 3051  
Remote observations of severe storms

<i>Period</i>	<i>Obligations</i>	
04/30/79-04/29/80	FY79: \$78,612	TOTAL: \$78,612
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Orville, R. E.	MSFC/Turner, R. E.	31-Atmos Sci
	MSFC/Thomas, P. E.	

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**NAS 9-15802** State Univ of New York - Albany 3052  
Research study of non-invasive monitoring of cardio-pulmonary function

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY79: \$48,174	TOTAL: \$48,174
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Farhi, L. E.	JSC/Horrigan, D. J.	59-Life Sci, NEC
Olaszowka, A. J.		

**NSG 2386** State Univ of New York - Albany 3053  
Identification of tropospheric and stratospheric air by tracer

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY79: \$30,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lazrus, A. L.	ARC/Page, W. A.	31-Atmos Sci

**NSG 3095** State Univ of New York - Albany 3054  
Fundamentals of radiation tolerance in silicon solar cells

<i>Period</i>	<i>Obligations</i>	
01/26/76-04/25/80	FY79: \$65,000	TOTAL: \$195,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Corbett, J. W.	LERC/Weinberg, I.	39-Env Sci, NEC
	LERC/Brandhorst, H. W., Jr.	

**NSG 3138** State Univ of New York - Albany 3055  
Analysis of global air sampling program data

<i>Period</i>	<i>Obligations</i>	
01/10/77-03/10/80	FY79: \$74,999	TOTAL: \$225,922
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Falconer, P.	LERC/Holdeman, J. D.	31-Atmos Sci
Pratt, R.		

**NSG 5274** State Univ of New York - Albany 3056  
Global tectonic studies

<i>Period</i>	<i>Obligations</i>	
05/15/78-11/14/79	FY79:	TOTAL: \$34,964
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burke, K.	GSFC/Frey, H. V.	32-Geological Sci
DeLong, S. E.	GSFC/Mead, G. D.	
Dewey, J. F.		

**NSG 7093** State Univ of New York - Albany 3057  
Photoelectric studies of the night glow

<i>Period</i>	<i>Obligations</i>	
12/23/74-11/01/79	FY79: \$63,398	TOTAL: \$220,803
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Weinberg, J. L.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

**NSG 7222** State Univ of New York - Albany 3058  
Two-dimensional transport and aerosol model

<i>Period</i>	<i>Obligations</i>	
02/01/76-09/30/78	FY79:	TOTAL: \$77,560
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kiang, C. S.	HQ-ST/Greenwood, L. R.	31-Atmos Sci
Mohnen, V. A.	HQ-ST/Tilford, S. G.	

**NSG 7241** State Univ of New York - Albany 3059  
Studies of background starlight

<i>Period</i>	<i>Obligations</i>	
07/01/76-11/30/79	FY79: \$29,136	TOTAL: \$70,136
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Weinberg, J. L.	HQ-SC/Weiler, E. J.	11-Astronomy
	HQ-SC/Roman, N. G.	

**NSG 7501** State Univ of New York - Albany 3060  
Radiation induced rotation of small celestial bodies

<i>Period</i>	<i>Obligations</i>	
11/15/78-10/31/79	FY79: \$39,612	TOTAL: \$39,612
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ratcliff, K. F.	HQ-RT/Randolph, L. P.	42-Astro Engr
	GSFC/Paddock, S. J.	

**NSG 8040** State Univ of New York - Albany 3061  
Research study of data analysis, Skylab Zodiacal light experiment

<i>Period</i>	<i>Obligations</i>	
06/28/76-11/01/79	FY79: \$52,465	TOTAL: \$141,059
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Weinberg, J. L.	MSFC/Gary, G. A.	11-Astronomy
	MSFC/Miller, E. R.	

**NGR 33-015-108** State Univ of New York - Buffalo 3062  
Planetary curriculum and related geologic research

<i>Period</i>	<i>Obligations</i>	
06/02/70-01/31/80	FY79: \$80,824	TOTAL: \$365,386
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
King, J. S.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Boyce, J. M.	

**NSG 7071** State Univ of New York - Buffalo 3063  
Experimental and theoretical investigation for the suppression of plasma arc drops in thermionic converters

<i>Period</i>	<i>Obligations</i>	
07/01/74-04/15/78	FY79:	TOTAL: \$250,928
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shaw, D. T.	LERC/Morris, J. F.	13-Physics

**NAS 1-10493** State Univ of New York - Stony Brook 3064  
Participation in the science planning for the Viking 1975 missions in the area of molecular analysis

<i>Period</i>	<i>Obligations</i>	
01/18/71-03/31/79	FY79:	TOTAL: \$182,288
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Owen, T.	LARC/Williams, T. S., Jr.	
	LARC/Glenny, W. R.	39-Env Sci, NEC

**NAS 2-10150** State Univ of New York - Stony Brook 3065  
Carrot tissue development during spaceflight

<i>Period</i>	<i>Obligations</i>	
02/01/79-07/31/80	FY79: \$34,250	TOTAL: \$34,250
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Krikorian, A. D.	ARC/Souza, K. A.	51-Biological Sci
Steward, F. C.	ARC/Chetirkin, P. V.	

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**NAS 8-32904** State Univ of New York - Stony Brook 3066  
Scientific investigations in support of the space telescope project

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/84	FY79: \$13,500	TOTAL: \$139,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Caldwell, J. J.	MSFC/O'Dell, C. R.	11-Astronomy

**NCA 2-760801** State Univ of New York - Stony Brook 3067  
Laboratory spectroscopy at ultralong path-lengths

<i>Period</i>	<i>Obligations</i>	
10/01/77-09/30/79	FY79: \$5,077	TOTAL: \$16,077
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Boudart, M.	ARC/Boese, R. W. ARC/Chang, S.	19-Phys Sci, NEC

**NCA 2-760901** State Univ of New York - Stony Brook 3068  
An investigation of the photochemistry of the atmospheres of Jupiter and Titan

<i>Period</i>	<i>Obligations</i>	
02/01/79-01/31/80	FY79: \$19,550	TOTAL: \$19,550
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Owen, T.	ARC/Chang, S.	12-Chemistry
Scattergood, T.		

**NCC 3 2** State Univ of New York - Stony Brook 3069  
Analytic modeling of soot formation under fuel-rich conditions

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$34,990	TOTAL: \$34,990
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Yang, C. H.	LERC/Brabbs, T. A.	12-Chemistry
Berlad, A. L.		

**NCC 5 7** State Univ of New York - Stony Brook 3070  
Atmospheric pollution: Development and application

<i>Period</i>	<i>Obligations</i>	
04/09/79-11/30/79	FY79: \$43,000	TOTAL: \$43,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hogan, J. S.	GSFC/Stewart, R. W.	31-Atmos Sci
Hameed, S.		

**NGL 33-015-130** State Univ of New York - Stony Brook 3071  
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
02/11/71-01/31/81	FY79: \$47,543	TOTAL: \$954,840
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bence, A. E.	JSC/Harris, J. W.	13-Physics
Lindsay, D. H.		

**NGL 33-015-174** State Univ of New York - Stony Brook 3072  
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
02/01/73-01/31/80	FY79: \$44,345	TOTAL: \$570,396
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schaeffer, O. A.	JSC/Harris, J. W.	12-Chemistry

**NGR 33-015-139** State Univ of New York - Stony Brook 3073  
Quantitative spectroscopic measurements on the principal constituents in planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
04/12/71-05/31/81	FY79: \$15,434	TOTAL: \$279,524
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Varanasi, P.	HQ-SL/Murphy, R. E. HQ-SL/Brunk, W. E.	31-Atmos Sci

**NGR 33-015-141** State Univ of New York - Stony Brook 3074  
Spectroscopic observations of the planets

<i>Period</i>	<i>Obligations</i>	
01/26/71-12/31/79	FY79: \$28,740	TOTAL: \$232,211
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Owen, T.	HQ-SL/Brunk, W. E. HQ-SL/Murphy, R. E.	11-Astronomy

**NGR 33-015-165** State Univ of New York - Stony Brook 3075  
Planetary atmospheres research

<i>Period</i>	<i>Obligations</i>	
11/01/72-12/31/79	FY79: \$154,954	TOTAL: \$507,420
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Owen, T.	GSFC/Hansen, J. E.	31-Atmos Sci

**NGR 33-015-180** State Univ of New York - Stony Brook 3076  
Cosmic rays in interplanetary space

<i>Period</i>	<i>Obligations</i>	
01/07/74-09/30/79	FY79: \$1	TOTAL: \$99,254
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Forman, M. A.	HQ-SC/Fishman, G. J. HQ-SC/Opp, A. G.	11-Astronomy

**NSG 3051** State Univ of New York - Stony Brook 3077  
Combustion of porous solids at reduced gravitational conditions

<i>Period</i>	<i>Obligations</i>	
06/01/75-06/30/79	FY79: \$500	TOTAL: \$77,203
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Berlad, A. L.	LERC/Cochran, T. H.	43-Chem Engr

**NSG 3298** State Univ of New York - Stony Brook 3078  
Combustion theory for clouds of porous solids at reduced gravitational conditions

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/80	FY79: \$40,000	TOTAL: \$40,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Berlad, A. L.	LERC/Cochran, T. H.	13-Physics

**NSG 5102** State Univ of New York - Stony Brook 3079  
Atmospheric pollution development and applications of regional scale dispersion models

<i>Period</i>	<i>Obligations</i>	
03/01/76-04/30/79	FY79:	TOTAL: \$189,458
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hogan, J. S.	GSFC/Stewart, R. W.	31-Atmos Sci

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**NSG 5125** State Univ of New York - Stony Brook 3080  
Research of thin-film Josephson-junction detector for millimeter and submillimeter wavelength applications

<i>Period</i>	<i>Obligations</i>	
11/01/76-06/30/79	FY79:	TOTAL: \$42,101
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Kao, Y. H.	GSFC/Kerr, A. R.	11-Astronomy
	GSFC/Thaddeus, P.	

**NSG 5250** State Univ of New York - Stony Brook 3081  
Ultraviolet observations of planets, satellites and comets with International Ultraviolet Explorer

<i>Period</i>	<i>Obligations</i>	
03/01/78-06/30/80	FY79: \$7,000	TOTAL: \$23,993
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Caldwell, J. J.	GSFC/Boggess, A.	11-Astronomy
Owen, T.	GSFC/West, D. K.	
Ponnamperuma, C. A.		

**NSG 5271** State Univ of New York - Stony Brook 3082  
Forecasting research to assess the role of differential advection as a severe storm predictor

<i>Period</i>	<i>Obligations</i>	
04/15/78-04/14/79	FY79:	TOTAL: \$21,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Atlas, R. M.	GSFC/Adler, R. F.	31-Atmos Sci

**NSG 7003** State Univ of New York - Stony Brook 3083  
Research in grating technology and related areas

<i>Period</i>	<i>Obligations</i>	
11/01/73-12/31/79	FY79:	TOTAL \$83,999
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Stroke, G. W.	HQ-ST/Timothy, A. F.	11-Astronomy

**NSG 7270** State Univ of New York - Stony Brook 3084  
Cells, embryos and development in space

<i>Period</i>	<i>Obligations</i>	
09/01/76-10/31/79	FY79: \$61,800	TOTAL: \$191,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Krikorian, A. D.	HQ-SB/Halszard, T. W.	51-Biological Sci
Steward, F. C.	HQ-SB/Geib, G. S.	

**NSG 7286** State Univ of New York - Stony Brook 3085  
Infrared spectroscopy of Jupiter and Saturn

<i>Period</i>	<i>Obligations</i>	
09/01/76-05/31/80	FY79: \$36,435	TOTAL \$71,730
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Knacke, R. F.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Murphy, R. E.	

**NSG 7320** State Univ of New York - Stony Brook 3086  
Theoretical planetary physics

<i>Period</i>	<i>Obligations</i>	
04/01/77-04/30/80	FY79: \$28,473	TOTAL: \$78,410
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Caldwell, J. J.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Quaide, W. L.	

**NSG 7553** State Univ of New York - Stony Brook 3087  
Outer solar system nomenclature

<i>Period</i>	<i>Obligations</i>	
04/01/79-03/31/80	FY79: \$10,821	TOTAL: \$10,821
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Owen, T.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Boyce, J. M.	

**NSG 9013** State Univ of New York - Stony Brook 3088  
Dating of lunar cratering events and rates of lunar surface processes

<i>Period</i>	<i>Obligations</i>	
07/15/74-01/31/80	FY79: \$6,000	TOTAL \$308,669
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Hartung, J. B.	JSC/Harris, J. W.	32-Geological Sci

**NSG 9044** State Univ of New York - Stony Brook 3089  
Petrologic and stratigraphic studies of lunar drill cores and drive tubes

<i>Period</i>	<i>Obligations</i>	
09/01/76-01/31/81	FY79: \$44,763	TOTAL \$332,741
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Papike, J. J.	JSC/Harris, J. W.	13-Physics

**NCA 2-765801** State Univ of New York - Upstate Med Ctr 3090  
Space flight associated alterations in erythrocyte membranes

<i>Period</i>	<i>Obligations</i>	
06/01/78-05/31/80	FY79 \$19,980	TOTAL \$39,960
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Landaw, S. A.	ARC/Leon, H. A.	56-Medical Sciences

**NSG 5077** State Univ of New York College - Purchase 3091  
Spectral and Monte Carlo predictability studies

<i>Period</i>	<i>Obligations</i>	
09/01/75-04/30/80	FY79: \$26,363	TOTAL: \$71,220
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Tenenbaum, J.	GSFC/Halem, M.	31-Atmos Sci

**NSG 1602** Syracuse University 3092  
Advanced programmable image sensor/processor

<i>Period</i>	<i>Obligations</i>	
03/15/79-03/14/80	FY79 \$51,281	TOTAL: \$51,281
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Kowel, S. T.	LARC/Benz, H. J.	45-Elec Engr
Kornreich, P. G.	LARC/Breckenridge, R. A.	

**NSG 1611** Syracuse University 3093  
Surface Acoustic Waves (SAW)/silicon monolithic programmable sensor/processor

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY79 \$75,224	TOTAL: \$75,224
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASF Category</i>
Kowel, S. T.	LARC/Segura, R.	45-Elec Engr
Kornreich, P. G.		

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**NSG 1654** Syracuse University 3094  
Magnetization changes in small volume elements by stress control  
*Period* *Obligations*  
09/01/79-08/31/80 FY79: \$32,495 TOTAL: \$32,495  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Schroder, K. LARC/Hayes, P. J. 47-Materials Engr

**NSG 33-032-004** Union College 3095  
Optically pumped submillimeter waveguide maser amplifiers and oscillators  
*Period* *Obligations*  
04/15/74-04/14/78 FY79: TOTAL: \$80,745  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Galantowicz, A. GSFC/McAvoy, N. 13-Physics  
GSFC/McElroy, J. H.

**NAS 8-33328** University of Rochester 3095  
Optical photometry and area spectrophotometry  
*Period* *Obligations*  
02/13/79-02/12/80 FY79: \$13,632 TOTAL: \$13,632  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Duthie, J. G. MSFC/Jones, J. B., Jr 11-Astronomy  
McMillan, R. S.

**NSG 2198** University of Rochester 3097  
Energy transfer between molecular collision systems and laser radiation fields  
*Period* *Obligations*  
12/31/76-12/31/79 FY79: \$15,000 TOTAL: \$145,408  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
George, T. F. ARC/Stallion, J. R. 13-Physics

**NSG 2343** University of Rochester 3098  
Determination of a galactic gradient: Measurements of the fine structure lines of AR-II, and S-III in galactic H-II regions  
*Period* *Obligations*  
10/01/78-10/31/79 FY79: \$27,418 TOTAL: \$27,418  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Pipher, J. L. ARC/Haughney, L. C. 11-Astronomy  
Helfer, H. L.

**NSG 5329** University of Rochester 3099  
Investigation of the far ultraviolet spectrum of Sirius B  
*Period* *Obligations*  
01/17/79-07/31/79 FY79: \$853 TOTAL: \$853  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Savodoff, M. P. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 5354** University of Rochester 3100  
Search for coronal features or circumstellar clouds around Sirius  
*Period* *Obligations*  
06/01/79-05/31/80 FY79: \$7,008 TOTAL: \$7,008  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Savodoff, M. P. GSFC/Kupperian, J. E., Jr. 11-Astronomy  
VanHorn, H. M.

**NSG 7562** University of Rochester 3101  
Basic research in sunspot dynamics  
*Period* *Obligations*  
10/01/78-09/30/80 FY79: \$19,000 TOTAL: \$19,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Thomas, J. H. HQ-ST/Bohlin, J. D. 13-Physics

**NSG 3123** Yeshiva University 3102  
Investigation of the topographical features of surface carrier concentrations and lifetime determinations in silicon solar cells  
*Period* *Obligations*  
10/01/76-10/30/78 FY79: TOTAL: \$49,524  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Pollak, F. LERC/Godlewski, M. P. 45-Elec Engr

**NSG 7454** York College 3103  
Irradiation effects on surface of Moon, Mercury, Asteroids and solar system bodies  
*Period* *Obligations*  
06/01/78-05/31/80 FY79: \$33,849 TOTAL: \$64,429  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Spergel, M. S. HQ-SL/Quaide, W. L. 13-Physics  
HQ-LU/Pohly, J. G.

**NORTH CAROLINA**

**NAS 5-25351** Duke University 3104  
Dynamics Explorer power subsystem study  
*Period* *Obligations*  
09/25/78-08/30/79 FY79: TOTAL: \$15,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wilson, T. G. GSFC/Rodriguez, G. E. 45-Elec Engr  
Owen, H.

**NGL 34-001-001** Duke University 3105  
Research on satellite electrical power conversion systems and circuit protection  
*Period* *Obligations*  
02/19/75-02/28/79 FY79: TOTAL: \$966,031  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wilson, T. G. GSFC/Rodriguez, G. E. 45-Elec Engr  
GSFC/Pasciutti, E. R.

**NSG 1647** Duke University 3106  
Improvement of nonlinear transient analysis efficiency  
*Period* *Obligations*  
09/01/79-11/30/80 FY79: \$42,189 TOTAL: \$42,189  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Melosh, R. J. LARC/Hayduk, R. J. 49-Engr, NEC  
LARC/Thomson, R. G.

**NASA'S UNIVERSITY PROGRAM  
NORTH CAROLINA (Continued)**

**NSG 3157 Duke University 3107**  
Design feasibility of high-power lightweight dc-to-dc converters for space power applications

<i>Period</i>	<i>Obligations</i>	
07/01/77-05/31/80	FY79: \$105,000	TOTAL: \$223,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilson, T. G.	LERC/Gruber, R. P.	45-Elec Engr

**NSG 3160 Duke University 3108**  
Acceleration of convergence

<i>Period</i>	<i>Obligations</i>	
06/01/77-05/31/80	FY79: \$13,502	TOTAL: \$34,985
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, D. A.	LERC/Ford, W. F.	21-Mathematics

**NSG 7540 Duke University 3109**  
Millimeter and submillimeter spectroscopy of molecules of atmospheric importance

<i>Period</i>	<i>Obligations</i>	
03/01/79-02/28/80	FY79: \$43,659	TOTAL: \$43,659
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
DeLucia, F. C.	HQ-ST/Kakar, R. K.	31-Atmos Sci
	HQ-ST/Seals, R. K., Jr.	

**NAS 5-24101 North Carolina A&T State University 3110**  
Feasibility study for conducting experimental research in curriculum sharing

<i>Period</i>	<i>Obligations</i>	
04/14/77-08/13/78	FY79:	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Williams, L. J.	GSFC/Henry, V.	45-Elec Engr

**NSG 1296 North Carolina A&T State University 3111**  
Effect of temperature on composite sandwich structures subjected to low velocity impact

<i>Period</i>	<i>Obligations</i>	
05/17/76-08/16/79	FY79:	TOTAL: \$76,617
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sharma, A. V.	LARC/Rhodes, M. D.	47-Materials Engr
	LARC/Mikulas, M. M., Jr.	

**NSG 1390 North Carolina A&T State University 3112**  
Material growth and characterization of III-V compounds for solid state devices

<i>Period</i>	<i>Obligations</i>	
02/01/77-01/31/80	FY79: \$150,000	TOTAL: \$450,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stefanakos, E.	LARC/Hutchby, J. A.	45-Elec Engr
Alexander, W. E.	LARC/Hendricks, H. D.	
Collis, W.		

**NSG 1516 North Carolina A&T State University 3113**  
Patterns of residual stresses within complex welded steel structures

<i>Period</i>	<i>Obligations</i>	
04/15/78-05/14/80	FY79: \$12,445	TOTAL: \$44,860
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Botros, B. M.	LARC/Buckley, J. D.	47-Materials Engr

**NSG 1631 North Carolina A&T State University 3114**  
Design and testing of small composite specimens

<i>Period</i>	<i>Obligations</i>	
08/17/79-08/16/80	FY79: \$35,000	TOTAL: \$35,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sharma, A. V.	LARC/Rhodes, M. D.	44-Civil Engr
	LARC/Mikulas, M. M., Jr.	

**NSG 5406 North Carolina A&T State University 3115**  
Two-dimensional recursive digital filters for new real time image processing

<i>Period</i>	<i>Obligations</i>	
09/13/79-09/14/80	FY79: \$55,000	TOTAL: \$55,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Alexander, W. E.	GSFC/Ramapriyan, H. K.	
Olson, D. E.	GSFC/Alford, W. L.	21-Mathematics

**NSG 8045 North Carolina A&T State University 3116**  
Research study of composites as substrate materials in large space telescopes

<i>Period</i>	<i>Obligations</i>	
10/15/76-08/15/79	FY79	TOTAL: \$48,155
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sharma, A. V.	MSFC/Stuckey, J. M.	46-Mech Engr
	MSFC/Kent, M. I.	

**NSG 5120 North Carolina Central University 3117**  
Optically pumped submillimeter waves and applications

<i>Period</i>	<i>Obligations</i>	
06/07/76-08/31/80	FY79: \$39,871	TOTAL: \$151,799
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dutta, J. M.	GSFC/McAvoy, N.	13-Physics
Jones, C. R.	GSFC/Lawandy, N.	

**NAS 5-25751 North Carolina State Univ. - Raleigh 3118**  
Survey and assessment of existing optical instruments applicable to chemical release observations

<i>Period</i>	<i>Obligations</i>	
05/15/79-11/15/79	FY79: \$28,735	TOTAL: \$28,735
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Manring, E. R.	GSFC/Heppner, J. P.	31-Atmos Sci
	GSFC/Dubin, M.	

**NAS 6-3018 North Carolina State Univ. - Raleigh 3119**  
Statistical modeling of surface water movements using radar altimeter data

<i>Period</i>	<i>Obligations</i>	
07/01/79-12/31/80	FY79: \$24,982	TOTAL: \$24,982
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tung, C.	WFC/Huang, N. E.	33-Oceanography
	WFC/Long, S. R.	



**NASA'S UNIVERSITY PROGRAM  
NORTH CAROLINA (Continued)**

**NAS 8-31984** North Carolina State Univ. - Raleigh 3120  
Study of satellite sensing  
*Period* *Obligations*  
04/29/76-09/30/77 FY79: TOTAL: \$19,735  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Welby, G. MSFC/Paludan, C. T. 39-Env Sci, NEC

**NCC 1 13** North Carolina State Univ. - Raleigh 3121  
Investigation of aerodynamic characteristics of wings at subsonic speeds  
*Period* *Obligations*  
05/16/79-05/15/80 FY79: \$28,636 TOTAL: \$28,636  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Dejarnette, F. R. LARC/Lamar, J. E. 41-Aero Engr  
Frink, N. T. LARC/Campbell, J. F.

**NCC 1 22** North Carolina State Univ. - Raleigh 3122  
Computational fluid mechanics  
*Period* *Obligations*  
06/15/79-09/14/81 FY79: \$91,935 TOTAL: \$91,935  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hassan, H. A. LARC/South, J. C., Jr. 41-Aero Engr

**NGL 34-002-095** North Carolina State Univ. - Raleigh 3123  
Acoustic energy effects on sleep and human performance: The effects of certain fundamental parameters of acoustic stimuli  
*Period* *Obligations*  
04/11/69-12/31/79 FY79: TOTAL: \$395,582  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Horvath, J. J. LARC/Mayes, W. H. 69-Psych, NEC  
LARC/Cawthorn, J. M.

**NGR 34-002-188** North Carolina State Univ. - Raleigh 3124  
Deployable reflector antenna study  
*Period* *Obligations*  
10/18/72-08/31/79 FY79: TOTAL: \$87,190  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kauffman, J. F. LARC/Croswell, W. F. 45-Elec Engr  
LARC/Cockrell, C. R.

**NGR 34-002-195** North Carolina State Univ. - Raleigh 3125  
Theoretical analysis of current voltage characteristics of solar cells  
*Period* *Obligations*  
06/01/73-12/31/78 FY79: TOTAL: \$137,424  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hauser, J. R. LERC/Godlewski, M. P. 45-Elec Engr  
LERC/Brandhorst, H. W., Jr.

**NSG 1058** North Carolina State Univ. - Raleigh 3126  
Analyses of nuclear induced plasmas by means of kinetic theory  
*Period* *Obligations*  
07/01/74-06/30/80 FY79: \$30,000 TOTAL: \$181,100  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hassan, H. A. LARC/Meador, W. E., Jr. 13-Physics  
LARC/Hohl, F.

**NSG 1077** North Carolina State Univ. - Raleigh 3127  
Estimate the performance and dynamic response characteristics of an advanced technology light twin aircraft and compare with flight test results  
*Period* *Obligations*  
08/15/74-01/31/79 FY79: TOTAL: \$184,290  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Smetana, F. O. LARC/Crane, H. L. 41-Aero Engr

**NSG 1205** North Carolina State Univ. - Raleigh 3128  
Research program in aeroacoustics for noise control of general aviation aircraft  
*Period* *Obligations*  
07/01/75-09/30/79 FY79: TOTAL: \$116,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hart, F. D. LARC/Mayes, W. H. 13-Physics  
Bailey, J. R. LARC/Cawthorn, J. M.

**NSG 1353** North Carolina State Univ. - Raleigh 3129  
Pattern classifiers using charge transfer devices applications  
*Period* *Obligations*  
11/22/76-01/31/80 FY79: \$40,653 TOTAL: \$105,430  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Snyder, W. E. LARC/Benz, H. F. 45-Elec Engr  
LARC/Husson, C.

**NSG 1355** North Carolina State Univ. - Raleigh 3130  
A study of real-time computer graphic display technology for aeronautical applications  
*Period* *Obligations*  
01/01/77-03/31/80 FY79: \$15,818 TOTAL: \$59,782  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Rajala, S. A. LARC/Hatfield, J. J. 45-Elec Engr  
LARC/Batson, V. M.

**NSG 1377** North Carolina State Univ. - Raleigh 3131  
Investigation of flow noise from streamlined and blunt bodies trailing edge effects  
*Period* *Obligations*  
01/01/77-12/31/79 FY79: \$40,000 TOTAL: \$117,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hodgson, T. H. LARC/Brooks, T. F. 41-Aero Engr  
LARC/Preisser, J. S.

**NSG 1463** North Carolina State Univ. - Raleigh 3132  
Nuclear magnetic resonance and infrared study of moisture in epoxy resins and resin-graphite fiber composites  
*Period* *Obligations*  
11/01/77-12/31/79 FY79: TOTAL: \$36,426  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Memory, J. D. LARC/Long, E. R., Jr. 47-Materials Engr  
Fornes, R. E.

**NASA'S UNIVERSITY PROGRAM  
NORTH CAROLINA (Continued)**

**NSG 1549** North Carolina State Univ. - Raleigh 3133  
Constrained interpolation and approximation with application to  
computer aided geometric design

<i>Period</i>	<i>Obligations</i>	
09/01/78-08/31/80	FY79: \$47,926	TOTAL: \$75,651
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Roulier, J. A.	LARC/Park, S. K.	22-Computer Science
McAllister, D. F.	LARC/Smith, R. E.	

**NSG 1562** North Carolina State Univ. - Raleigh 3134  
Study of the effects of high energy radiation on the mechanical  
properties of graphite-fiber reinforced epoxy resins

<i>Period</i>	<i>Obligations</i>	
10/01/78-10/15/79	FY79: \$28,052	TOTAL: \$38,180
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fornes, R. E.	LARC/Long, E. R., Jr.	13-Physics
Memory, J. D.		

**NSG 1584** North Carolina State Univ. - Raleigh 3135  
Optimum nacelle shapes and flow port locations for minimum  
drag and effective engine cooling for general aviation aircraft

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/79	FY79: \$51,258	TOTAL: \$51,258
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smetana, F. O.	LARC/Crane, H. L.	41-Aero Engr

**NSG 1588** North Carolina State Univ. - Raleigh 3136  
Large reflector antenna analysis research

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/79	FY79: \$38,877	TOTAL: \$38,877
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kauffman, J. F.	LARC/Croswell, W. F.	45-Elec Engr
	LARC/Cockrell, C. R.	

**NSG 4025** North Carolina State Univ. - Raleigh 3137  
An investigation to improve the performance of a technique to  
identify lift, drag and power simultaneously from flight test data

<i>Period</i>	<i>Obligations</i>	
07/23/79-07/22/80	FY79: \$47,804	TOTAL: \$47,804
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smetana, F. O.	DFRC/Kurtenbach, F. J.	41-Aero Engr
	DFRC/Liiff, K. W.	

**NSG 2390** University of North Carolina-Greensboro 3138  
Automaticity and skill acquisition in a multiple task

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$36,216	TOTAL: \$36,216
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Regan, J. E.	ARC/Curry, R. E.	69-Psych, NEC

**OHIO**

**NSG 7022** Bowling Green State University 3139  
A radially streaming particle model for Seyfert galaxy nuclei and  
quasistellar objects

<i>Period</i>	<i>Obligations</i>	
07/01/74-12/31/77	FY79:	TOTAL: \$65,083
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ptak, R. L.	HQ-SC/Roman, N. G.	11-Astronomy
Stoner, R. E.	HQ-SC/Rosendhal, J. D.	

**NAS 3-21046** Case Western Reserve University 3140  
Spacelab experiment on surface tension driven convection

<i>Period</i>	<i>Obligations</i>	
09/16/77-12/31/79	FY79:	TOTAL: \$97,730
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ostrach, S.	LERC/Labus, T. L.	46-Mech Engr

**NAS 3-21365** Case Western Reserve University 3141  
Low sidelobe level low-cost earth station antennas for the twelve  
GHz broadcasting satellite service

<i>Period</i>	<i>Obligations</i>	
06/06/78-06/06/79	FY79:	TOTAL: \$59,601
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Collin, R. E.	LERC/Smetana, J.	49-Engr, NEC

**NAS 3-21946** Case Western Reserve University 3142  
Determination of fatigue characteristics of ion beam textured  
orthopedic implant alloy MP35N in physiological solution

<i>Period</i>	<i>Obligations</i>	
06/11/79-06/10/80	FY79: \$10,131	TOTAL: \$10,131
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bahriuk, E.	LERC/Wintucky, E. G.	49-Engr, NEC

**NAS 3-21965** Case Western Reserve University 3143  
Vapor phase diamond growth technology

<i>Period</i>	<i>Obligations</i>	
09/21/79-10/20/80	FY79: \$17,360	TOTAL: \$17,360
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Angus, J. C.	LERC/Riley, T. J.	12-Chemistry
Mann, A., Jr.	LERC/Myers, I. T.	

**NAS 3-22259** Case Western Reserve University 3144  
Biomedical application of ion thruster technology

<i>Period</i>	<i>Obligations</i>	
09/25/79-04/25/80	FY79: \$23,100	TOTAL: \$23,100
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gibbons, D. F.	LERC/Weigand, A. J.	19-Phys Sci, NEC

**NAS 5-24144** Case Western Reserve University 3145  
Axially grooved heat pipe study

<i>Period</i>	<i>Obligations</i>	
04/25/77-09/25/78	FY79:	TOTAL: \$13,257
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kamotani, Y.	GSFC/Ollendorf, S.	46-Mech Engr
	GSFC/McIntosh, R.	

**NASA'S UNIVERSITY PROGRAM  
OHIO (Continued)**

**NAS 8-31907** Case Western Reserve University 3146  
Convection in crystal growing  
Period Obligations  
03/15/76-06/30/78 FY79: TOTAL: \$39,981  
Pnn Invest NASA Tech Officer CASE Category  
Ostrach, S. MSFC/Schafer, C. F. 12-Chemistry  
MSFC/Fichtl, G. H.

**NGT 36-027-790** Case Western Reserve University 3153  
Pre-cooperative engineering education program  
Period Obligations  
08/01/79-07/31/80 FY79: \$6,224 TOTAL: \$6,224  
Pnn Invest NASA Tech Officer CASE Category  
Chenelle, D. W. HQ-LU/Pohly, J. G. 49-Engr, NEC  
LERC/Allen, R. P.

**NAS 8-33015** Case Western Reserve University 3147  
Surface tension driven convection phenomena experiment  
Period Obligations  
05/23/78-05/07/80 FY79: \$111,718 TOTAL: \$213,093  
Pnn Invest NASA Tech Officer CASE Category  
Ostrach, S. MSFC/Reeves, F. A. 13-Physics  
Mann, J. A., Jr. MSFC/Zwiener, J. M.

**NSG 2384** Case Western Reserve University 3154  
Prediction of system invariants in the presence of failure  
Period Obligations  
06/01/79-05/31/80 FY79: \$29,601 TOTAL: \$29,601  
Pnn Invest NASA Tech Officer CASE Category  
Martin, C. F. ARC/Doolin, B. F. 49-Engr, NEC

**NCC 3 4** Case Western Reserve University 3148  
Interactive flow-field calculations in turbomachinery  
Period Obligations  
08/01/79-07/31/80 FY79: \$35,642 TOTAL: \$35,642  
Pnn Invest NASA Tech Officer CASE Category  
Reshotko, E. LERC/Sockol, P. M. 41-Aero Engr

**NSG 3009** Case Western Reserve University 3155  
An X-ray photoelectric spectroscopy study of nickel and nickel-base alloy: Surface alteration in simulated hot corrosion conditions  
Period Obligations  
06/01/74-02/15/78 FY79: TOTAL: \$58,900  
Pnn Invest NASA Tech Officer CASE Category  
Mateescu, G. D. LERC/Kohl, F. J. 12-Chemistry  
LERC/Stearns, C. A.

**NGL 36-003-094** Case Western Reserve University 3149  
The effects of deformation on dispersion  
Period Obligations  
10/18/66-08/31/78 FY79: TOTAL: \$275,461  
Pnn Invest NASA Tech Officer CASE Category  
Ebert, L. J. LERC/Glasgow, T. K. 47-Materials Engr

**NSG 3040** Case Western Reserve University 3156  
Heat transfer characteristics of porous materials  
Period Obligations  
10/01/74-10/30/80 FY79: \$70,000 TOTAL: \$180,000  
Pnn Invest NASA Tech Officer CASE Category  
Dybbs, A. LERC/Fortini, A. 47-Materials Engr

**NGR 36-027-050** Case Western Reserve University 3150  
Catalysts for electrochemical generation of oxygen  
Period Obligations  
02/22/72-11/14/79 FY79: \$24,859 TOTAL: \$369,606  
Pnn Invest NASA Tech Officer CASE Category  
Yeager, E. ARC/Quattrone, P. D. 12-Chemistry  
Cahan, B. D.

**NSG 3062** Case Western Reserve University 3157  
Interactive compressor flow-field calculations  
Period Obligations  
02/01/75-01/31/79 FY79: TOTAL: \$55,986  
Pnn Invest NASA Tech Officer CASE Category  
Reshotko, E. LERC/Sockol, P. M. 41-Aero Engr

**NGR 36-027-064** Case Western Reserve University 3151  
Study of effects of layer control on shock wave turbulent boundary layer interactions in supersonics inlets  
Period Obligations  
08/01/73-09/30/79 FY79: \$45,362 TOTAL: \$206,369  
Pnn Invest NASA Tech Officer CASE Category  
Reshotko, E. LERC/Bishop, A. R. 41-Aero Engr

**NSG 3074** Case Western Reserve University 3158  
Applications of high power lasers  
Period Obligations  
05/29/75-02/15/79 FY79: TOTAL: \$149,655  
Pnn Invest NASA Tech Officer CASE Category  
Angus, J. C. LERC/Dunning, J. W., Jr. 43-Chem Engr  
Edwards, R. V.  
Mann, J. A., Jr.

**NGT 36-027-011** Case Western Reserve University 3152  
Summer program of NASA-ASEE summer faculty fellowships  
Period Obligations  
12/16/69-03, '80 FY79: \$153,000 TOTAL: \$1,255,933  
Pnn Invest NASA Tech Officer CASE Category  
Prahe, J. M. HQ-LU/Carter, C. H. 49-Engr, NEC

**NSG 3085** Case Western Reserve University 3159  
Demonstration experiment on utilization of buffer memory system for transmission of color video using moderate bandwidth communications satellite channels  
Period Obligations  
10/23/75-11/20/79 FY79: \$108,217 TOTAL: \$518,511  
Pnn Invest NASA Tech Officer CASE Category  
Pao, Y. H. LERC/Stevens, G. H. 45-Elec Engr  
Claspy, P. C.

**NASA'S UNIVERSITY PROGRAM  
OHIO (Continued)**

**NSG 3115 Case Western Reserve University 3160**  
Computer graphic techniques for visualizing and interpreting fluid flow models  
*Period* *Obligations*  
06/30/76-06/29/79 **FY79: TOTAL: \$48,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lynch, W. C. LERC/Anderson, B. H. 41-Aero Engr  
Parke, F. R.

**NSG 3126 Case Western Reserve University 3161**  
Effect of surface texture by ion beam sputtering on implant biocompatibility and soft tissue attachment  
*Period* *Obligations*  
10/01/76-10/01/79 **FY79: TOTAL: \$40,577**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gibbons, D. F. LERC/Weigand, A. J. 49-Engr, NEC  
LERC/Banks, B. A.

**NSG 3131 Case Western Reserve University 3162**  
Adaptation of ion beam technology to microfabrication of solid state devices and transducers  
*Period* *Obligations*  
11/01/76-10/31/79 **FY79: \$20,938 TOTAL: \$85,184**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Topich, J. A. LERC/Mirtich, M. J. 19-Phys Sci, NEC  
Ko, W. H. LERC/Banks, B. A.

**NSG 3140 Case Western Reserve University 3163**  
Spectroscopic investigation of the effects of moisture on epoxy resins  
*Period* *Obligations*  
02/01/77-01/31/80 **FY79: TOTAL: \$58,680**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Koenig, J. L. LERC/Serafini, T. T. 12-Chemistry  
LERC/Lauver, R. W.

**NSG 3142 Case Western Reserve University 3164**  
Characterization of structure of a polymer with a magnetic resonance spectroscopy  
*Period* *Obligations*  
03/01/77-10/01/78 **FY79: TOTAL: \$38,500**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ritchey, W. M. LERC/Lauver, R. W. 12-Chemistry

**NSG 3151 Case Western Reserve University 3165**  
The evaluation of surface texturing, by ion beam sputtering, on the mechanical fixation and biological compatibility of orthopedic alloys in bone  
*Period* *Obligations*  
05/01/77-10/31/79 **FY79: \$15,047 TOTAL: \$28,569**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gibbons, D. F. LERC/Weigand, A. J.  
Heiple, K. G. LERC/Banks, B. A. 56-Medical Sciences  
Makley, J. T.

**NSG 3197 Case Western Reserve University 3166**  
Secondary electron emission yield  
*Period* *Obligations*  
07/01/78-06/30/80 **FY79: \$49,920 TOTAL: \$98,254**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gordan, W. L. LERC/Purvis, C. K. 13-Physics  
Hoffman, R. W. LERC/Stevens, N. J.

**NSG 3203 Case Western Reserve University 3167**  
The development of sensors and techniques for in-situ water quality monitoring  
*Period* *Obligations*  
07/01/78-02/28/80 **FY79: \$29,968 TOTAL: \$59,964**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Liu, C. C. LERC/Fordyce, J. S. 43-Chem Engr

**NSG 3206 Case Western Reserve University 3168**  
Experiments on jet mixing in compact reverse flow combustor configurations  
*Period* *Obligations*  
07/01/78-06/30/81 **FY79: TOTAL: \$67,850**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Greber, I. LERC/Riddlebaugh, S. M. 41-Aero Engr

**NSG 3207 Case Western Reserve University 3169**  
Shaded computer graphic techniques for visualizing and interpreting analytic fluid flow models  
*Period* *Obligations*  
07/01/78-07/01/81 **FY79: TOTAL: \$53,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Parke, F. I. LERC/Anderson, B. H. 41-Aero Engr

**NSG 3211 Case Western Reserve University 3170**  
Experimental investigation of shock-wave-boundary layer interaction  
*Period* *Obligations*  
05/01/78-05/30/81 **FY79: TOTAL: \$58,690**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Greber, I. LERC/Hingst, W. R. 41-Aero Engr

**NSG 3221 Case Western Reserve University 3171**  
Convection in crystal growth and G-jitter  
*Period* *Obligations*  
09/01/78-08/31/80 **FY79: \$45,000 TOTAL: \$100,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ostrach, S. LERC/Labus, T. L. 13-Physics  
LERC/Cochran, T. H.

**NSG 3230 Case Western Reserve University 3172**  
Modeling of transient operations of monolith catalytic combustors  
*Period* *Obligations*  
11/01/78-10/31/80 **FY79: \$69,000 TOTAL: \$69,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
T'ien, J. S. LERC/Anderson, D. N. 46-Mech Engr  
Reshotko, E.

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NSG 3241** Case Western Reserve University 3173  
Characterization of structure of a polymer with a magnetic resonance spectroscopy

<i>Period</i>	<i>Obligations</i>	
12/01/78-12/01/79	FY79: \$30,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ritchey, W. M.	LERC/Lauver, R. W.	12-Chemistry

**NSG 3276** Case Western Reserve University 3180  
Three-dimensional bispectra and the mean rate of transfer of energy in turbulence

<i>Period</i>	<i>Obligations</i>	
05/15/79-05/14/80	FY79: \$34,990	TOTAL: \$34,990
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Koenig, J. L.	LERC/Hsu, L. C.	12-Chemistry
Mateescu, G. D.	LERC/Philipp, W.	

**NSG 3246** Case Western Reserve University 3174  
Anisotropy of directionally solidified nickel base superalloy monocrystals

<i>Period</i>	<i>Obligations</i>	
06/15/79-06/15/82	FY79: \$49,935	TOTAL: \$49,935
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Maier, R. D.	LERC/Scheuermann, C. M.	47-Materials Engr

**NSG 3279** Case Western Reserve University 3181  
Thermal fatigue behavior of dies for aluminum die casting after deposition of various ion sputtered coatings

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/80	FY79: \$12,000	TOTAL: \$12,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wallace, J. F.	LERC/Mirtich, M. J.	19-Phys Sci, NEC

**NSG 3251** Case Western Reserve University 3175  
Use of the method of lines in fracture mechanics analyses with application to curved crack fronts

<i>Period</i>	<i>Obligations</i>	
03/01/79-03/30/80	FY79: \$34,790	TOTAL: \$34,790
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mendelson, A.	LERC/Brown, W. F., Jr.	46-Mech Engr

**NSG 3282** Case Western Reserve University 3182  
The influence of surface morphology modification by ion beam sputtering on the tissue response to percutaneous implants, of various compositions

<i>Period</i>	<i>Obligations</i>	
06/01/79-11/30/79	FY79: \$19,579	TOTAL: \$19,579
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gibbons, D. F.	LERC/Weigand, A. J.	
Picha, G.	LERC/Banks, B. A.	56-Medical Sciences

**NSG 3252** Case Western Reserve University 3176  
Microstructure and mechanical properties of bulk and plasma-sprayed Y2O3 partially stabilized zirconia

<i>Period</i>	<i>Obligations</i>	
04/02/79-04/02/80	FY79: \$29,990	TOTAL: \$29,990
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Maier, R. D.	LERC/Gedwill, M. A.	47-Materials Engr
	LERC/Levine, S. R.	

**NSG 3288** Case Western Reserve University 3183  
Optical studies of lubrication and transfer films for prosthetic devices

<i>Period</i>	<i>Obligations</i>	
07/01/79-12/31/79	FY79: \$20,000	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cahan, B. D.	LERC/Jones, W. R., Jr.	12-Chemistry

**NSG 3268** Case Western Reserve University 3177  
Performance of high temperature annular heat pipes

<i>Period</i>	<i>Obligations</i>	
03/30/79-03/29/80	FY79: \$19,902	TOTAL: \$19,902
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kamotani, Y.	LERC/Tower, L. K.	47-Materials Engr
	LERC/Morris, J. F.	

**NSG 3289** Case Western Reserve University 3184  
Ion beam texturing of polymers

<i>Period</i>	<i>Obligations</i>	
07/17/79-11/14/79	FY79: \$8,475	TOTAL: \$8,475
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Geil, K. H.	LERC/Souey, J. S.	47-Materials Engr
Hurwitz, E. I.		

**NSG 3271** Case Western Reserve University 3178  
Model development for shock wave boundary layer interaction experiments

<i>Period</i>	<i>Obligations</i>	
04/24/79-04/24/80	FY79: \$32,110	TOTAL: \$32,110
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Greber, I.	LERC/Hingst, W. R.	41-Aero Engr

**NSG 3291** Case Western Reserve University 3185  
Self-diffusion of oxygen and aluminum in doped alumina

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/80	FY79: \$33,000	TOTAL: \$33,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cooper, A. R.	LERC/Smialek, J. L.	47-Materials Engr

**NSG 3272** Case Western Reserve University 3179  
Molecular mechanism of thermal degradation of polyimide resins

<i>Period</i>	<i>Obligations</i>	
05/07/79-05/07/80	FY79: \$14,990	TOTAL: \$14,990
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ishida, H.	LERC/Lauver, R. W.	12-Chemistry
Koenig, J. L.		

**NSG 5392** Case Western Reserve University 3186  
Theoretical determination of structures, bending energies and vibrational frequencies

<i>Period</i>	<i>Obligations</i>	
07/01/79-12/31/79	FY79: \$4,025	TOTAL: \$4,025
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, A. B.	GSFC/Donn, B. D.	12-Chemistry

**NASA'S UNIVERSITY PROGRAM**

**OHIO (Continued)**

**NSG 7035** Case Western Reserve University 3187  
 Development of a generalized technology for life prediction in the high-temperature creep and fatigue range  
*Period* *Obligations*  
 05/01/74-05/01/80 FY79: \$39,993 TOTAL: \$218,269  
*Prin Invest* NASA Tech Officer CASE Category  
 Powell, N. L. LERC/Hirschberg, M. H. LERC/Halford, G. R. 47-Materials Engr

**NGR 36-033-003** Central State University - Ohio 3188  
 Effects of some selected atmospheric pollutants on animal population surrounding the Cleveland area  
*Period* *Obligations*  
 04/25/73-04/31/79 FY79: TOTAL: \$136,807  
*Prin Invest* NASA Tech Officer CASE Category  
 Craft, T. J., Sr. LERC/Fordyce, J. S. 54-Env Biology  
 Johnson, M. A., Jr. LERC/King, R. B.

**NAS 3-18547** Cleveland State University 3189  
 Synthesis and optimization of spur gear tooth profile shapes for high load capacity  
*Period* *Obligations*  
 06/04/74-12/24/79 FY79: TOTAL: \$69,980  
*Prin Invest* NASA Tech Officer CASE Category  
 Kasuba, R. LERC/Townsend, D. P. 46-Mech Engr

**NCC 3 3** Cleveland State University 3190  
 Graduate study program in unsteady heat transfer in turbomachinery  
*Period* *Obligations*  
 09/29/79-09/30/82 FY79: \$67,512 TOTAL: \$67,512  
*Prin Invest* NASA Tech Officer CASE Category  
 Gorla, R. S. LERC/Simoneau, R. J. LERC/Graham, R. W. 46-Mech Engr

**NGT 36-025-780** Cleveland State University 3191  
 Pre-cooperative engineering education program  
*Period* *Obligations*  
 10/01/77-07/31/80 FY79: \$2,412 TOTAL: \$6,669  
*Prin Invest* NASA Tech Officer CASE Category  
 Bennett, W. R. HQ-LU/Pohly, J. G. LERC/Allen, R. P. 49-Engr, NEC

**NSG 1445** Cleveland State University 3192  
 Boundedness of solutions and controllability of systems and pursuit games described by nonlinear neutral functional differential equations  
*Period* *Obligations*  
 08/16/77-12/31/79 FY79: TOTAL: \$17,768  
*Prin Invest* NASA Tech Officer CASE Category  
 Chukwu, E. N. LARC/Dunning, R. S. LARC/Elliott, J. R. 41-Aero Engr

**NSG 3155** Cleveland State University 3193  
 Dense silicon-nitride bodies without additives  
*Period* *Obligations*  
 06/30/77-06/30/80 FY79: TOTAL: \$44,850  
*Prin Invest* NASA Tech Officer CASE Category  
 Yeh, H. C. LERC/Ashbrook, R. L. 43-Chem Engr

**NSG 3222** Cleveland State University 3194  
 Investigation of power and energy measuring devices for monitoring non-sinusoidal ac and pulsed dc signals  
*Period* *Obligations*  
 10/01/78-10/01/79 FY79: TOTAL: \$32,986  
*Prin Invest* NASA Tech Officer CASE Category  
 Maisel, J. F. LERC/Nieberding, W. C. LERC/Weikle, D. H. 45-Elec Engr

**NSG 3223** Cleveland State University 3195  
 Control of a hybrid system with flywheel energy storage and continuously variable transmission  
*Period* *Obligations*  
 10/01/78-03/31/80 FY79: TOTAL: \$56,819  
*Prin Invest* NASA Tech Officer CASE Category  
 Burghart, J. H. LERC/Beach, R. F. Donoghue, J. F. 49-Engr, NEC

**NSG 3257** Cleveland State University 3196  
 A study of dynamic energy equations  
*Period* *Obligations*  
 03/15/79-03/14/80 FY79: \$29,868 TOTAL: \$29,868  
*Prin Invest* NASA Tech Officer CASE Category  
 Larson, V. H. LERC/Lorenzo, C. F. Loparo, K. A. 46-Mech Engr

**NSG 3259** Cleveland State University 3197  
 Nitridation kinetics and reaction sintering of silicon nitride  
*Period* *Obligations*  
 03/26/79-03/26/81 FY79: \$51,119 TOTAL: \$51,119  
*Prin Invest* NASA Tech Officer CASE Category  
 Yeh, H. C. LERC/Herbell, T. P. 47-Materials Engr

**NSG 3308** Cleveland State University 3198  
 Development of a data system for multi channel spectrometers  
*Period* *Obligations*  
 09/14/79-09/13/80 FY79: \$52,395 TOTAL: \$52,395  
*Prin Invest* NASA Tech Officer CASE Category  
 Megargle, R. LERC/Gordon, W. A. 12-Chemistry

**NAS 3-21945** Kent State University 3199  
 Identification of new application technology  
*Period* *Obligations*  
 06/28/79-06/26/80 FY79: \$21,000 TOTAL: \$21,000  
*Prin Invest* NASA Tech Officer CASE Category  
 Gelernter, I. Spielberg, N. LERC/Sater, B. L. 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM  
OHIO (Continued)**

<b>NSG 2013</b>	<b>Kent State University</b>	<b>3200</b>
Transport of trace contaminants through porous media		
<i>Period</i>	<i>Obligations</i>	
03/15/74-12/31/80	FY79: \$98,700	TOTAL: \$98,700
<i>Prin. Invest</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Madey, R.	ARC/Quattrone, P. D.	12-Chemistry
<b>NSG 3159</b>	<b>Kent State University</b>	<b>3201</b>
Evaluation of surface alignment mechanisms for nematic liquid crystals		
<i>Period</i>	<i>Obligations</i>	
08/01/77-11/01/79	FY79: \$6,179	TOTAL: \$16,336
<i>Prin. Invest</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Johnson, D. L.	LERC/Wintucky, E. G.	47-Materials Engr
	LERC/Banks, B. A.	
<b>NAS 9-14538</b>	<b>Miami University</b>	<b>3202</b>
Research on a possible mechanism of 0-g sickness		
<i>Period</i>	<i>Obligations</i>	
02/15/75-03/31/80	FY79: \$25,900	TOTAL: \$127,971
<i>Prin. Invest</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Parker, D. E.	JSC/Homick, J. L.	59-Life Sci, NEC
	JSC/Reschke, M. F.	
<b>NCC 1 12</b>	<b>Miami University</b>	<b>3203</b>
Basic research on radiation induced lasers		
<i>Period</i>	<i>Obligations</i>	
05/15/79-07/31/80	FY79: \$63,536	TOTAL: \$63,536
<i>Prin. Invest</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wells, W. E.	LARC/Hohl, F.	13-Physics
	LARC/Jalufka, N. W.	
<b>NSG 1383</b>	<b>Miami University</b>	<b>3204</b>
High pressure laser plasma studies		
<i>Period</i>	<i>Obligations</i>	
03/01/77-02/28/79	FY79: \$45,757	TOTAL: \$45,757
<i>Prin. Invest</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wells, W. E.	LARC/Hohl, F.	13-Physics
<b>NSG 1396</b>	<b>Miami University</b>	<b>3205</b>
Nuclear pumped lasers		
<i>Period</i>	<i>Obligations</i>	
03/01/77-08/31/79	FY79: \$72,997	TOTAL: \$72,997
<i>Prin. Invest</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wells, W. E.	LARC/Hohl, F.	13-Physics
<b>NSG 3278</b>	<b>Muskingum College</b>	<b>3206</b>
Chemically modified electrodes		
<i>Period</i>	<i>Obligations</i>	
06/11/79-12/30/79	FY79: \$7,100	TOTAL: \$7,100
<i>Prin. Invest</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wallace, W. J.	LERC/Reid, M. A.	12-Chemistry
<b>NAS 1-14406</b>	<b>Ohio State University</b>	<b>3207</b>
General aviation low-speed airfoil design and development service		
<i>Period</i>	<i>Obligations</i>	
06/30/76-06/29/80	FY79: \$49,999	TOTAL: \$348,107
<i>Prin. Invest</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gregorek, G. M.	LARC/Barnwell, R. W.	41-Aero Engr
Burggraf, O. R.	LARC/McGhee, R. J.	
<b>NAS 1-15680</b>	<b>Ohio State University</b>	<b>3208</b>
Flight evaluation of the aeroacoustics of general aviation propellers		
<i>Period</i>	<i>Obligations</i>	
01/04/79-06/03/80	FY79: \$70,489	TOTAL: \$70,489
<i>Prin. Invest</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gregorek, G. M.	LARC/Greene, G. C.	41-Aero Engr
Korkan, K. D.	LARC/Pegg, R. J.	
Weislogel, G. S.		
<b>NAS 1-15969</b>	<b>Ohio State University</b>	<b>3209</b>
Determine the IFR operation profile of the general aviation single pilot		
<i>Period</i>	<i>Obligations</i>	
09/12/79-12/26/80	FY79: \$61,000	TOTAL: \$61,000
<i>Prin. Invest</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weislogel, G. S.	LARC/Bergeron, H. P.	41-Aero Engr
Chapman, G. C.	LARC/Shaugnessy, J. D.	
<b>NAS 2-10047</b>	<b>Ohio State University</b>	<b>3210</b>
An investigation in pilot and system response to critical in-flight events		
<i>Period</i>	<i>Obligations</i>	
11/01/78-05/31/80	FY79: \$106,017	TOTAL: \$106,017
<i>Prin. Invest</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rockwell, T. H.	ARC/Lauber, J. K.	69-Psych, NEC
Giffin, W. C.	ARC/Billings, C. E.	
<b>NAS 5-22575</b>	<b>Ohio State University</b>	<b>3211</b>
Communications link characterization experiment		
<i>Period</i>	<i>Obligations</i>	
09/02/75-05/01/80	FY79: \$58,474	TOTAL: \$347,417
<i>Prin. Invest</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hodge, D. B.	GSFC/Hirschmann, E.	45-Elec Engr
<b>NAS 5-25888</b>	<b>Ohio State University</b>	<b>3212</b>
Utilization of range difference observations in geodynamics		
<i>Period</i>	<i>Obligations</i>	
09/19/79-12/18/82	FY79: \$20,000	TOTAL: \$20,000
<i>Prin. Invest</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mueller, I. I.	GSFC/Stephanides, C. C.	32-Geological Sci
<b>NASW 3149</b>	<b>Ohio State University</b>	<b>3213</b>
Solar Terrestrial Climatic Relationships symposium		
<i>Period</i>	<i>Obligations</i>	
05/15/78-11/14/79	FY79: \$24,946	TOTAL: \$24,946
<i>Prin. Invest</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Seliga, T. A.	HQ-ST/Simon, N. K.	31-Atmos Sci

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OHIO (Continued)**

<b>NASW 3194</b>	<b>Ohio State University</b>	<b>3214</b>	<b>Support of ninth geod. sy solid earth and ocean physics</b>	<b>NSG 1498</b>	<b>Ohio State University</b>	<b>3221</b>	<b>Analysis of airborne antenna patterns</b>
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
01/01/78-06/30/79	FY79: TOTAL: \$16,000			01/16/78-01/15/81	FY79: \$84,910 TOTAL: \$119,511		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Mueller, I. I.	HQ-ER/Murphy, J. P.	31-Atmos Sci		Burnside, W. D.	LARC/Gilreath, M. C.	45-Elec Engr	
					LARC/Croswell, W. F.		
<b>NCA 2-565901</b>	<b>Ohio State University</b>	<b>3215</b>	<b>Relaxation algorithms applied to grid generation (ADI)</b>	<b>NSG 1613</b>	<b>Ohio State University</b>	<b>3222</b>	<b>Radar cross section studies</b>
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
07/01/79-06/30/80	FY79: \$18,000 TOTAL: \$18,000			05/01/79-04/30/80	FY79: \$49,929 TOTAL: \$49,929		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Nakamura, S.	ARC/Holst, T. L.	41-Aero Engr		Peters, L.	LARC/Gilreath, M. C.	45-Elec Engr	
				Burnside, W. D.			
<b>NGL 36-008-051</b>	<b>Ohio State University</b>	<b>3216</b>	<b>Stress corrosion cracking of titanium alloys</b>	<b>NSG 1620</b>	<b>Ohio State University</b>	<b>3223</b>	<b>Applications of a kinesthetic tactual display for aircraft control</b>
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
06/23/66-06/01/79	FY79: TOTAL: \$208,696			05/16/79-01/15/80	FY79: \$40,000 TOTAL: \$40,000		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Beck, F. H.	LERC/Gray, H. R.	47-Materials Engr		Gilson, R. D.	LARC/Holmes, B. J.	41-Aero Engr	
				Shulman, H. G.	LARC/Brown, P. W.		
<b>NGR 36-008-161</b>	<b>Ohio State University</b>	<b>3217</b>	<b>The direct combination of satellite and gravity data</b>	<b>NSG 1622</b>	<b>Ohio State University</b>	<b>3224</b>	<b>Viscous interaction effects on airfoil performances</b>
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
05/01/71-02/29/80	FY79: \$25,974 TOTAL: \$247,025			07/01/79-06/30/80	FY79: \$39,984 TOTAL: \$39,984		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Rapp, R. H.	GSFC/Marsh, J. G.	32-Geological Sci		Burggraf, O. R.	LARC/Barnwell, R. W.	41-Aero Engr	
				Duck, P. W.	LARC/South, J. C., Jr.		
<b>NGR 36-008-204</b>	<b>Ohio State University</b>	<b>3218</b>	<b>Activity related to earth and ocean physics application program</b>	<b>NSG 2162</b>	<b>Ohio State University</b>	<b>3225</b>	<b>Electronic search technology applicable to the search for extraterrestrial intelligence problem</b>
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
10/01/73-09/30/78	FY79: TOTAL: \$244,112			06/01/76-07/31/80	FY79: \$10,181 TOTAL: \$35,181		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Mueller, I. I.	HQ-ER/Murphy, J. P.	32-Geological Sci		Kraus, J. D.	ARC/Billingham, J.	45-Elec Engr	
Uotila, U. A.				Dixon, R. S.	ARC/Stull, M. A.		
<b>NGT 36-008-007</b>	<b>Ohio State University</b>	<b>3219</b>	<b>Training of post graduate medical students in field of aerospace medicine</b>	<b>NSG 2175</b>	<b>Ohio State University</b>	<b>3226</b>	<b>Laboratory infrared research relevant to atmospheric and planetary studies</b>
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
04/02/64-08/31/78	FY79: TOTAL: \$506,066			10/01/76-09/30/80	FY79: \$48,238 TOTAL: \$156,238		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Keller, M. D.	HQ-LU/Nicogossian, A. E.	56-Medical Sciences		Rao, K. N.	ARC/Boesc, R. W.	13-Physics	
<b>NGT 36-008-780</b>	<b>Ohio State University</b>	<b>3220</b>	<b>Pre-cooperative engineering education program</b>	<b>NSG 2179</b>	<b>Ohio State University</b>	<b>3227</b>	<b>Study of tactual sensing and transmittal of information</b>
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
10/01/78-09/30/79	FY79: TOTAL: \$2,030			09/01/76-01/31/80	FY79: \$45,186 TOTAL: \$155,683		
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>		<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>	
Stranges, J.	HQ-LU/Pohly, J. G.	49-Engr, NEC		Jagacinski, R. J.	ARC/Dunn, R. S.	69-Psych, NEC	
	LERC/Allen, R. P.			Gilson, R. D.			



**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NSG 2220** Ohio State University **3228**  
 Environmental and genetic effects on gravity receptors: A morphological, physiological and behavioral study

<i>Period</i>	<i>Obligations</i>	
05/01/77-10/31/79	FY79:	TOTAL: \$78,849
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lim, D. J.	ARC/Mehler, W. R.	51-Biological Sci

**NSG 3302** Ohio State University **3234**  
 The application of optical computing techniques to jet engine controls

<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/80	FY79: \$39,964	TOTAL: \$39,964
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Collins, S. A., Jr. Damon, E. K. Long, R. K.	LERC/Baumbilk, R. J. LERC/Sellers, J. F.	45-Elec Engr

**NSG 2298** Ohio State University **3229**  
 Experimental analyses of trailing edge flows

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/80	FY79: \$70,996	TOTAL: \$140,763
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Petrie, S. L. Korkan, K. D. Hoffmann, M.	ARC/McDevitt, J. B. ARC/Levy, L. L., Jr.	41-Aero Engr

**NSG 5141** Ohio State University **3235**  
 A search for variations in the spectrum of gamma gas

<i>Period</i>	<i>Obligations</i>	
12/01/76-05/31/78	FY79: \$10	TOTAL: \$384
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Slettebak, A. E.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

**NSG 3164** Ohio State University **3230**  
 Deformation structures in metal crystals due to wear and machining at high speed

<i>Period</i>	<i>Obligations</i>	
12/01/77-12/31/79	FY79: \$24,302	TOTAL: \$48,167
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Black, J. T.	LERC/Bill, R. C. LERC/Ludwig, L. P.	47-Materials Engr

**NSG 5247** Ohio State University **3236**  
 Exploratory observations of the ultraviolet spectra of late-type stars

<i>Period</i>	<i>Obligations</i>	
03/01/78-06/30/79	FY79:	TOTAL: \$9,187
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wing, R. F.	GSFC/Bogges, A. GSFC/West, D. K.	11-Astronomy

**NSG 3235** Ohio State University **3231**  
 Mechanism of fiber release during pyrolysis of carbon fiber reinforced plastics

<i>Period</i>	<i>Obligations</i>	
12/01/78-11/30/81	FY79: \$93,186	TOTAL: \$93,186
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, E. E.	LERC/Bowles, K. J. LERC/Serafini, T. T.	49-Engr, NEC

**NSG 5265** Ohio State University **3237**  
 Basic research for the earth dynamics program

<i>Period</i>	<i>Obligations</i>	
04/01/78-01/31/81	FY79: \$120,000	TOTAL: \$185,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mueller, I. I.	GSFC/Smith, D. E.	32-Geological Sci

**NSG 3247** Ohio State University **3232**  
 Propeller aero-acoustic methodology

<i>Period</i>	<i>Obligations</i>	
01/12/79-01/15/80	FY79: \$97,104	TOTAL: \$97,104
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Grzegorek, G. M. Korkan, K. D.	LERC/Mikkelson, D. C.	41-Aero Engr

**NSG 5275** Ohio State University **3238**  
 Research of altimeter data in order to improve existing gravity models

<i>Period</i>	<i>Obligations</i>	
05/15/78-09/30/79	FY79:	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schmidt, E. G.	GSFC/Smith, D. E.	32-Geological Sci

**NSG 3269** Ohio State University **3233**  
 In search of a theoretical foundation for quantitative ultrasonic measurement of fracture toughness

<i>Period</i>	<i>Obligations</i>	
05/01/79-02/07/80	FY79: \$10,887	TOTAL: \$10,887
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fu, L. S.	LERC/Vary, A.	47-Materials Engr

**NSG 5299** Ohio State University **3239**  
 A search for variations in the spectrum

<i>Period</i>	<i>Obligations</i>	
08/15/78-09/14/80	FY79:	TOTAL: \$1,735
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Slettebak, A. E.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

**NSG 5368** Ohio State University **3240**  
 Research of binary systems and composite sources involving cool and hot components

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/80	FY79: \$7,700	TOTAL: \$7,700
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wing, R. F.	GSFC/Bogges, A.	11-Astronomy

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NSG 7479** Ohio State University 3241  
 Investigation of infrared spectra of atmospheric gases to support stratospheric spectroscopic observations

<i>Period</i>	<i>Obligations</i>	
11/01/78-10/31/79	FY79: \$50,000	TOTAL: \$50,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shaw, J. H.	HQ-ST/Kakar, R. K.	31-Atmos Sci
	HQ-ST/Tilford, S. G.	

**NCA 2-130901** University of Cincinnati 3247  
 Development of a parabolized Navier-Stokes solver and numerical coordinate generator for subsonic and transonic plane flows

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/80	FY79: \$12,377	TOTAL: \$12,377
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Davis, R. T.	ARC/Rakich, J. V.	41-Aero Engr

**NGR 36-009-017** Ohio University 3242  
 Air transportation systems: Emphasis on low frequency navigation

<i>Period</i>	<i>Obligations</i>	
02/26/77-11/30/81	FY79: \$75,000	TOTAL: \$600,458
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McFarland, R. H.	LARC/Downing, D. R.	45-Elec Engr
	LARC/MacE, W. D.	

**NSG 1185** University of Cincinnati 3248  
 Thermal analysis of composite panels with three-dimensional reinforced composites

<i>Period</i>	<i>Obligations</i>	
05/01/75-10/31/79	FY79: \$21,997	TOTAL: \$93,417
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nayfeh, A. H.	LARC/Mikulas, M. M., Jr.	
	LARC/Card, M. F.	49-Engr, NEC

**NSG 7352** Ohio University 3243  
 Study of mechanism of thigmonorphogenesis in plants with special reference to role of ethylene and its significance to research with plants in space

<i>Period</i>	<i>Obligations</i>	
06/05/77-06/14/80	FY79: \$35,000	TOTAL: \$95,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jaffe, M. J.	HQ-SB/Halstead, T. W.	51-Biological Sci

**NSG 1486** University of Cincinnati 3249  
 Investigation of improved modal parameter estimation techniques

<i>Period</i>	<i>Obligations</i>	
01/16/78-02/28/80	FY79: \$40,390	TOTAL: \$73,902
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Brown, D. L.	LARC/Monteith, J. H.	46-Mech Engr
	LARC/Pappa, R. S.	

**NSG 3283** University of Akron 3244  
 Finite elements for rotor/stator interactive forces in general engine dynamic simulator

<i>Period</i>	<i>Obligations</i>	
08/31/79-05/31/80	FY79: \$51,950	TOTAL: \$51,950
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Adams, M. L.	LERC/Chamis, C. C.	41-Aero Engr
Padovan, J.	LERC/Kiraly, L. J.	
Pertis, D. G.		

**NSG 3022** University of Cincinnati 3250  
 Investigation of a new family of semiconductor diodes based upon bulk effects of deep impurities

<i>Period</i>	<i>Obligations</i>	
07/01/74-10/01/80	FY79: \$242	TOTAL: \$141,349
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Henderson, H. T.	LERC/Sundberg, G. R.	45-Elec Engr

**NAS 3-21609** University of Cincinnati 3245  
 Viscous flow analysis in turbomachine rotors

<i>Period</i>	<i>Obligations</i>	
02/27/79-12/10/79	FY79: \$25,000	TOTAL: \$25,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tabakoff, W.	LERC/McFarland, E. R.	41-Aero Engr
Hamed, A.	LERC/Sockol, P. M.	

**NSG 3024** University of Cincinnati 3251  
 Research into the use of silane pyrolytic deposition methods for SiO2 growth in the construction of stable high energy density capacitors

<i>Period</i>	<i>Obligations</i>	
07/01/74-10/01/80	FY79:	TOTAL: \$95,118
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nevin, J. H.	LERC/Riley, T. J.	45-Elec Engr
	LERC/Myers, I. T.	

**NCA 2-130801** University of Cincinnati 3246  
 Design and analysis of closed loop guidance laws for VTOL and STOL vehicles

<i>Period</i>	<i>Obligations</i>	
08/15/78-11/15/79	FY79:	TOTAL: \$14,412
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Slater, G. L.	ARC/Erzberger, H.	41-Aero Engr
	ARC/Xenakis, G.	

**NSG 3066** University of Cincinnati 3252  
 Study of the fluid mechanics of a radial turbine scroll

<i>Period</i>	<i>Obligations</i>	
07/01/75-06/30/79	FY79:	TOTAL: \$46,213
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tabakoff, W.	LERC/Stepka, F. S.	41-Aero Engr

**NASA'S UNIVERSITY PROGRAM  
OHIO (Continued)**

**NSG 3091** University of Cincinnati **3253**  
Study of suitable isomers for gamma ray lasers  
*Period* *Obligations*  
12/15/75-06/01/79 **FY79:** **TOTAL: \$34,268**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Selberg, B. P. LERC/Blue, J. W. 13-Physics  
Cronin, D. L. LERC/Leonard, R. F.

**NSG 3147** University of Cincinnati **3254**  
High-temperature low-cycle fatigue and crack propagation  
*Period* *Obligations*  
06/01/77-05/31/80 **FY79: \$28,522** **TOTAL: \$80,652**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Antolovich, S. D. LERC/Miner, R. V., Jr. 47-Materials Engr

**NSG 3188** University of Cincinnati **3255**  
Investigations into the geometry of straight and spiral bevel gears  
*Period* *Obligations*  
04/01/78-03/31/80 **FY79:** **TOTAL: \$25,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Huston, R. L. LERC/Coy, J. J. 46-Mech E/g.

**NSG 3218** University of Cincinnati **3256**  
Study of environmental solid particle effects on axial flow compressor  
*Period* *Obligations*  
11/1/78-11/15/80 **FY79: \$59,667** **TOTAL: \$59,667**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tatarskoff, W. LERC/Chubb, D. L. 46-Mech Engr  
Hamco, A.

**NSG 3263** University of Cincinnati **3257**  
A mechanistic evaluation of deformation and fracture in high temperature low cycle fatigue  
*Period* *Obligations*  
03/26/79-03/26/80 **FY79: \$29,579** **TOTAL: \$29,579**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Antolovich, S. D. LERC/Hirschberg, M. H.  
LERC/Halford, G. R. 47-Materials Engr

**NSG 3267** University of Cincinnati **3258**  
Analysis of internal viscous flows using theory of spines and implicit numerical methods  
*Period* *Obligations*  
04/02/79-04/02/80 **FY79: \$30,000** **TOTAL: \$30,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ghia, K. N. LERC/Kao, H. C. 41-Aero Engr  
Ghia, U.

**NAS 3-20392** University of Dayton **3259**  
Continuation of the study for development of ATS and communications technology satellite: User experiments history  
*Period* *Obligations*  
02/04/77-01/04/78 **FY79:** **TOTAL: \$49,904**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Engler, N. A. LERC/Gentile, L. C. 42-Astro Engr  
Scheffler, F. L.

**NAS 3-21355** University of Dayton **3260**  
Cross impact assessment of fiber optic technology development  
*Period* *Obligations*  
03/21/78-03/14/79 **FY79: \$800** **TOTAL: \$17,576**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Martino, J. P. LERC/Stevenson, S. M.  
Lenz, R. C., Jr. LERC/Merutka, J. P. 47-Materials Engr  
Chen, K. L.

**NAS 3-21370** University of Dayton **3261**  
Compilation of ATS-1, 3, 5, 6 and CTS user experiments documentation  
*Period* *Obligations*  
06/08/78-05/08/79 **FY79:** **TOTAL: \$58,567**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Engler, N. A. LERC/Gentile, L. C. 42-Astro Engr  
Nash, I.

**NAS 3-21698** University of Dayton **3262**  
Meeting for AGARD/NATO representatives  
*Period* *Obligations*  
08/31/78-11/10/78 **FY79: \$10,711** **TOTAL: \$16,711**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Militello, J. LERC/Acurio, J. 41-Astro Engr

**NAS 6-2456** University of Dayton **3263**  
Atmospheric phenomena associated with falling spheres  
*Period* *Obligations*  
03/25/74-02/29/80 **FY79: \$30,036** **TOTAL: \$228,721**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Luers, J. K. WFC/Duke, J. R. 31-Atmos Sci  
WFC/Schmidlin, F. J.

**NAS 8-31294** University of Dayton **3264**  
Examination of requirements and methods for reporting atmospheric information  
*Period* *Obligations*  
01/16/75-01/31/79 **FY79: \$8,447** **TOTAL: \$166,471**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Leurs, J. K. MSFC/Camp, D. W. 41-Aero Engr  
Engler, N. A. MSFC/Alexander, M. B.

**NASA'S UNIVERSITY PROGRAM  
OHIO (Continued)**

**NAS 8-3211** University of Dayton 3265  
Turbulence study  
*Period* Obligations  
07/21/76-02/29/80 FY79 \$34,983 TOTAL: \$139,602  
*Prin Invest* NASA Tech Officer CASE Category  
Luers, J. K. MSFC/Camp, D. W. 41-Aero Engr  
MSFC/Alexander, M. B.

**NAS 8-33369** University of Dayton 3266  
Examination of requirements and methods for reporting atmospheric information  
*Period* Obligations  
J2/12/79-02/11/80 FY79: \$40,000 TOTAL: \$40,000  
*Prin Invest* NASA Tech Officer CASE Category  
Luers, J. K. MSFC/Camp, D. W. 31-Atmos Sci  
MSFC/Thomas, P. E.

**NSG 2373** University of Dayton 3267  
Thermal protection coatings for improved weapons cook-off  
*Period* Obligations  
02/01/79-12/31/79 FY79 \$27,000 TOTAL: \$27,000  
*Prin Invest* NASA Tech Officer CASE Category  
Salzer, J. O. ARC/Kourtidis, D. A. 12-Chemistry

**NSG 2374** University of Dayton 3268  
Combat damage-tolerant fire containment barriers  
*Period* Obligations  
02/01/79-10/31/79 FY79 \$22,873 TOTAL: \$22,873  
*Prin Invest* NASA Tech Officer CASE Category  
Salzer, J. O. ARC/Kourtidis, D. A. 12-Chemistry

**NSG 6025** University of Dayton 3269  
Study of the effects of heavy rains on aircraft aerodynamic performance  
*Period* Obligations  
04/01/79-09/30/79 FY79: \$10,918 TOTAL: \$10,918  
*Prin Invest* NASA Tech Officer CASE Category  
Luers, J. K. WFC/Melson, W. E., Jr. 41-Aero Engr  
WFC/Parker, L. C.

**NSG 7444** University of Dayton 3270  
An investigation of the cratering-induced motions occurring during the formation of bowl-shaped craters  
*Period* Obligations  
06/01/78-02/29/80 FY79: TOTAL: \$46,704  
*Prin Invest* NASA Tech Officer CASE Category  
Piekutowski, A. J. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, R. I.

**NCC 3-5** University of Toledo 3271  
Evaluation of the performance of wind turbine concepts and operating wind turbines  
*Period* Obligations  
06/15/79-09/14/80 FY79 \$99,993 TOTAL: \$99,993  
*Prin Invest* NASA Tech Officer CASE Category  
Keith, T. G., Jr. LERC/Finnegan, P. M. 49-Engr, NEC  
LERC/Cooksey, D.

**NSG 3084** University of Toledo 3272  
Multi-variable control and sensor evaluation for integrated air breathing propulsion systems  
*Period* Obligations  
01/01/76-12/31/79 FY79 \$12,000 TOTAL \$64,790  
*Prin Invest* NASA Tech Officer CASE Category  
Leininger, G. G. LERC/Merrill, W. C. 45-Elec Engr  
LERC/Zeller, J. R.

**NSG 3099** University of Toledo 3273  
Energy transfer mechanism in a laser-sustained flowing-gas plasma  
*Period* Obligations  
03/15/76-08/14/79 FY79: TOTAL: \$17,169  
*Prin Invest* NASA Tech Officer CASE Category  
Rush, W. F. LERC/Connolly, D. J. 35-Physics

**NSG 3121** University of Toledo 3274  
Mass transport phenomena between bubbles and dissolved gases in liquids in a zero-g environment  
*Period* Obligations  
09/01/76-01/01/80 FY79 TOTAL: \$6,001  
*Prin Invest* NASA Tech Officer CASE Category  
Dewitt, K. J. LERC/Labus, T. L. 49-Engr, NEC

**NSG 3139** University of Toledo 3275  
Stability analysis of wind turbines with long, flexible blades  
*Period* Obligations  
02/22/77-01/31/80 FY79 \$51,947 TOTAL \$141,943  
*Prin Invest* NASA Tech Officer CASE Category  
Kozal, K. R. LERC/Chamis, C. C. 41-Aero Engr

**NSG 3156** University of Toledo 3276  
Analysis of the stirling engine oil pumping ring seal  
*Period* Obligations  
07/01/77-02/28/81 FY79 TOTAL: \$36,384  
*Prin Invest* NASA Tech Officer CASE Category  
Keith, T. G., Jr. LERC/Connolly, D. J. 46-Mech Engr  
Smith, P. J. LERC/Lewis, J. P.

**NSG 3171** University of Toledo 3277  
Properties of the multivariable Nyquist array method  
*Period* Obligations  
11/01/77-10/31/79 FY79: \$31,200 TOTAL: \$61,200  
*Prin Invest* NASA Tech Officer CASE Category  
Leininger, G. G. LERC/Lehtinen, B. 45-Elec Engr

**NSG 3250** University of Toledo 3278  
Thermodynamics of the potassium sulfur-oxygen and related items  
*Period* Obligations  
06/15/79-06/13/80 FY79: \$38,720 TOTAL: \$38,720  
*Prin Invest* NASA Tech Officer CASE Category  
Edwards, J. G. LERC/Searns, C. A. 12-Chemistry  
LERC/Kohl, F. J.

**NASA'S UNIVERSITY PROGRAM  
OHIO (Continued)**

**NSG 3281** University of Toledo 3279  
An investigation of the high frequency performance of series resonant inverters

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/81	FY79: \$24,962	TOTAL: \$24,962
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stuart, T. A.	LERC/Gruber, R. P.	45-Elec Engr

**NSG 5183** University of Toledo 3280  
Research of the temporal line-blanketing effects for photometric variations

<i>Period</i>	<i>Obligations</i>	
07/01/77-06/30/78	FY79:	TOTAL \$2,285
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Molnar, M. R.	GSFC/Kupperian, J. E., Jr	11-Astronomy

**NSG 5207** University of Toledo 3281  
Coordinated Copernicus and ground-based observations of the radio binaries

<i>Period</i>	<i>Obligations</i>	
09/01/77-03/31/79	FY79:	TOTAL: \$2,753
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bopp, B. W.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

**NSG 5359** University of Toledo 3282  
Ultraviolet observations of various type supergiants

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/80	FY79: \$4,700	TOTAL: \$4,700
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Morrison, N. D.	GSFC/Bogges, A.	11-Astronomy
Kunasz, P. B.		

**NSG 5388** University of Toledo 3283  
Phase function studies in reflection nebulae with the international ultraviolet experiment

<i>Period</i>	<i>Obligations</i>	
07/01/79-12/31/79	FY79: \$8,028	TOTAL: \$8,028
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Witt, A. N.	GSFC/Bogges, A.	11-Astronomy
Stecher, T. P.		
Bohlin R. C.		

**NSG 7041** University of Toledo 3284  
Measurement of the ultraviolet surface brightness of reflection nebulae with the Dutch national satellite

<i>Period</i>	<i>Obligations</i>	
12/15/74-03/15/78	FY79	TOTAL \$29,396
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Witt, A. N.	HQ-SC/Rosendhal, J. D.	11-Astronomy
	HQ-SC/Roman, N. G.	

**NSG 7138** University of Toledo 3285  
Satellite ultraviolet data analysis program

<i>Period</i>	<i>Obligations</i>	
05/01/75-04/30/78	FY79:	TOTAL: \$31,030
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Molnar, M. R.	HQ-SC/Roman, N. G.	11-Astronomy
	HQ-SC/Rosendhal, J. D.	

**NSG 7301** University of Toledo 3286  
Physical study of comets

<i>Period</i>	<i>Obligations</i>	
01/01/77-09/30/79	FY79:	TOTAL \$19,928
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Delsemme, A. H.	HQ-SL/McPhy, R. E.	11-Astronomy
	HQ-SL/Fellows, R. F.	

**NSG 7424** University of Toledo 3287  
Conference, April 1978 'Cells Molecular Biology in Space'

<i>Period</i>	<i>Obligations</i>	
03/15/78-03/15/79	FY79:	TOTAL \$19,511
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Diehn, B.	HQ-SB/Geib, D. S.	51-Biological Sci
Deamer, D.	HQ-SB/Yeung, R. S.	

**NSG 7431** University of Toledo 3288  
Ultraviolet studies of reflection nebulae

<i>Period</i>	<i>Obligations</i>	
03/01/78-12/31/79	FY79:	TOTAL \$24,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Witt, A. N.	HQ-SC/Rosendhal, J. D.	11-Astronomy
	HQ-SC/Roman, N. G.	

**NSG 7475** University of Toledo 3289  
Copernicus and buss observations of AP stars

<i>Period</i>	<i>Obligations</i>	
07/01/78-06/30/79	FY79:	TOTAL \$11,628
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Molnar, M. R.	HQ-SC/Roman, N. G.	11-Astronomy
	HQ-SC/Rosendhal, J. D.	

**NSG 7620** University of Toledo 3290  
Phase function studies in reflection nebulae

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/01/80	FY79: \$13,245	TOTAL \$13,245
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Witt, A. N.	HQ-SC/Weiler, E. J.	11-Astronomy
	HQ-SC/Roman, N. G.	

**W-14168** University of Toledo 3291  
The Proceedings of International Astronautical Union - Colloquium

<i>Period</i>	<i>Obligations</i>	
09/01/76-08/31/77	FY79	TOTAL \$4,723
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Delsemme, A. H.	HQ-SL/Fellows, R. F.	19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM  
OHIO (Continued)**

**NCA 2-875801**      **Wright State University**      **3292**  
Motion sickness in the cat: An evaluation of vestibular habituation rates and the incidence of sickness  
*Period*      *Obligations*  
01/01/78-12/31/79      FY79: \$26,496      TOTAL: \$44,644  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Crampton, G. H.      ARC/Daunton, N. G.      59-Life Sci, NEC

**NGT 36-024-790**      **Wright State University**      **3293**  
Aerospace medicine residency program  
*Period*      *Obligations*  
07/01/78-06/30/80      FY79: \$312,569      TOTAL: \$312,569  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Mohler, S. R.      HQ-SB/Nicogossian, A. E.  
Beljan, J.      HQ-SB/Billingham, J.      59-Life Sci, NEC

**NSG 1417**      **Wright State University**      **3294**  
Computation of unsteady stability derivatives from a simplified aerodynamic force model  
*Period*      *Obligations*  
09/01/77-09/30/79      FY79:      TOTAL: \$32,874  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Wells, W. R.      LARC/Queijo, M. J.      41-Aero Engr  
LARC/Suit, W. T.

**NSG 3240**      **Wright State University**      **3295**  
Atomic structure relationship in amorphous and crystalline boron fibers  
*Period*      *Obligations*  
12/01/78-08/01/79      FY79: \$11,306      TOTAL: \$11,306  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Bambakidis, G.      LERC/DiCarlo, J. A.      13-Physics  
LERC/Grimes, H. H.

**OKLAHOMA**

**NAS13-111**      **Murray State College**      **3296**  
Conduct short courses in remote sensing  
*Period*      *Obligations*  
04/02/79-04/02/80      FY79: \$24,231      TOTAL: \$24,231  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Franklin, W. A.      NSTL/Atwell, B. H.      31-Atmos Sci

**NAS 2-9877**      **Oklahoma State University**      **3297**  
Development and execution of a visitor and tour program  
*Period*      *Obligations*  
11/01/77-10/31/79      FY79: \$137,100      TOTAL: \$279,736  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Wiggins, K. E.      ARC/Miller, S. A.      99-Multi-Discip

**NAS 6-2970**      **Oklahoma State University**      **3298**  
Mobile telemetry tracking systems  
*Period*      *Obligations*  
02/01/79-05/30/80      FY79: \$207,290      TOTAL: \$207,290  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Buck, R. F.      WFC/West, W. W.      49-Engr, NEC  
WFC/Powell, W. R.

**NAS 9-15692**      **Oklahoma State University**      **3299**  
Study of benefits of LANDSAT data  
*Period*      *Obligations*  
11/01/78-12/31/79      FY79: \$10,000      TOTAL: \$10,000  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Ray, D. E.      JSC/Marquis, D. L.      32-Geological Sci

**NSG 1467**      **Oklahoma State University**      **3300**  
An experimental study of the noise generating mechanism in supersonic jets  
*Period*      *Obligations*  
11/15/77-10/31/79      FY79:      TOTAL: \$34,120  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
McLaughlin, D. K.      LARC/Seiner, J. M.      41-Aero Engr  
LARC/Maestrello, L.

**NSG 2396**      **Oklahoma State University**      **3301**  
Study of boundary layer transition using transonic-cone preston-tube data  
*Period*      *Obligations*  
07/01/79-09/30/80      FY79: \$47,830      TOTAL: \$47,830  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Moretti, P. M.      ARC/Steinle, F. W., Jr.      41-Aero Engr  
Reed, T. D.      ARC/Daugherty, J. C.

**NSG 4018**      **Oklahoma State University**      **3302**  
Study of handling qualities of large control configured aircraft  
*Period*      *Obligations*  
01/01/79-12/31/79      FY79: \$24,680      TOTAL: \$24,680  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Swain, R. L.      DFRC/Gilyard, G. B.      41-Aero Engr

**NSG 6018**      **Oklahoma State University**      **3303**  
Investigation for improved precision in aerial application equipment  
*Period*      *Obligations*  
10/01/77-09/30/79      FY79: \$39,404      TOTAL: \$99,794  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Roth, L. O.      WFC/Carr, R. E.      49-Engr, NEC  
Whitney, R. W.

**NSG 7640**      **Oklahoma State University**      **3304**  
Remote sensing applications to Oklahoma resources and environmental problems  
*Period*      *Obligations*  
09/01/79-08/31/82      FY79: \$165,000      TOTAL: \$165,000  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
Walsh, S.      HQ-ET/Vitale, J. A.      31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
OKLAHOMA (Continued)**

**NASW 3007**      **Southeastern Oklahoma State College**      **3305**  
Operation of the technology use center

Period	Obligations	
01/01/77-06/30/78	FY79:	TOTAL: \$128,480
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gold, C. H.	HQ-ET/Bivins, R. G.	99-Multi-Discip

**NCA 2-580901**      **University of Oklahoma - Norman**      **3312**  
Cardiac function and exercise training

Period	Obligations	
07/01/79-06/30/81	FY79: \$4,000	TOTAL: \$4,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stone, H. L.	ARC/Sandler, H.	51-Biological Sci

**NASW 3180**      **Southeastern Oklahoma State College**      **3306**  
Operation of a NASA Industrial Application Center

Period	Obligations	
10/01/78-06/30/79	FY79: \$160,272	TOTAL: \$160,272
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Oliver, R.	HQ-ET/Bivins, R. G.	49-Engr, NEC

**NGT 37-003-760**      **University of Oklahoma - Norman**      **3313**  
Training of undergraduate students in sciences and engineering

Period	Obligations	
06/01/76-05/31/80	FY79:	TOTAL: \$31,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Thomas, G.	HQ-LU/Pohly, J. G.	49-Engr, NEC
	HQ-U/Jenkins, H. G.	

**NSG 2282**      **University of Oklahoma - Health Center**      **3307**  
Central and peripheral mechanisms underlying cardiovascular deconditioning in the unanesthetized primate

Period	Obligations	
11/01/77-10/31/79	FY79: \$43,344	TOTAL: \$88,579
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stone, H. L.	ARC/Sandler, H.	56-Medical Sciences

**NSG 1481**      **University of Oklahoma - Norman**      **3314**  
Miniature piezoresistive solid state integrated pressure sensor

Period	Obligations	
01/01/78-10/31/79	FY79: \$53,811	TOTAL: \$90,462
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kahng, S. K.	LARC/Gross, C.	45-Elec Engr
	LARC/Ocheltree, S. L.	

**NAS 5-25375**      **University of Oklahoma - Norman**      **3308**  
Satellite data assimilation in numerical forecast models

Period	Obligations	
12/05/78-12/04/80	FY79: \$55,835	TOTAL: \$55,835
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sasaki, Y. K.	GSFC/Greaves, J. R.	31-Atmos Sci
	GSFC/Stetina, F. L.	

**NSG 5257**      **University of Oklahoma - Norman**      **3315**  
Research of the ultraviolet spectrum of a massive triple system OAO

Period	Obligations	
03/15/78-03/14/79	FY79:	TOTAL: \$572
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Herczeg, T. J.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

**NAS 9-31377**      **University of Oklahoma - Norman**      **3309**  
Integrating upper and lower atmospheric wind profiles and statistics

Period	Obligations	
03/17/75-04/20/79	FY79:	TOTAL: \$82,929
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McCarthy, J.	MSFC/Camp, D. W.	31-Atmos Sci
Blick, E. F.	MSFC/Fichtl, G. H.	

**OREGON**

**NAS 8-33330**      **University of Oklahoma - Norman**      **3310**  
Observations of the rapid variable AE Aquarius in the HEAO-B guest investigator program: Observations of selected superclusters

Period	Obligations	
02/05/79-02/04/80	FY79: \$3,886	TOTAL: \$3,886
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chincarini, G. L.	MSFC/Jones, J. B., Jr.	11-Astronomy
Herczeg, T. J.		

**NSG 2387**      **Oregon Graduate Center**      **3316**  
Evaluation of turbulence-induced noise in coherent anti Stokes/Raman scattering

Period	Obligations	
06/01/79-02/28/80	FY79: \$14,970	TOTAL: \$14,970
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Elliott, R. A.	ARC/McKenzie, R. L.	13-Physics

**NAS13-122**      **University of Oklahoma - Norman**      **3311**  
To provide for a second year of effort in establishing LANDSAT workshop

Period	Obligations	
06/01/79-05/31/80	FY79: \$15,000	TOTAL: \$15,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Harrington, J. A.	NSTL/Atwell, B. H.	32-Geological Sci

**NSG 7457**      **Oregon Graduate Center**      **3317**  
Spatial and temporal variations in atmospheric carbon concentration

Period	Obligations	
05/01/78-05/30/80	FY79: \$75,000	TOTAL: \$149,100
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rasmussen, R. A.	HQ-EB/Kakar, R. K.	31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
OREGON (Continued)**

<b>NAS 5-23738</b>	<b>Oregon State University</b>	<b>3318</b>			
Ocean color ground truth support					
<i>Period</i>		<i>Obligations</i>			
10/21/76-10/31/79	FY79:	TOTAL: \$101,558			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Zaneveld, R. V.	GSFC/Mueller, J. L.	39-Env Sci, NEC			
Pak, H.					
<b>NAS 8-32694</b>	<b>Oregon State University</b>	<b>3319</b>			
Frontogenesis study					
<i>Period</i>		<i>Obligations</i>			
07/01/78-06/30/79	FY79:	TOTAL: \$12,500			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Barber, D. A.	MSFC/Hill, C. K.	31-Atmos Sci			
	MSFC/Thomas, P. E.				
<b>NAS 9-14860</b>	<b>Oregon State University</b>	<b>3320</b>			
Assessment of the impact of increased solar ultraviolet radiation upon marine ecosystems					
<i>Period</i>		<i>Obligations</i>			
10/08/75-12/07/79	FY79: \$60,000	TOTAL: \$260,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Worrest, R. C.	JSC/Nachtwey, D. S.	54-Env Biology			
<b>NCA 2-586901</b>	<b>Oregon State University</b>	<b>3321</b>			
Joint use of resources for improved LANDSAT data processing capability					
<i>Period</i>		<i>Obligations</i>			
06/01/79-12/20/79	FY79: \$15,364	TOTAL: \$15,364			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Murray, R. J.	ARC/Wilson, D. E.	21-Mathematics			
<b>NGL 38-002-020</b>	<b>Oregon State University</b>	<b>3322</b>			
Study of elemental abundances in meteorite and terrestrial matter					
<i>Period</i>		<i>Obligations</i>			
08/26/66-02/28/78	FY79:	TOTAL: \$413,622			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Schmitt, R. A.	HQ-SL/Bryson, R. P.	32-Geological Sci			
	HQ-SL/Roberson, F. I.				
<b>NGL 38-002-039</b>	<b>Oregon State University</b>	<b>3323</b>			
Lunar sample analysis					
<i>Period</i>		<i>Obligations</i>			
01/19/71-01/31/80	FY79: \$55,210	TOTAL: \$536,867			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Schmitt, R. A.	JSC/Harris, J. W.	13-Physics			
<b>NGL 38-002-053</b>	<b>Oregon State University</b>	<b>3324</b>			
Development and operation of an environmental remote sensing applications laboratory					
<i>Period</i>		<i>Obligations</i>			
03/16/72-03/31/82	FY79: \$175,000	TOTAL: \$1,025,000			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Schrumpf, B. J.	HQ-ET/Vitale, J. A.	39-Env Sci, NEC			
<b>NSG 4013</b>	<b>Oregon State University</b>	<b>3325</b>			
Problems associated with flight control in turbulence					
<i>Period</i>		<i>Obligations</i>			
09/01/77-09/30/78	FY79:	TOTAL: \$23,818			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Ruzicka, J.	DFRC/Hliff, K. W.	41-Aero Engr			
<b>NSG 5308</b>	<b>Oregon State University</b>	<b>3326</b>			
Analyses of the surface heat balance over the world ocean					
<i>Period</i>		<i>Obligations</i>			
12/01/78-11/30/79	FY79: \$56,434	TOTAL: \$56,434			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Esbensen, S.	GSFC/Halem, M.	31-Atmos Sci			
<b>NSG 5343</b>	<b>Oregon State University</b>	<b>3327</b>			
Techniques for applications of satellite data to the quantitative forecasting of precipitation					
<i>Period</i>		<i>Obligations</i>			
05/01/79-04/30/80	FY79: \$64,660	TOTAL: \$64,660			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Decker, F. W.	GSFC/Adler, R. F.	31-Atmos Sci			
<b>NSG 5353</b>	<b>Oregon State University</b>	<b>3328</b>			
Numerical simulation of large scale ocean atmosphere coupling and the ocean's role in climate					
<i>Period</i>		<i>Obligations</i>			
05/01/79-04/30/80	FY79: \$194,059	TOTAL: \$194,059			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Gates, W. L.	GSFC/Halem, M.	31-Atmos Sci			
<b>NSG 7178</b>	<b>Oregon State University</b>	<b>3329</b>			
Examination of the suggested modes of origin of channels found on the Moon and Mars					
<i>Period</i>		<i>Obligations</i>			
01/01/76-01/31/80	FY79: \$25,228	TOTAL: \$85,878			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Komar, P. D.	HQ-SL/Dwornik, S. E.	32-Geological Sci			
	HQ-SL/Boyce, J. M.				
<b>NCA 2-587801</b>	<b>University of Oregon - Eugene</b>	<b>3330</b>			
A computer-based measure of vocal stress					
<i>Period</i>		<i>Obligations</i>			
07/01/78-10/31/79	FY79: \$5,035	TOTAL: \$20,020			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Murray, R. J.	ARC/Wright, R. H.	69-Psych, NEC			
Branscomb, H.					
<b>NGL 38-003-022</b>	<b>University of Oregon - Eugene</b>	<b>3331</b>			
Lunar sample analysis					
<i>Period</i>		<i>Obligations</i>			
02/09/71-01/31/81	FY79: \$44, ...	TOTAL: \$625,874			
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>Case Category</i>			
Weill, D. F.	JSC/Parris, J. W.	13-Physics			



**NASA'S UNIVERSITY PROGRAM  
OREGON (Continued)**

**NGR 38-003-020** University of Oregon - Eugene 3332  
Inspection of petrologically significant physical and chemical properties of the silicate melts

<i>Period</i>	<i>Obligations</i>	
06/01/70-02/28/81	FY79: \$62,387	TOTAL: \$778,167
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Weill, D. F.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. E.	

**NSG 7360** University of Oregon - Eugene 3333  
Far-infrared measurements of trace constituents

<i>Period</i>	<i>Obligations</i>	
06/01/77-09/30/79	FY79: \$44,760	TOTAL: \$88,640
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nolt, I. G.	HQ-ST/Kakar, R. K.	31-Atmos Sci
Radostitz, J. V.	HQ-ST/Tilford, S. G.	
Donnelly, R. J.		

**NSG 7531** University of Oregon - Eugene 3334  
Infrared & visible polarimetry of planetary bodies

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/79	FY79: \$12,333	TOTAL: \$12,333
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kemp, J. C.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Murphy, R. E.	

**NSG 7639** University of Oregon - Eugene 3335  
Spectrum of the continuous gravitational radiation background

<i>Period</i>	<i>Obligations</i>	
09/30/79-09/29/80	FY79: \$11,045	TOTAL: \$11,045
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zimmerman, R. L.	HQ-SC/Roman, N. G.	11-Astronomy
	HQ-SC/Weiler, E. J.	

**NAS 8-32162** University of Oregon-Health Sci. C. r. 3336  
Analytical study of electrophoretic characterization of kidney cells

<i>Period</i>	<i>Obligations</i>	
08/06/76-06/05/78	FY79:	TOTAL: \$53,666
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Knox, R. J.	MSFC/Scott, F. E.	59-Life Sci, NEC
	MSFC/Miller, T. Y.	

**NAS 8-32353** University of Oregon-Health Sci. Ctr. 3337  
SPAR project: Counter current distribution of biologicals

<i>Period</i>	<i>Obligations</i>	
12/11/76-12/31/77	FY79:	TOTAL: \$57,664
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Brooks, D. E.	MSFC/Reeves, F. A.	51-Biological Sci
	MSFC/Chassay, R. P.	

**NAS 8-32609** University of Oregon-Health Sci. Ctr. 3338  
Electrophoretic separator experiments

<i>Period</i>	<i>Obligations</i>	
08/08/77-04/30/79	FY79: \$22,842	TOTAL: \$87,741
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Seaman, G. V.	MSFC/Reeves, F. A.	59-Life Sci, NEC
	MSFC/Snyder, R. S.	

**NAS 8-32817** University of Oregon-Health Sci. Ctr. 3339  
Counter current distribution of biologic cells

<i>Period</i>	<i>Obligations</i>	
03/07/78-03/31/79	FY79:	TOTAL: \$49,996
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Brooks, D. E.	MSFC/Nerrin, B. N.	59-Life Sci, NEC
	MSFC/Snyder, R. S.	

**PENNSYLVANIA**

**NSG 3136** Bucknell University 3340  
Development of a redictive model for thermal and thermo-oxidative stability of PMR polyimide graphite fiber composites

<i>Period</i>	<i>Obligations</i>	
02/01/77-01/31/80	FY79: \$15,975	TOTAL: \$44,999
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Snyder, W. J.	LERC/Gluyas, R. E.	43-Chem Engr
	LERC/Serafini, T. T.	

**NAS 3-20370** Carnegie - Mellon University 3341  
Evaluation of the mechanical properties of electroslag refined Fe-12 Ni alloys

<i>Period</i>	<i>Obligations</i>	
09/02/76-08/01/78	FY79:	TOTAL: \$36,977
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bhat, G. k.	LERC/Witzke, W. R.	47-Materials Engr

**NGT 39-087-790** Carnegie - Mellon University 3342  
Pre-cooperative engineering education program

<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/80	FY79: \$4,229	TOTAL: \$4,229
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cathie, W.	HQ-LU/Pohly, J. G.	49-Engr, NEC
	LERC/Allen, R. P.	

**NSG 3172** Carnegie - Mellon University 3343  
Evaluation of failure mechanics in composites

<i>Period</i>	<i>Obligations</i>	
12/01/77-11/30/79	FY79: \$30,000	TOTAL: \$60,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Swedlow, J. L.	LERC/Srawley, J. E.	46-Mech Engr
	LERC/Brown, W. F., Jr.	

**NSG 3202** Carnegie - Mellon University 3344  
A preliminary thermal analysis of reciprocating seals for the stirling engine

<i>Period</i>	<i>Obligations</i>	
07/01/78-12/01/79	FY79: \$29,632	TOTAL: \$36,347
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hughes, W. F.	LERC/Cunningham, R.E.	46-Mech Engr
	LERC/Ludwig, L. P.	

**NASA'S UNIVERSITY PROGRAM  
PENNSYLVANIA (Continued)**

**NSG 7585** **Carnegie - Mellon University** **3345**  
 Iron-60 as a heat source and chronometer in early solar system  
*Period* *Obligations*  
 05/01/79-04/30/81 FY79: \$59,174 TOTAL: \$59,174  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Kohman, T. P. HQ-SL/French, B. M. 32-Geological Sci  
 HQ-SL/Quaide, W. L.

**NSG 1606** **Drexel University** **3352**  
 Fracture behavior of boron aluminum and graphite polyimide composites and at room and elevated temperatures  
*Period* *Obligations*  
 07/01/79-06/30/80 FY79: \$49,400 TOTAL: \$49,400  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Awerbuch, J. LARC/Poe, C. C., Jr. 47-Materials Engr  
 Koczak, M. J. LARC/Kennedy, J. M.

**NAS 1-14393** **Drexel University** **3346**  
 Science support for the limb infrared monitor of the stratosphere experiment  
*Period* *Obligations*  
 04/01/76-10/31/80 FY79: \$53,556 TOTAL: \$106,556  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 House, F. B. LARC/Russell, J. M., III 31-Atmos Sci  
 LARC/James, R. L., Jr.

**NSG 2357** **Drexel University** **3353**  
 Feasibility studies for light scattering experiments in space to determine the velocity relaxation of small particles in a fluid  
*Period* *Obligations*  
 01/01/79-12/31/79 FY79: \$23,000 TOTAL: \$23,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Acquista, C. A. ARC/Brooks, W. F. 13-Physics  
 Narducci, L. ARC/Lura, H.

**NAS 5-22946** **Drexel University** **3347**  
 Science support for the earth radiation budget experiment on Nimbus G  
*Period* *Obligations*  
 01/12/76-10/01/80 FY79: \$2,900 TOTAL: \$123,008  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 House, F. B. GSFC/Nelsen, E. D. 13-Physics

**NSG 3090** **Drexel University** **3354**  
 Theory for nonlinear reaction-diffusion phenomena with application to free radical recombination  
*Period* *Obligations*  
 10/01/75-09/31/78 FY79: TOTAL: \$75,188  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Rosen, G. H. LERC/Zelevnik, F. J. 21-Mathematics

**NAS 8-33372** **Drexel University** **3348**  
 A critical experiment to support possible space flight  
*Period* *Obligations*  
 02/12/79-02/11/80 FY79: \$29,057 TOTAL: \$29,057  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Lord, A. E. MSFC/Black, R. E. 31-Atmos Sci  
 MSFC/Williams, J. R.

**NSG 3128** **Drexel University** **3355**  
 Interface characterization of metal matrix composites  
*Period* *Obligations*  
 10/01/76-10/31/79 FY79: \$35,000 TOTAL: \$105,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Koczak, M. J. LERC/Grimes, H. H. 47-Materials Engr  
 Lawley, A.

**NAS 9-15915** **Drexel University** **3349**  
 Bone growth and alteration via endosseous implants  
*Period* *Obligations*  
 07/01/79-12/31/80 FY79: \$50,000 TOTAL: \$50,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Kamel, I. L. JSC/Althuler, S. I. 56-Medical Sciences

**NSG 5162** **Drexel University** **3356**  
 Utilization of satellite data and regional scale numerical models in short range weather forecasting  
*Period* *Obligations*  
 03/01/77-06/30/80 FY79: \$40,000 TOTAL: \$244,900  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Kreitzberg, C. GSFC/Ucellini, L. W. 31-Atmos Sci

**NSG 1496** **Drexel University** **3350**  
 Research on singular perturbation techniques for on-line optimal control  
*Period* *Obligations*  
 02/01/78-12/31/79 FY79: \$24,650 TOTAL: \$49,418  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Calise, A. J. LARC/Price, D. B. 41-Aero Engr

**NSG 6007** **Drexel University** **3357**  
 Electrochemical concentration cell ozonesonde performance tests  
*Period* *Obligations*  
 05/01/76-08/31/79 FY79: TOTAL: \$103,250  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Hackney, R. L. WFC/Holland, A. C. 31-Atmos Sci  
 Hackney, K. R.

**NSG 1545** **Drexel University** **3351**  
 Development of a climate model using a time-dependent energy balance formulation  
*Period* *Obligations*  
 07/01/78-06/30/80 FY79: \$23,100 TOTAL: \$44,600  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 House, F. B. LARC/Smith, G. L. 31-Atmos Sci  
 Jafolia, J. C.

**NSG 6019** **Drexel University** **3358**  
 Theoretical investigations into the scattering of light by real aerosols  
*Period* *Obligations*  
 11/01/77-10/31/79 FY79: TOTAL: \$17,750  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Acquista, C. R. WFC/Holland, A. C. 13-Physics

**NASA'S UNIVERSITY PROGRAM  
PENNSYLVANIA (Continued)**

**NSG 6035** **Drexel University** **3359**  
A study of optimal electrode preparation for the electrochemical concentration cell ozonesonde

<i>Period</i>	<i>Obligations</i>	
07/01/79-09/30/79	FY79: \$5,600	TOTAL: \$5,600
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Thornton, D. C.	WFC/Torres, A. L.	12-Chemistry

**NSG 7491** **Drexel University** **3360**  
Theory for nonlinear reaction-diffusion phenomena with application to free radical recombination IV

<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/79	FY79: \$35,000	TOTAL: \$35,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rosen, G. H.	HQ-RR/Lundholm, J. G., Jr.	13-Physics

**NSG 7494** **Drexel University** **3361**  
Vectoroculography: Mathematical lead vector improvement for the electroculogram

<i>Period</i>	<i>Obligations</i>	
11/01/78-10 31/79	FY79: \$40,700	TOTAL: \$40,700
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dubin, S. Kwatny, E.	HQ-SB/Larson, C. A. HQ-SB/Winter, D. L.	59-Life Sci, NEC

**NAS 8-32951** **Lehigh University** **3362**  
Experiment for materials processing in space production of large particle size monodisperse latexes

<i>Period</i>	<i>Obligations</i>	
02/22/78-02/22/83	FY79: \$91,000	TOTAL: \$265,315
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
VanDerHoff, J. W.	MSFC/Williams, J. R. MSFC/Kornfeld, D. M.	13-Physics

**NCA 2-380901** **Lehigh University** **3363**  
The long wavelength infrared absorption by SO2 and its importance in forming Venus' greenhouse

<i>Period</i>	<i>Obligations</i>	
05/15/79-11/30/79	FY79: \$8,880	TOTAL: \$8,880
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lovejoy, R. W.	ARC/Boese, R. W.	12-Chemistry

**NGR 39-007-011** **Lehigh University** **3364**  
Investigation of fatigue-crack propagation in thin plates and shells

<i>Period</i>	<i>Obligations</i>	
11/30/64-10/31/79	FY79: \$30,000	TOTAL: \$442,200
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Erdogan, F.	LARC/Everett, R. A., Jr. LARC/Fichter, W. B.	21-Mathematics

**NGR 39-007-043** **Lehigh University** **3365**  
Shock and thermal history of unusual iron meteorites

<i>Period</i>	<i>Obligations</i>	
05/24/71-03/31/80	FY79: \$78,346	TOTAL: \$293,586
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goldstein, J. I.	HQ-SL/French, B. M. HQ-SL/Quaide, W. L.	32-Geological Sci

**NGR 39-007-056** **Lehigh University** **3366**  
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
01/12/71-01/31/81	FY79:	TOTAL: \$474,096
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goldstein, J. I.	JSC/Harris, J. W.	12-Chemistry

**NGR 39-007-061** **Lehigh University** **3367**  
Investigation of generation of X-rays in close binary stars

<i>Period</i>	<i>Obligations</i>	
03/10/73-06/30/80	FY79:	TOTAL: \$47,965
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McCluskey, G. E., Jr.	JSC/Potter, A. E.	11-Astronomy

**NGR 39-007-064** **Lehigh University** **3368**  
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
06/07/71-03/31/79	FY79:	TOTAL \$325,915
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sclar, C. B.	JSC/Harris, J. W.	13-Physics

**NSG 3162** **Lehigh University** **3369**  
Blade flutter in compressors and fans: Numerical simulation of aerodynamic loading

<i>Period</i>	<i>Obligations</i>	
01/01/78-12 31/80	FY79:	TOTAL: \$67,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rockwell, D. O. Johnson, S. H.	LERC/Batterton, P. G. LERC/Kurkov, A. P.	41-Aero Engr

**NSG 3179** **Lehigh University** **3370**  
Time-dependent response of unidirectional and laminate composites under static and impact loading

<i>Period</i>	<i>Obligations</i>	
02/13/78-02/12/80	FY79: \$50,000	TOTAL: \$102,315
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sih, G. C.	LERC/Chamis, C. C. LERC/Smith, G. T.	49-Engr, NEC

**NSG 3193** **Lehigh University** **3371**  
Application of fine mesh particles to metal and organic substrates for ion beam texturing applications

<i>Period</i>	<i>Obligations</i>	
04/10/78-04/09/79	FY79:	TOTAL \$14,844
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Micale, F. J.	LERC/Sovey, J. S.	41-Materials Engr

**NASA'S UNIVERSITY PROGRAM  
PENNSYLVANIA (Continued)**

**NSG 5386** **Lehigh University** **3372**  
Mass flow and evolution in close binaries including simultaneous observations of X-ray binaries

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$8,000	TOTAL: \$8,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McCluskey, G. E., Jr.	GSFC/Bogges, A.	11-Astronomy
Holt, E. A.		
Holt, S. S.		

**NAS 5-23800** **Lincoln University** **3373**  
Medical information management system

<i>Period</i>	<i>Obligations</i>	
11/22/76-03/02/80	FY79: \$50,000	TOTAL: \$128,336
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Frankowsky, J. W.	GSFC/Alterescu, S.	56-Medical Sciences
	KSC/Buchanan, P.	

**NSG 2122** **Pennsylvania State Univ - Hershey Med.** **3374**  
Subfornical organ and salt/water balance

<i>Period</i>	<i>Obligations</i>	
01/01/76-12/31/79	FY79: \$27,314	TOTAL: \$95,152
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Severs, W. B.	ARC/Keil, L. C.	56-Medical Sciences

**NAS 5-23859** **Pennsylvania State University** **3375**  
U-2 and LANDSAT data processing and intralab analysis support

<i>Period</i>	<i>Obligations</i>	
01/21/77-11/15/79	FY79: \$25,234	TOTAL: \$159,477
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McMurtry, G. J.	GSFC/Alford, W. L.	39-Env Sci, NEC

**NAS 5-24264** **Pennsylvania State University** **3376**  
Application of satellite data to the study of urban heating patterns

<i>Period</i>	<i>Obligations</i>	
09/23/77-05/31/80	FY79: \$21,955	TOTAL: \$54,455
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carlson, T. N.	GSFC/Oseroff, H.	31-Atmos Sci
	GSFC/Stuart, L. M.	

**NAS 5-24329** **Pennsylvania State University** **3377**  
Technology transfer study

<i>Period</i>	<i>Obligations</i>	
10/01/77-01/27/79	FY79:	TOTAL: \$36,648
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Feller, I. R.	GSFC/Golden, T. S.	99-Multi-Discip

**NAS 5-25667** **Pennsylvania State University** **3378**  
Development and evaluation of remote sensing techniques for soil surveys

<i>Period</i>	<i>Obligations</i>	
05/21/79-05/15/80	FY79: \$9,993	TOTAL: \$9,993
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Petersen, G. W.	GSFC/Irons, J.	39-Env Sci, NEC

**NAS 5-25702** **Pennsylvania State University** **3379**  
Office for remote sensing of earth resources analytical support

<i>Period</i>	<i>Obligations</i>	
06/14/79-02/14/80	FY79: \$43,429	TOTAL: \$43,429
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McMurtry, G. J.	GSFC/Labovitz, M.	21-Mathematics

**NAS 6-2726** **Pennsylvania State University** **3380**  
Stratosphere and mesosphere structure and circulation studies

<i>Period</i>	<i>Obligations</i>	
03/04/76-06/03/79	FY79:	TOTAL: \$87,415
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Olivero, J.	WFC/Duke, J. R.	31-Atmos Sci
	WFC/Schmidlin, F. J.	

**NAS 6-2818** **Pennsylvania State University** **3381**  
Development of a two-dimensional numerical model to test the relationship of rapid mesospheric warmings to intense tropospheric convection

<i>Period</i>	<i>Obligations</i>	
03/01/77-02/28/79	FY79:	TOTAL: \$21,667
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Clark, J. H.	WFC/Schmidlin, F. J.	31-Atmos Sci

**NAS 6-2826** **Pennsylvania State University** **3382**  
Analysis of stratospheric and mesospheric data

<i>Period</i>	<i>Obligations</i>	
04/18/77-07/17/78	FY79	TOTAL: \$11,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hale, L. C.	WFC/Schmidlin, F. J.	31-Atmos Sci
	WFC/Duke, J. R.	

**NAS 9-15566** **Pennsylvania State University** **3383**  
Purification and cultivation of human pituitary growth hormone secreting cells

<i>Period</i>	<i>Obligations</i>	
05/01/78-06/01/80	FY79: \$85,000	TOTAL: \$170,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hymer, W. C.	JSC/Morrison, D. R.	51-Biological Sci

**NAS 9-15584** **Pennsylvania State University** **3384**  
Kidney cell electrophoresis

<i>Period</i>	<i>Obligations</i>	
05/01/78-06/01/80	FY79: \$74,800	TOTAL: \$124,779
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Todd, P. W.	JSC/Morrison, D. R.	56-Medical Sciences

**NAS 9-15798** **Pennsylvania State University** **3385**  
Design and fabrication of a simulated remote acquisition unit for Spacelab experiments

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/79	FY79: \$28,860	TOTAL: \$28,860
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mason, C. A.	JSC/Bailey, J. V.	45-Elec Engr

**NASA'S UNIVERSITY PROGRAM  
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**NASW 3256** Pennsylvania State University **3386**  
Technology support for targeting the reentry of Skylab  
Period Obligations  
01/29/79-08/29/79 FY79: \$35,000 TOTAL: \$35,000  
Prin Invest NASA Tech Officer CASE Category  
Unavailable HQ-ML/Mahon, J. B. 42-Astro Engr

**NCC 5 12** Pennsylvania State University **3387**  
Research of combined use of remote sensing and seismic observations to infer geologically recent crust deformation  
Period Obligations  
05/01/79-04/30/80 FY79: \$50,000 TOTAL: \$50,000  
Prin Invest NASA Tech Officer CASE Category  
Alexander, S. S. GSFC/Allenby, R. J. 32-Geological Sci  
Gold, D. P.

**NCC 5 19** Pennsylvania State University **3388**  
Synthesis of regional crust and upper mantle structure from seismic and gravity data  
Period Obligations  
06/15/79-06/14/80 FY79: \$52,800 TOTAL: \$52,800  
Prin Invest NASA Tech Officer CASE Category  
Alexander, S. S. GSFC/Allenby, R. J. 32-Geological Sci

**NGL 39-009-003** Pennsylvania State University **3389**  
Research on electron densities in upper ionosphere, including studies of rocket & separating capsule experimental techniques  
Period Obligations  
03/01/61-10/31/81 FY79: \$174,000 TOTAL: \$2,252,661  
Prin Invest NASA Tech Officer CASE Category  
Nisbet, J. S. HQ-ST/Kaiser, M. L. 13-Physics  
HQ-ST/Schmerling, E. R.

**NGL 39-009-007** Pennsylvania State University **3390**  
Investigation & analysis of flow phenomena of secondary motions in axial flow inducers  
Period Obligations  
12/15/63-02/29/80 FY79: TOTAL: \$279,750  
Prin Invest NASA Tech Officer CASE Category  
Lakshminarayana, B. LERC/Britsch, W. R. 41-Aero Engr

**NGL 39-009-010** Pennsylvania State University **3391**  
Research to establish criteria for recognition of ancient meteorite impact craters whose characteristic surface forms have been obliterated by erosion  
Period Obligations  
08/08/63-10/31/79 FY79: TOTAL: \$169,563  
Prin Invest NASA Tech Officer CASE Category  
Gold, D. P. HQ-SL/Quaide, W. L. 32-Geological Sci

**NGL 39-009-032** Pennsylvania State University **3392**  
Study and evaluation of the constant-momentum mass spectrometer for ion analysis in the D and E regions of the ionosphere  
Period Obligations  
05/28/65 12/31/79 FY79: TOTAL: \$707,932  
Prin Invest NASA Tech Officer CASE Category  
Kendall, B. R. WFC/Ballance, C. W., Jr. 13-Physics  
WFC/Gray, J. W.

**NGR 39-009-077** Pennsylvania State University **3393**  
Investigation of near critical and supercritical burning of fuel droplets  
Period Obligations  
08/17/66-06/30/79 FY79: TOTAL: \$331,360  
Prin Invest NASA Tech Officer CASE Category  
Faeth, G. M. LERC/Priem, R. J. 42-Astro Engr

**NGR 39-009-180** Pennsylvania State University **3394**  
Detection of microorganisms in their natural habitat  
Period Obligations  
06/12/70-09/30/78 FY79: TOTAL: \$285,141  
Prin Invest NASA Tech Officer CASE Category  
Casida, L. E., Jr. HQ-SB/Young, R. S. 51-Biological Sci

**NSG 1308** Pennsylvania State University **3395**  
Research in propellers for general aviation aircraft  
Period Obligations  
07/01/76-10/31/79 FY79: \$67,928 TOTAL: \$167,691  
Prin Invest NASA Tech Officer CASE Category  
McCormick, B. W. LARC/Fisher, B. D. 41-Aero Engr  
LARC/Hall, A. W.

**NSG 1387** Pennsylvania State University **3396**  
Growth, perfection, and characterization of triglycerine sulfate: A model for zero gravity growth  
Period Obligations  
03/01/77-08/31/79 FY79: \$56,000 TOTAL: \$106,000  
Prin Invest NASA Tech Officer CASE Category  
White, W. B. LARC/Fripp, A. L. 47-Materials Engr  
Spear, K. E. LARC/Crouch, R. K.  
Vedam, K.

**NSG 1580** Pennsylvania State University **3397**  
Broadband jet noise amplification by a pure tone excitation  
Period Obligations  
12/01/78-11/30/79 FY79: \$35,601 TOTAL: \$35,601  
Prin Invest NASA Tech Officer CASE Category  
Morris, P. J. LARC/Gatski, T. B. 41-Aero Engr

**NSG 2364** Pennsylvania State University **3398**  
High polymers based on phosphazene and other inorganic systems  
Period Obligations  
01/01/79-12/31/79 FY79: \$10,406 TOTAL: \$10,406  
Prin Invest NASA Tech Officer CASE Category  
Allcock, H. R. ARC/Fewell, L. L. 12-Chemistry

**NSG 3012** Pennsylvania State University **3399**  
Compressor or fan rotor wake characteristics  
Period Obligations  
06/28/74-01/31/80 FY79: TOTAL: \$269,038  
Prin Invest NASA Tech Officer CASE Category  
Eisenhuth, J. LERC/Heidmann, M. F. 41-Aero Engr  
LERC/Feiler, C. E.

**NASA'S UNIVERSITY PROGRAM  
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**NSG 3016**                      **Pennsylvania State University**                      **3400**  
 Microstructural parameters and the impact resistance of ceramic turbine materials

<i>Period</i>	<i>Obligations</i>	
07/01/74-07/31/79	FY79: TOTAL: \$140,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bradt, R. C.	LERC/Sanders, W. A.	47-Materials Engr

**NSG 3301**                      **Pennsylvania State University**                      **3407**  
 Mass analysis of neutral particles and ions released during electrical breakdowns on spacecraft surfaces

<i>Period</i>	<i>Obligations</i>	
09/04/79-09/03/80	FY79: \$49,983      TOTAL: \$49,983	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kendall, B. R.	LERC/Aron, P. R.	13-Physics

**NSG 3032**                      **Pennsylvania State University**                      **3401**  
 Blade end wall flows in compressors

<i>Period</i>	<i>Obligations</i>	
09/01/74-08/31/79	FY79: TOTAL: \$50,801	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lakshminarayana, B.	LERC/Sockol, P. M.	41-Aero Engr

**NSG 3304**                      **Pennsylvania State University**                      **3408**  
 Study of interactive aeroclastic and aerodynamic problems relating to general aviation propellers

<i>Period</i>	<i>Obligations</i>	
10/01/79-10/01/80	FY79: \$77,955      TOTAL: \$77,955	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McCormick, B. W.	LERC/Mitchell, G. A.	41-Aero Engr

**NSG 3166**                      **Pennsylvania State University**                      **3402**  
 Mapping of electrical potential distributions with charged particle beams

<i>Period</i>	<i>Obligations</i>	
11/01/77-08/31/80	FY79: \$34,857      TOTAL: \$69,107	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Robinson, J. W.	LERC/Aron, P. R.	13-Physics

**NSG 3306**                      **Pennsylvania State University**                      **3409**  
 An investigation of air solubility in jet fuel at high pressure

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/80	FY79: \$24,845      TOTAL: \$24,845	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Faeth, G. M.	LERC/Marek, C. J.	46-Mech Engr

**NSG 3212**                      **Pennsylvania State University**                      **3403**  
 End wall flows in rotors and stators of a single stage compressor

<i>Period</i>	<i>Obligations</i>	
08/01/78-10/09/79	FY79: TOTAL: \$61,114	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lakshminarayana, B.	LERC/Sockol, P. M.	41-Aero Engr
	LERC/Sandercock, D. M.	

**NSG 5185**                      **Pennsylvania State University**                      **3410**  
 Research of the nature and subsurface character of lineaments in Pennsylvania

<i>Period</i>	<i>Obligations</i>	
07/01/77-03/31/80	FY79: TOTAL: \$65,843	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Alexander, S. S.	GSFC/Allenby, R. J.	32-Geological Sci
Gold, D. P.	GSFC/Thomas, H. H.	

**NSG 3264**                      **Pennsylvania State University**                      **3404**  
 The boundary layer on compressor cascade blades

<i>Period</i>	<i>Obligations</i>	
06/04/79-06/30/80	FY79: \$75,417      TOTAL: \$75,417	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kubo, I.	LERC/Sanger, N. L.	41-Aero Engr

**NSG 5205**                      **Pennsylvania State University**                      **3411**  
 Utilization of satellite data in mesoscale models

<i>Period</i>	<i>Obligations</i>	
09/01/77-11/30/79	FY79: \$23,000      TOTAL: \$69,500	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anthes, R. A.	GSFC/Ucellini, L. W.	31-Atmos Sci

**NSG 3265**                      **Pennsylvania State University**                      **3405**  
 The large scale structure of turbulence in a rotor wake

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$65,200      TOTAL: \$65,200	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Morris, P. J.	LERC/Englert, G. W.	41 Aero Engr

**NSG 5212**                      **Pennsylvania State University**                      **3412**  
 Study of high latitude thermospheric densities and flow patterns

<i>Period</i>	<i>Obligations</i>	
10/01/77-08/14/80	FY79: \$23,000      TOTAL: \$52,012	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nisbet, J. S.	GSFC/Spencer, N. W.	13-Physics

**NSG 3266**                      **Pennsylvania State University**                      **3406**  
 Three-dimensional flow field inside compressor rotor passages, including blade boundary layers

<i>Period</i>	<i>Obligations</i>	
06/26/79-06/26/80	FY79: \$74,556      TOTAL: \$74,556	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lakshminarayana, B.	LERC/Sockol, P. M.	41-Aero Engr

**NSG 5276**                      **Pennsylvania State University**                      **3413**  
 Synthesis of regional crust and upper-mantle structure from seismic and gravity data

<i>Period</i>	<i>Obligations</i>	
06/15/78-06/14/79	FY79: TOTAL: ,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Alexander, S. S.	GSFC/Allenby, R. J.	32-Geological Sci
Lavin, P. M.	GSFC/Mead, G. D.	

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**NSG 5347** Pennsylvania State University 3414  
Satellite data and dynamic principles in understanding global weather phenomena  
*Period* Obligations  
05/01/79-04/30/80 FY79: \$58,905 TOTAL: \$58,905  
*Prin Invest* NASA Tech Officer CASE Category  
Clark, J. H. GSFC/Greaves, J. R. 31-Atmos Sci  
Dutton, J. A.

**NSG 6004** Pennsylvania State University 3415  
Studies of mesospheric ionization  
*Period* Obligations  
10/01/75-02/28/79 FY79: TOTAL: \$85,000  
*Prin Invest* NASA Tech Officer CASE Category  
Ferguson, G. A. WFC/Gray, J. W. 19-Phys Sci, NEC  
WFC/Pless, R. H.

**NSG 7120** Pennsylvania State University 3416  
Physicochemical basis for evaluating lunar petrogenesis  
*Period* Obligations  
02/01/75-04/30/79 FY79: TOTAL: \$67,894  
*Prin Invest* NASA Tech Officer CASE Category  
Muan, A. HQ-SL/Goldstein, B. E.  
HQ-SL/Quaide, W. L. 32-Geological Sci

**NSG 7193** Pennsylvania State University 3417  
Temporal and spatial stress distribution in the lunar interior and related phenomena  
*Period* Obligations  
03/01/76-12/31/78 FY79: TOTAL: \$75,182  
*Prin Invest* NASA Tech Officer CASE Category  
Alexander, S. S. HQ-SL/Goldstein, B. E.  
Sammis, C. HQ-SL/Quaide, W. L. 32-Geological Sci

**NSG 7350** Pennsylvania State University 3418  
Wind tunnel test and laboratory evaluation of photo ionization probe  
*Period* Obligations  
05/01/77-07/31/78 FY79: TOTAL: \$25,000  
*Prin Invest* NASA Tech Officer CASE Category  
Hale, L. C. HQ-ST/Tilford, S. G. 31-Atmos Sci  
York, T. M.

**NSG 7465** Pennsylvania State University 3419  
Solubilities of C-O-S volatiles in lunar magmas and vapors  
*Period* Obligations  
07/01/78-03/31/80 FY79: TOTAL: \$26,218  
*Prin Invest* NASA Tech Officer CASE Category  
Eggler, D. HQ-SL/Quaide, W. E. 32-Geological Sci

**NSG 7515** Pennsylvania State University 3420  
Structure-function studies on thermophilic glutamine synthetase  
*Period* Obligations  
10/01/78-12/31/79 FY79: \$33,493 TOTAL: \$33,493  
*Prin Invest* NASA Tech Officer CASE Category  
Wedler, F. C. HQ-SB/Young, R. S. 12-Chemistry

**NCA 2-769901** Swarthmore College 3421  
Evaluation and modeling of the cardiovascular response to Lower Body Negative Pressure (LBNP)  
*Period* Obligations  
06/01/79-08/31/79 FY79: \$8,468 TOTAL: \$8,468  
*Prin Invest* NASA Tech Officer CASE Category  
Aburdene, M. F. ARC/Goldwater, D. 56-Medical Sciences

**NAS 9-14979** Temple University 3422  
Ultraviolet radiation-induced skin cancer in experimental animals  
*Period* Obligations  
04/26/76-07/31/80 FY79: \$70,000 TOTAL: \$294,993  
*Prin Invest* NASA Tech Officer CASE Category  
Urback, F. JSC/Nachtwey, D. S.  
56-Medical Sciences

**NAS 2-10070** University of Pennsylvania 3423  
Development of theoretical models for graphite-like atomic structures  
*Period* Obligations  
10/02/78-08/30/79 FY79: \$18,995 TOTAL: \$18,995  
*Prin Invest* NASA Tech Officer CASE Category  
Rabii, S. ARC/Hansen, C. F. 13-Physics

**NAS 5-25136** University of Pennsylvania 3424  
Synthetic aperture radiometry study  
*Period* Obligations  
08/18/78-09/18/79 FY79: TOTAL: \$9,900  
*Prin Invest* NASA Tech Officer CASE Category  
Kriukos, H. N. GSFC/Shue, J. C. 45-Elec Engr

**NAS 8-33088** University of Pennsylvania 3425  
X-ray variability of high galactic latitude sources  
*Period* Obligations  
06/01/78-05/31/79 FY79: TOTAL: \$17,145  
*Prin Invest* NASA Tech Officer CASE Category  
Shen, B. S. MSFC/Dailey, C. C. 11-Astronomy

**NAS 8-33336** University of Pennsylvania 3426  
Simultaneous X-ray and radio observation of extragalactic sources  
*Period* Obligations  
02/20/79-02/19/80 FY79: \$6,243 TOTAL: \$6,243  
*Prin Invest* NASA Tech Officer CASE Category  
Shen, B. S. MSFC/Jones, J. B., Jr. 11-Astronomy  
Johnston, K. J.

**NAS 9-15531** University of Pennsylvania 3427  
Development phase for Spacelab experiment (INS )  
*Period* Obligations  
03/01/78-07/01/81 FY79: \$132,000 TOTAL: \$280,774  
*Prin Invest* NASA Tech Officer CASE Category  
Brown, A. H. JSC/Lintott, J. E. 59 Life Sci, NRC

**NASA'S UNIVERSITY PROGRAM  
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**NAS 9-15789** University of Pennsylvania **3428**  
Development of a computer code to determine interactions of  
cosmic rays with spacecraft and biological materials

<i>Period</i>	<i>Obligations</i>	
04/01/79-10/31/79	FY79: \$29,750	TOTAL: \$29,750
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Shen, B. S.	JSC/Barnes, C. M.	39-Env Sci, NEC

**NGR 39-010-149** University of Pennsylvania **3429**  
Plant morphogenesis under conditions of hypo and hypergravia

<i>Period</i>	<i>Obligations</i>	
09/01/73-03/31/80	FY79: \$29,711	TOTAL: \$400,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Brown, A. H.	HQ-SB/Halstead, T. W.	51-Biological Sci
	HQ-SB/Geib, D. S.	

**NSG 1596** University of Pennsylvania **3430**  
High resistivity graphite fibers

<i>Period</i>	<i>Obligations</i>	
02/01/79-09/30/79	FY79: \$49,500	TOTAL: \$49,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Vogel, F. L.	LARC/Brewer, W. D.	19-Phys Sci, NEC
	LARC/Tompkins, S. S.	

**NSG 5296** University of Pennsylvania **3431**  
Ultraviolet spectroscopy of peculiar eclipsing binary stars

<i>Period</i>	<i>Obligations</i>	
08/01/78 03/31/80	FY79:	TOTAL: \$12,871
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Koch, R. H.	GSFC/Bogess, A.	11-Astronomy
	GSFC/Fischel, D.	

**NAS 5-22892** University of Pittsburgh **3432**  
Laser plasma laser system study

<i>Period</i>	<i>Obligations</i>	
02/26/76-02/26/79	FY79:	TOTAL: \$42,918
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Falk, J.	GSFC/Kostiuk, T.	43-Chem Engr

**NAS 5-25013** University of Pittsburgh **3433**  
Study of infrared detection by intracavity upconversion

<i>Period</i>	<i>Obligations</i>	
05/09/78-05/31/80	FY79: \$49,823	TOTAL: \$94,640
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Falk, J.	GSFC/Kostiuk, T.	13-Physics
	GSFC/Ogilvie, K. W.	

**NASW 3042** University of Pittsburgh **3434**  
Operation of an industrial applications center

<i>Period</i>	<i>Obligations</i>	
06/29/77-05/31/79	FY79: \$300,000	TOTAL: \$624,750
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Unavailable	HQ-KT/Bivins, R. G.	99-Multi-Discip

**NCA 2-592901** University of Pittsburgh **3435**  
Vestibular nuclei neuron activity in freely moving cats

<i>Period</i>	<i>Obligations</i>	
03/01/79-02/28/81	FY79: \$8,000	TOTAL: \$8,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tomko, D. L.	ARC/Daunton, N. G.	51-Biological Sci

**NGL 39-011-013** University of Pittsburgh **3436**  
Investigation of airglow excitation mechanisms using atomic beam  
techniques

<i>Period</i>	<i>Obligations</i>	
04/26/65-01/31/81	FY79: \$22,000	TOTAL: \$693,734
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fite, W. L.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

**NGL 39-011-030** University of Pittsburgh **3437**  
Studies of excitation and collision deactivation of measurable  
A3 state of nitrogen in the aurora and day airglow

<i>Period</i>	<i>Obligations</i>	
05/07/65-04/30/81	FY79: \$134,534	TOTAL: \$1,014,886
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zipf, E. C.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

**NGL 39-011-085** University of Pittsburgh **3438**  
Studies relating to surfaces of moon & planets

<i>Period</i>	<i>Obligations</i>	
03/17/69-03/31/80	FY79:	TOTAL: \$339,299
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cassidy, W. A.	HQ-SL/Quatroc, W. L.	32 Geological Sci
	Hapke, B. W.	

**NGR 39-011-137** University of Pittsburgh **3439**  
Dissociative recombination coefficients for planetary ionospheric  
ions

<i>Period</i>	<i>Obligations</i>	
07/28/71-05/30/79	FY79: \$39,824	TOTAL: \$214,336
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Biondi, M. A.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

**NGR 39-011-161** University of Pittsburgh **3440**  
Laboratory studies of kinetics of tropospheric and stratospheric  
aircraft pollutant reactions using atomic and molecular resonance  
fluorescence detection

<i>Period</i>	<i>Obligations</i>	
06/03/73-02/29/80	FY79: \$63,000	TOTAL: \$331,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kaufman, F.	HQ-ST/Kakar, R. K.	12-Chemistry
	HQ-ST/Seals, R. K., Jr.	



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**NSG 2117** University of Pittsburgh **3441**  
Survey nearby stars for the perturbative effects of extrasolar planetary systems

<i>Period</i>	<i>Obligations</i>	
01/01/76-02/28/80	FY79: \$50,500	TOTAL: \$116,144
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goglia, G. L.	ARC/Black, D. C.	11-Astronomy
Elhady, N. M.		

**NSG 5362** University of Pittsburgh **3447**  
Measurement of the far ultraviolet spectral reflections of selected lunar areas

<i>Period</i>	<i>Obligations</i>	
05/09/77-12/08/79	FY79: \$11,000	TOTAL: \$11,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hapke, B. W.	GSFC/Bogges, A.	11-Astronomy

**NSG 2407** University of Pittsburgh **3442**  
Theoretical studies of the electronic structure of small metal clusters

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/80	FY79: \$24,000	TOTAL: \$24,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jordan, K. D.	ARC/Cooper, D. M.	13-Physics

**NSG 6011** University of Pittsburgh **3448**  
Studies of the physics and chemistry of the terrestrial atmosphere

<i>Period</i>	<i>Obligations</i>	
10/01/75-10/31/79	FY79: \$107,778	TOTAL: \$637,745
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zipf, E. C.	WFC/Gray, J. W.	19-Phys Sci, NEC
Bernstein, W.	WFC/Pless, R. H.	

**NSG 3163** University of Pittsburgh **3443**  
Determination of efficiencies, loss mechanisms and performance degradation factors in chopper controlled dc vehicle motors

<i>Period</i>	<i>Obligations</i>	
09/01/77-06/30/80	FY79: \$49,805	TOTAL: \$140,112
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hamilton, H. B.	LERC/McBrien, E. F.	45-Elec Engr

**NSG 7147** University of Pittsburgh **3449**  
Photometric analyses of Mariner 10 images of Venus and Mercury

<i>Period</i>	<i>Obligations</i>	
06/23/75-11/30/79	FY79: \$28,523	TOTAL: \$122,303
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hapke, B. W.	HQ-SL/Dwornik, S. E.	11-Astronomy
	HQ-SL/Boyce, J. M.	

**NSG 3168** University of Pittsburgh **3444**  
Studies of magnetostriction and spin polarized band structures of rare earth intermetallics

<i>Period</i>	<i>Obligations</i>	
09/26/77-05/31/79	FY79:	TOTAL: \$52,804
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wallace, W. E.	LERC/Brown, G. V.	13-Physics
Sankar, S. G.		

**NSG 7631** University of Pittsburgh **3450**  
Measurement of reflectivities of rocks, minerals and glasses in the vacuum ultraviolet

<i>Period</i>	<i>Obligations</i>	
06/01/79-02/29/80	FY79: \$46,292	TOTAL: \$46,292
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hapke, B. W.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. M.	

**NSG 3214** University of Pittsburgh **3445**  
Investigation of initiation stage of hot corrosion in NU-base alloys

<i>Period</i>	<i>Obligations</i>	
09/01/78-09/01/81	FY79:	TOTAL: \$59,996
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Meier, G. H.	LERC/Kohl, F. J.	47-Materials Engr
	LERC/Stearns, C. A.	

**NSG 9056** University of Pittsburgh **3451**  
Measurement of reflectivities of rocks, minerals, glasses in the vacuum ultraviolet

<i>Period</i>	<i>Obligations</i>	
03/01/77-02/29/80	FY79: \$12,099	TOTAL: \$114,596
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hapke, B. W.	JSC/Harris, J. W.	13-Physics

**NSG 5270** University of Pittsburgh **3446**  
Lithological characterization of crystalline basement rock provinces in the United States

<i>Period</i>	<i>Obligations</i>	
04/15/78-07/14/80	FY79: \$22,400	TOTAL: \$44,755
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lidiak, E. G.	GSFC/Thomas, H. H.	32-Geological Sci
	GSFC/Mead, G. D.	

**NSG 5375** Villanova University **3452**  
Ultraviolet observations of hot white dwarfs in binary systems

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$5,580	TOTAL: \$5,580
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sion, E. M.	GSFC/Bogges, A.	11-Astronomy
Guinan, E. F.		

**NASA'S UNIVERSITY PROGRAM  
RHODE ISLAND**

**RHODE ISLAND**

**NASW 3285** **Brown University** **3453**  
Support for a regional planetary image facility  
*Period* *Obligations*  
10/01/78-01/31/80 **FY79: \$44,081** **TOTAL: \$44,081**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Mutch, T. A. HQ-SL/Dwornik, S. E. 32-Geological Sci  
HQ-SL/Boyce, J. M.

**NGR 40-002-088** **Brown University** **3454**  
Analysis of Martian geologic features of earth analogs  
*Period* *Obligations*  
10/20/69-11/30/79 **FY79: \$105,367** **TOTAL: \$586,736**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Head, J. W. HQ-SL/Dwornik, S. E. 32-Geological Sci  
HQ-SL/Boyce, J. M.

**NGR 40-002-116** **Brown University** **3455**  
Lunar basins processes and structure  
*Period* *Obligations*  
02/20/73-01/31/80 **FY79: \$75,000** **TOTAL: \$517,539**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Head, J. W. HQ-SL/Dwornik, S. E. 32-Geological Sci  
Mutch, T. A. HQ-SL/Boyce, J. M.

**NGR 40-002-123** **Brown University** **3456**  
Lunar sample analysis  
*Period* *Obligations*  
05/01/73-09/30/79 **FY79: \$15,000** **TOTAL: \$207,223**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Rutherford, M. J. JSC/Harris, J. W. 32-Geological Sci

**NSG 1617** **Brown University** **3457**  
Analytical and numerical gas dynamics  
*Period* *Obligations*  
06/01/79-05/31/80 **FY79: \$25,370** **TOTAL: \$25,370**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Sirovich, L. LARC/Townsend, J. C. 41-Aero Engr

**NSG 3118** **Brown University** **3458**  
Effect of processing parameters on reaction bonding silicon nitride  
*Period* *Obligations*  
08/01/76-10/01/79 **FY79:** **TOTAL: \$138,200**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Richman, M. H. LERC/Herbell, T. P. 47-Materials Engr

**NSG 7569** **Brown University** **3459**  
Analysis of rocks and substrate as revealed in Viking Lander images  
*Period* *Obligations*  
04/01/79-03/31/80 **FY79: \$43,000** **TOTAL: \$43,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Mutch, T. A. HQ-SL/Dwornik, S. E. 32-Geological Sci  
HQ-SL/Boyce, J. M.

**NSG 7570** **Brown University** **3460**  
Surface processes on Mars and its satellites with emphasis on cratering, volcanism and the evolution of Valles Marineris  
*Period* *Obligations*  
04/01/79-03/31/80 **FY79: \$48,000** **TOTAL: \$48,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Head, J. W. HQ-SL/Dwornik, S. E. 32-Geological Sci  
HQ-SL/Boyce, J. M.

**NSG 7589** **Brown University** **3461**  
Experimental investigation of basalt-C-O-H-S gas equilibria and fumarolic alteration on Mars  
*Period* *Obligations*  
03/01/79-02/29/80 **FY79: \$22,705** **TOTAL: \$22,705**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Rutherford, M. J. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/Dwornik, S. E.

**NSG 7605** **Brown University** **3462**  
Endogenic processes affect in the surfaces of Ganymede and Callisto  
*Period* *Obligations*  
05/01/79-04/30/80 **FY79: \$41,722** **TOTAL: \$41,722**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Parmentier, E. M. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. M.

**NAS13-112** **University of Rhode Island** **3463**  
Conduct a workshop for remotely sensed coastal and oceanographic data in the U.S. North Atlantic region  
*Period* *Obligations*  
04/13/79-08/10/79 **FY79: \$6,000** **TOTAL: \$6,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tippie, V. NSTL/Zetka, E. F. 33-Oceanography

**NSG 1495** **University of Rhode Island** **3464**  
Use of numerical continental shelf circulation and pollutant transport models for analysis of remotely sensed data  
*Period* *Obligations*  
02/01/78-01/31/80 **FY79: \$40,000** **TOTAL: \$69,098**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Spaulding, M. L. LARC/Campbell, J. W. 33-Oceanography

**NSG 7414** **University of Rhode Island** **3465**  
Paleoflow processes and formation of Martian channels  
*Period* *Obligations*  
10/01/77-12/31/79 **FY79: \$22,765** **TOTAL: \$27,981**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Boothroyd, J. C. HQ-SL/Dwornik, S. E. 32-Geological Sci  
HQ-SL/Boyce, J. M.

**NASA'S UNIVERSITY PROGRAM  
SOUTH CAROLINA**

**SOUTH CAROLINA**

**NAS 9-13669**      **Clemson University - Clemson**      **3466**  
 High temperature hyperfiltration water reclamation unit  
*Period*      *Obligations*  
 08/14/73-02/15/78      **FY79:**      **TOTAL: \$121,200**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
 Gaddis, J. L.      JSC/Revelle, W. F.      46-Mech Engr  
 Brandon, C. A.

**NSG 1297**      **Clemson University - Clemson**      **3467**  
 Crack growth in bonded isotropic and orthotropic elastic half-planes  
*Period*      *Obligations*  
 04/01/76-11/15/79      **FY79:**      **TOTAL: \$98,058**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
 Goree, J. G.      LARC/Poe, C. C., Jr.      46-Mech Engr  
 LARC/Kennedy, J. M.

**NSG 1411**      **Clemson University - Clemson**      **3468**  
 Optimization of fiber reinforced structures to satisfy aeroelastic requirements  
*Period*      *Obligations*  
 07/01/77-06/30/80      **FY79:**      **TOTAL: \$29,355**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
 Rudisill, C. S.      LARC/Doggett, R. V., Jr.      41-Aero Engr  
 Bauld, N. R., Jr.

**NSG 3225**      **Clemson University - Clemson**      **3469**  
 Development of a percutaneous implant using ion-beam sputtering technique  
*Period*      *Obligations*  
 09/15/78-09/14/80      **FY79:**      **TOTAL: \$16,545**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
 Park, J. B.      LERC/Weigand, A. J.  
 Vonrecum, A. F.      LERC/Banks, B. A.      56-Medical Sciences  
 Kenner, G. H.

**NSG 5349**      **Clemson University - Clemson**      **3470**  
 Forecasting tropical cyclone recurvature with upper tropospheric winds  
*Period*      *Obligations*  
 01/01/79-04/30/80      **FY79: \$30,837**      **TOTAL: \$30,837**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
 Cerling, R.      GSFC/Rodgers, E. B.      31-Atmos Sci

**NSG 5350**      **Clemson University - Clemson**      **3471**  
 Research of the geneses of tornadoes associated with hurricanes  
*Period*      *Obligations*  
 05/01/79-04/30/80      **FY79: \$32,585**      **TOTAL: \$32,585**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
 Gentry, R. C.      GSFC/Wexler, R.      31-Atmos Sci  
 Miller, R. C.  
 Ulbrich, C.

**NAS 8-28660**      **University of South Carolina**      **3472**  
 Study of microwave down-converters operating in KU band  
*Period*      *Obligations*  
 04/19/72-06/30/79      **FY79:**      **TOTAL: \$104,998**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
 Fellers, R. G.      MSFC/Lowrey, D. O.      45-Elec Engr  
 MSFC/Stephens, J. K.

**NGL 41-002-003**      **University of South Carolina**      **3473**  
 Infrared spectra of molecules & materials of astrophysical interest  
*Period*      *Obligations*  
 05/10/65-05/31/79      **FY79:**      **TOTAL: \$280,498**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
 Durig, J. R.      HQ-SL/Fellows, R. F.      31-Atmos Sci  
 HQ-SL/Brunk, W. E.

**NSG 7076**      **University of South Carolina**      **3474**  
 Paleohydrology of Mars  
*Period*      *Obligations*  
 07/01/74-09/30/78      **FY79:**      **TOTAL: \$104,599**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
 Nummedal, D.      HQ-SL/Dwornik, S. E.      32-Geological Sci  
 HQ-SL/Boyce, J. M.

**NSG 7096**      **University of South Carolina**      **3475**  
 A model for the formation of protocells from glycine-rich proteimoids  
*Period*      *Obligations*  
 10/08/74-04/30/80      **FY79: \$27,539**      **TOTAL: \$138,037**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
 Rohlfing, D. L.      HQ-SB/Young, R. S.      51-Biological Sci

**NSG 7504**      **University of South Carolina**      **3476**  
 Application of LANDSAT data in South Carolina  
*Period*      *Obligations*  
 12/01/78-11/30/81      **FY79: \$200,000**      **TOTAL: \$200,000**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
 Cooper, J. M.      HQ-E1/Vitale, J. A.      39-Env Sci, NEC

**SOUTH DAKOTA**

**NAS 9-15522**      **South Dakota School of Mines & Tech**      **3477**  
 Development of microprocessor-controlled Lower Body Negative Pressure (LBNP) system  
*Period*      *Obligations*  
 05/15/78-08/15/79      **FY79:**      **TOTAL: \$23,000**  
*Prin Invest*      *NASA Tech Officer*      *CASE Category*  
 Gowen, R. J.      JSC/Hull, W. E.      59-Life Sci, NEC

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**NASA'S UNIVERSITY PROGRAM**  
**SOUTH DAKOTA (Continued)**

**NAS 5-24206** South Dakota State University **3478**  
 Applications of heat capacity mapping mission satellite data to the study of urban heating patterns  
*Period* *Obligations*  
 06/22/77-02/21/80 FY79: \$16,500 TOTAL: \$93,770  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Moore, D. G. GSFC/Gordon, F., Jr. 99-Multi-Discip

**NAS 9-15345** South Dakota State University **3479**  
 Preparation of agrophysical maps  
*Period* *Obligations*  
 05/17/77-07/01/80 FY79: \$30,000 TOTAL: \$59,460  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Westin, F. C. JSC/Bullock, H. E., Jr. 32-Geological Sci

**NGL 42-003-007** South Dakota State University **3480**  
 Remote sensing of soils, land forms, and land use in the northern great plains in preparation for ERTS applications  
*Period* *Obligations*  
 07/27/70-06/30/82 FY79: \$150,000 TOTAL: \$1,500,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Myers, V. I. HQ-ET/Vitale, J. A. 39-Env Sci, NEC

**NSG 5396** South Dakota State University **3481**  
 Advanced microwave soil moisture studies  
*Period* *Obligations*  
 07/01/79-02/29/80 FY79: \$30,701 TOTAL: \$30,701  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Heilman, J. I. GSFC/Schmugge, T. J. 39-Env Sci, NEC  
 Moore, D. G. GSFC/Wang, J. R.  
 Myers, V. I.

**TENNESSEE**

**NSG 5297** Fisk University **3482**  
 Neutrino interactions at cosmic ray energies  
*Period* *Obligations*  
 09/01/78-08/31/80 FY79: \$29,100 TOTAL: \$56,600  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Mickens, R. E. GSFC/Stecker, F. W. 13-Physics

**NSG 8035** Fisk University **3483**  
 Asymptotic properties of scattering amplitudes  
*Period* *Obligations*  
 06/02/76-12/01/78 FY79: TOTAL: \$55,641  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Mickens, R. E. MSFC/Kent, M. I. 12-Chemistry

**NSG 8060** Fisk University **3484**  
 Optical characterization of zero-gravity grown crystals  
*Period* *Obligations*  
 04/17/78-02/16/80 FY79: \$50,948 TOTAL: \$100,123  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Silberman, E. MSFC/Kroes, R. L. 13-Physics  
 MSFC/Kent, M. I.

**NSG 1593** Le Moyne-Owen College **3485**  
 Calibration of the quartz crystal microbalance cascade impactor using the Berglund-Liu monodisperse aerosol generator for aerosol studies in the atmosphere  
*Period* *Obligations*  
 02/01/79-01/31/80 FY79: \$33,032 TOTAL: \$33,032  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Matthews, N. LARC/Woods, D. C. 31-Atmos Sci

**NAS 5-23801** Meharry Medical College **3486**  
 Investigation of medical information management system application in a complex health care facility  
*Period* *Obligations*  
 12/07/76-02/07/80 FY79: \$55,000 TOTAL: \$110,564  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Braun, G. GSFC/Alterescu, S. 56-Medical Sciences

**NAS 9-15862** Tennessee State University **3487**  
 Study and report: Comparison of generalist vs specialist concept in personnel management  
*Period* *Obligations*  
 06/15/79-06/22/80 FY79: \$34,730 TOTAL: \$34,730  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Sampson, C. JSC/Kochner, J. 62-Social Aspects

**NGT 43-014-750** Tennessee State University **3488**  
 Training of undergraduate students in sciences and engineering  
*Period* *Obligations*  
 06/01/75-05/31/80 FY79: \$16,750 TOTAL: \$72,750  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Malkani, M. J. HQ-LU/Pohly, J. G. 49-Engr, NEC  
 HQ-U/Jenkins, H. G.

**NGT 43-014-790** Tennessee State University **3489**  
 Pre-cooperative engineering education program  
*Period* *Obligations*  
 08/01/79-07/31/80 FY79: \$2,455 TOTAL: \$2,455  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Malkani, M. J. HQ-LU/Pohly, J. G. 49-Engr, NEC  
 LERC/Allen, R. P.

**NAS 8-31564** Tennessee Technological University **3490**  
 Study of utilization of solar energy for residential heating and cooling application  
*Period* *Obligations*  
 07/01/75-09/01/77 FY79: TOTAL: \$32,890  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Griggs, E. I. MSFC/Humphries, W. R. 31-Atmos Sci  
 MSFC/Hall, C.

**NGR 43-003-015** Tennessee Technological University **3491**  
 Investigation of open-loop amplification of Reynolds number-dependent processes  
*Period* *Obligations*  
 09/16/71-10/31/79 FY79: \$12,370 TOTAL: \$170,120  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Ventrice, M. B. LERC/Priem, R. J. 46-Mech Engr

**NASA'S UNIVERSITY PROGRAM  
TENNESSEE (Continued)**

**NAS 5-25101** University of Tennessee - Knoxville 3492  
Energy conservation task  
Period Obligations  
06/23/78-02/23/79 FY79: \$350 TOTAL: \$19,109  
Prin Invest NASA Tech Officer CASE Category  
Snyder, W. M. GSFC/Goldstein, T. S. 39-Env Sci, NEC

**NAS 5-25428** University of Tennessee - Knoxville 3493  
Development of theoretical molecular models for line positions and strengths of several methane bands  
Period Obligations  
12/27/78-12/27/80 FY79: \$20,000 TOTAL: \$20,000  
Prin Invest NASA Tech Officer CASE Category  
Fox, K. GSFC/Maguire, W. C. 13-Physics  
GSFC/Kunde, V. G.

**NAS 8-29271** University of Tennessee - Knoxville 3494  
Application of image enhancement techniques to remote manipulation operations  
Period Obligations  
01/08/73-02/07/80 FY79: \$49,976 TOTAL: \$253,692  
Prin Invest NASA Tech Officer CASE Category  
Gonzalez, R. C. MSFC/Craig, G. D. 45-Elec Engr  
MSFC/Bordelon, C

**NAS 8-29584** University of Tennessee - Knoxville 3495  
Study of wind profiles over nonuniform surface relative to ground design of aircraft & space vehicles  
Period Obligations  
02/02/73-09/12/78 FY79: TOTAL: \$426,446  
Prin Invest NASA Tech Officer CASE Category  
Frost, W. MSFC/Sloan, J. 46-Mech Engr

**NAS 8-31718** University of Tennessee - Knoxville 3496  
Thunderstorm modeling and satellite ground truth cloud studies  
Period Obligations  
11/14/75-10/06/78 FY79: TOTAL: \$68,807  
Prin Invest NASA Tech Officer CASE Category  
Frost, W. MSFC/Hill, C. K. 31-Atmos Sci  
Connell, J. MSFC/Turner, R. E.

**NAS 8-32031** University of Tennessee - Knoxville 3497  
Field study of advection fog  
Period Obligations  
09/01/76-09/18/80 FY79: \$14,000 TOTAL: \$78,985  
Prin Invest NASA Tech Officer CASE Category  
Connett, J. R. MSFC/Vaughan, O. H. 31-Atmos Sci  
MSFC/Anderson, B. J.

**NAS 8-32034** University of Tennessee - Knoxville 3498  
Applying NASA remote sensing data to geologically related regional planning problems in Tennessee  
Period Obligations  
09/21/76-02/28/78 FY79: TOTAL: \$14,304  
Prin Invest NASA Tech Officer CASE Category  
Shahrokh, F. MSFC/Bensko, J. 32-Geological Sci

**NAS 8-32611** University of Tennessee - Knoxville 3499  
Ice chambers design and warm fog microphysics applicable to the understanding and interpretation of flight experiments under low gravity conditions  
Period Obligations  
07/29/77-06/30/80 FY79: \$38,000 TOTAL: \$75,708  
Prin Invest NASA Tech Officer CASE Category  
Carter, J. M. MSFC/Anderson, B. J. 39-Env Sci, NEC  
MSFC/Vaughan, O. H.

**NAS 8-32635** University of Tennessee - Knoxville 3500  
Feasibility study of slant-range visibility by lidar technique  
Period Obligations  
09/09/77-11/30/79 FY79: \$15,070 TOTAL: \$28,339  
Prin Invest NASA Tech Officer CASE Category  
Kohl, R. H. MSFC/Camp, D. W. 31-Atmos Sci  
MSFC/Moore, W. W., Jr.

**NAS 8-32692** University of Tennessee - Knoxville 3501  
Gust gradient analysis  
Period Obligations  
07/07/78-09/14/80 FY79: \$77,335 TOTAL: \$164,210  
Prin Invest NASA Tech Officer CASE Category  
Frost, W. MSFC/Camp, D. W. 31-Atmos Sci  
MSFC/Alexander, M. B.

**NAS 8-33065** University of Tennessee - Knoxville 3502  
Accuracy analysis of pointing control system of solar power station  
Period Obligations  
04/26/78-12/12/78 FY79: TOTAL: \$10,000  
Prin Invest NASA Tech Officer CASE Category  
Hung, J. C. MSFC/Guttman, C. H. 46-Mech Engr  
Peebles, P. Z.

**NAS 8-33218** University of Tennessee - Knoxville 3503  
Digital LANDSAT data analysis of Tennessee  
Period Obligations  
12/01/78-01/31/80 FY79: \$17,000 TOTAL: \$17,000  
Prin Invest NASA Tech Officer CASE Category  
Shahrokh, F. MSFC/Daniel, J. L. 39-Env Sci, NEC

**NAS 8-33225** University of Tennessee - Knoxville 3504  
Air breathing engine/trajectory optimization study  
Period Obligations  
09/29/78-09/29/79 FY79: TOTAL: \$17,026  
Prin Invest NASA Tech Officer CASE Category  
Smith, V. K., III MSFC/Mercier, D. R. 41-Aero Engr  
MSFC/Stafford, W. H.

**NAS 8-33386** University of Tennessee - Knoxville 3505  
Theoretical analysis of baroclinic flows  
Period Obligations  
08/13/79-01/31/80 FY79: \$5,000 TOTAL: \$5,000  
Prin Invest NASA Tech Officer CASE Category  
Antar, B. N. MSFC/Fowles, W. W. 31-Atmos Sci  
MSFC/Thomas, P. E.

**NASA'S UNIVERSITY PROGRAM  
TENNESSEE (Continued)**

**NAS 8-33447**      **University of Tennessee - Knoxville**      **3506**  
 Vehicle motion requirements for scientific experiments in space

<i>Period</i>	<i>Obligations</i>	
05/10/79-02/09/80	FY79: \$5,000	TOTAL: \$5,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Antar, B. N.	MSFC/Fichtl, G. H.	13-Physics
Collins, F. G.		

**NSG 1224**      **University of Tennessee - Knoxville**      **3512**  
 A study of unsteady transonic flow analysis

<i>Period</i>	<i>Obligations</i>	
08/07/75-03/31/80	FY79: \$29,821	TOTAL: \$100,591
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kimble, K. R.	LARC/Bland, S. R.	41-Aero Engr
Wu, J. M.	LARC/Yates, E. C., Jr.	

**NAS 8-33604**      **University of Tennessee - Knoxville**      **3507**  
 Study relative to development of a microwave antenna pointing error sensing scheme

<i>Period</i>	<i>Obligations</i>	
08/01/79-02/01/80	FY79: \$19,600	TOTAL: \$19,600
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hung, J. C.	MSFC/Howell, J. T., Jr.	45-Elec Engr
Lee, C. W.		
Peebles, P. Z.		

**NSG 2379**      **University of Tennessee - Knoxville**      **3513**  
 Transonic slotted wind tunnel wall boundary layer flow study

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY79: \$36,630	TOTAL: \$36,630
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wu, J. M.	ARC/Steinle, F. W., Jr.	41-Aero Engr
Collins, F. G.	ARC/Daugherty, J. C.	
Reddy, K. C.		

**NAS 9-15164**      **University of Tennessee - Knoxville**      **3508**  
 Influence of space flight on erythropoietin activity and inhibition

<i>Period</i>	<i>Obligations</i>	
10/21/76-04/30/80	FY79: \$55,000	TOTAL: \$175,600
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dunn, C. D.	JSC/Kimzey, S. L.	56-Medical Sciences
Chen, J. P.		

**NSG 3173**      **University of Tennessee - Knoxville**      **3514**  
 Assessment and development of analytical models for forced convective turbulent heat transfer in the near critical region

<i>Period</i>	<i>Obligations</i>	
11/01/77-11/01/79	FY79:	TOTAL: \$29,890
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Reid, R. L.	LERC/Graham, R. W.	46-Mech Engr
	LERC/Hendricks, R. C.	

**NCA 2-772901**      **University of Tennessee - Knoxville**      **3509**  
 Theoretical analysis of the boundary layer development over a slotted wind tunnel wall

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/81	FY79: \$39,956	TOTAL: \$39,956
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tirres, C.	ARC/Steinle, F. W., Jr.	41-Aero Engr
Wu, J. M.		

**NSG 3224**      **University of Tennessee - Knoxville**      **3515**  
 Parametric study of potential early commercial power plants (MHD)

<i>Period</i>	<i>Obligations</i>	
11/01/78-12/15/79	FY79:	TOTAL: \$150,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dicks, J. B.	LERC/Staiger, P. J.	49-Engr, NEC
Chapman, J. N.	LERC/Seikel, G. R.	
Markant, H. P.		

**NGL 43-001-006**      **University of Tennessee - Knoxville**      **3510**  
 Spectroscopic studies of life shape of atmospheric gases & of absorption bands of inorganic solids

<i>Period</i>	<i>Obligations</i>	
01/07/64-09/30/80	FY79:	TOTAL: \$1,318,628
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gailar, N. M.	HQ-SL/Fellows, R. F.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

**NSG 3287**      **University of Tennessee - Knoxville**      **3516**  
 Internal computational fluid mechanics program for turbomachinery

<i>Period</i>	<i>Obligations</i>	
07/01/79-09/01/80	FY79: \$93,440	TOTAL: \$93,440
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kurosaka, M.	LERC/Rostafinski, W. A.	41-Aero Engr
Coruthers, J.		

**NGL 43-001-140**      **University of Tennessee - Knoxville**      **3511**  
 Experimental investigations of opaque minerals and cooling history of lunar rocks

<i>Period</i>	<i>Obligations</i>	
09/01/73-01/31/80	FY79: \$1,250	TOTAL: \$410,105
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Taylor, L. A.	JSC/Harris, J. W.	11-Astronomy

**NSG 7413**      **University of Tennessee - Knoxville**      **3517**  
 Petrologic studies of meteorite groups

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/80	FY79: \$23,211	TOTAL: \$45,186
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McSween, H. Y.	HQ-SL/French, B. M.	32-Geological Sci
Taylor, L. A.	HQ-SL/Quaide, W. L.	

**NASA'S UNIVERSITY PROGRAM  
TENNESSEE (Continued)**

**NAS 9-15670** University of Tennessee - Memphis 3518  
Relative toxicity testing of spacecraft materials  
*Period* *Obligations*  
11/10/78-02/09/80 FY79: \$77,823 TOTAL: \$77,823  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Autian, J. JSC/Schneider, H. J. 56-Medical Sciences  
Lawrence, W. H.

**NSG 1455** University of Tennessee - Nashville 3519  
Research in high temperature, advanced composite structures  
*Period* *Obligations*  
11/01/77-11/30/79 FY79: \$42,933 TOTAL: \$81,628  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Blackburn, C. L. LARC/Robinson, J. C. 41-Aero Engr  
LARC/cooper, P. A.

**NAS 8-32695** Vanderbilt University 3520  
Solar radiation on glasses  
*Period* *Obligations*  
06/27/78-06/25/80 FY79: TOTAL: \$49,799  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kinser, D. L. MSFC/Nichols, R. L. 47-Materials Engr  
MSFC/King, H. M.

**NCC 1 8** Vanderbilt University 3521  
Advanced solar energy conversion  
*Period* *Obligations*  
05/01/79-06/31/80 FY79: \$66,825 TOTAL: \$66,825  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lee, J. H. LARC/Hohl, F. 13-Physics  
LARC/Jalufka, N. W.

**NSG 1235** Vanderbilt University 3522  
Production and diagnostics of dense nuclear plasmas  
*Period* *Obligations*  
09/01/75-08/31/79 FY79: TOTAL: \$235,272  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lee, J. H. LARC/Hohl, F. 13-Physics

**NSG 7343** Vanderbilt University 3523  
Ultraviolet studies of galaxies  
*Period* *Obligations*  
05/01/77-11/30/79 FY79: TOTAL: \$40,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Weedman, D. W. HQ-SC/Roman, N. G. 11-Astronomy  
HQ-SC/Rosendhal, J. D.

**NSG 7463** Vanderbilt University 3524  
Ground-based photometry of HR 1099 coordinated with the  
October 1977 Copernicus campaign  
*Period* *Obligations*  
05/01/78-09/01/79 FY79: TOTAL: \$4,224  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hall, D. HQ-SC/Roman, N. G. 11-Astronomy  
HQ-SC/Rosendhal, J. D.

**NSG 7543** Vanderbilt University 3525  
Ground based UBV photometry of RS Canis Ventricorum  
binaries  
*Period* *Obligations*  
08/15/79-08/14/80 FY79: \$27,906 TOTAL: \$27,906  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hall, D. HQ-SC/Roman, N. G. 11-Astronomy  
HQ-SC/Bogges, N. W.

**TEXAS**

**NAS 2-10354** Baylor College of Medicine 3526  
Cosmos 1979 experiment: Trabeculae and mineralization in the  
long bones  
*Period* *Obligations*  
09/01/79-08/31/80 FY79: \$10,000 TOTAL: \$10,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Matthews, J. L. ARC/Souza, K. A. 56-Medical Sciences  
Judy, M. ARC/Heinrich, M. R.

**NAS 9-13737** Baylor College of Medicine 3527  
Analysis of body calcium  
*Period* *Obligations*  
02/01/74-03/31/80 FY79: \$10,000 TOTAL: \$316,304  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Johnson, P. C. JSC/Altchuler, S. I. 56-Medical Sciences  
Sheld, W.

**NAS 9-14407** Baylor College of Medicine 3528  
Evaluate primary irritancy and allergenicity of materials proposed  
for crew apparel  
*Period* *Obligations*  
09/19/74-06/30/80 FY79: TOTAL: \$20,978  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Duncan, W. C. JSC/Rippstein, W. J. 56-Medical Sciences

**NAS 9-14546** Baylor College of Medicine 3529  
Etiological study of motion sickness by using subhuman  
primates  
*Period* *Obligations*  
05/01/75-04/30/80 FY79: \$40,000 TOTAL: \$174,480  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Igarashi, M. JSC/Homick, J. L. 56-Medical Sciences

**NAS 9-14662** Baylor College of Medicine 3530  
Influence of the external parameters of space flight on the  
regulation of blood volume  
*Period* *Obligations*  
06/01/75-03/01/80 FY79: \$63,445 TOTAL: \$203,420  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Johnson, P. C. JSC/Kimzey, S. L. 56-Medical Sciences

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

<b>NAS 9-15457</b>	<b>Baylor College of Medicine</b>	<b>3531</b>
Early detection of disease by evaluation of the cellular immune response		
<i>Period</i>	<i>Obligations</i>	
11/01/77-10/31/79	FY79: \$99,900 TOTAL: \$190,700	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Criswell, B. S.	JSC/Kimzey, S. L.	56-Medical Sciences
<b>NSG 9076</b>	<b>Houston Baptist University</b>	<b>3538</b>
Spectroscopic investigation of the species emitting diffuse light in Johnson Space Center: Solar panel plasma effects simulation		
<i>Period</i>	<i>Obligations</i>	
04/01/79-10/31/79	FY79: \$6,408 TOTAL: \$6,408	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Warren, D. G.	JSC/McCoy, J.	19-Phys Sci, NEC
<b>NAS 9-15478</b>	<b>Baylor College of Medicine</b>	<b>3532</b>
Study of bone and muscle protein degradation		
<i>Period</i>	<i>Obligations</i>	
12/01/77-01/31/80	FY79: \$20,000 TOTAL: \$42,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Diferrante, N.	JSC/Leach, C. S.	56-Medical Sciences
<b>NAS 9-15669</b>	<b>Baylor College of Medicine</b>	<b>3533</b>
Null lymphocytes separation		
<i>Period</i>	<i>Obligations</i>	
08/17/78-12/01/79	FY79: TOTAL: \$37,382	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Twomey, J. J.	JSC/Morrison, D. R.	59-Life Sci, NEC
<b>NAS 9-15891</b>	<b>Baylor College of Medicine</b>	<b>3534</b>
Renal responses to water immersion		
<i>Period</i>	<i>Obligations</i>	
06/01/79-06/30/80	FY79: \$32,382 TOTAL: \$32,382	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Suki, W. N.	JSC/Leach, C. S.	59-Life Sci, NEC
<b>NSG 1615</b>	<b>Del Mar College</b>	<b>3535</b>
On the power-spectral density of the dynamic response of an aircraft to nonhomogeneous atmospheric turbulence		
<i>Period</i>	<i>Obligations</i>	
06/01/79-08/31/79	FY79: \$11,939 TOTAL: \$11,939	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Trevino, G.	LARC/Murrow, H. N. LARC/Rhyne, R. H.	41-Aero Engr
<b>NSG 5-23338</b>	<b>Rice University</b>	<b>3542</b>
Theoretical predictions and data analysis		
<i>Period</i>	<i>Obligations</i>	
02/04/74-12/31/79	FY79: \$15,000 TOTAL: \$26,200	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cloutier, P. A. Daniels, R.	GSFC/Taylor, H. A., Jr. GSFC/Gagnon, B. D.	13-Physics
<b>NAS 44-095-001</b>	<b>Hardin - Simmons University</b>	<b>3536</b>
Study of psychophilic organisms isolated from manufacture and assembly areas of spacecraft to be used in the Viking missions		
<i>Period</i>	<i>Obligations</i>	
08/21/72-12/31/79	FY79: \$65,000 TOTAL: \$443,602	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Foster, T. L. Brewer, J. H.	HQ-SB/Young, R. S.	51-Biological Sci
<b>NSG 9038</b>	<b>Houston Baptist University</b>	<b>3537</b>
Obtaining high spatial resolution planetary imagery with potential shuttle era instrumentation		
<i>Period</i>	<i>Obligations</i>	
01/01/76-01/31/81	FY79: \$15,000 TOTAL: \$54,250	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Morgan, T. H.	JSC/Potter, A. E.	11-Astronomy
<b>NSG 9070</b>	<b>Pan American University</b>	<b>3540</b>
Laboratory studies of the diffuse reflectance spectra of frosts and minerals occurring on astronomical objects		
<i>Period</i>	<i>Obligations</i>	
06/01/78-05/31/80	FY79: \$39,950 TOTAL: \$78,800	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Glaser, F. M.	JSC/Mendell, W.	11-Astronomy
<b>NSG 9006</b>	<b>Prairie View A&amp;M University</b>	<b>3541</b>
Measurement of growth morphological and bi-directional scattering parameters of wheat		
<i>Period</i>	<i>Obligations</i>	
06/01/74-08/31/80	FY79: \$44,000 TOTAL: \$177,019	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Brams, E. A.	JSC/Browne, I. D.	39-Env Sci, NEC
<b>NAS 5-25032</b>	<b>Rice University</b>	<b>3543</b>
Data analysis support for Low Energy Gamma-ray Spectrometer (LEGS) balloon program		
<i>Period</i>	<i>Obligations</i>	
05/04/78-05/04/80	FY79: TOTAL: \$12,615	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Haymes, R. C.	GSFC/Teegarden, B. J.	31-Atmos Sci
<b>NAS 6-1667</b>	<b>Rice University</b>	<b>3544</b>
Investigation into relationship between field aligned currents and auroral particle fluxes		
<i>Period</i>	<i>Obligations</i>	
07/23/69-12/31/79	FY79: \$123,000 TOTAL: \$2,219,059	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, H. R., Jr. Cloutier, P. A. Pulliam, D. M.	WFC/Gray, J. W. WFC/Pless, R. H.	11-Astronomy



**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NAS 8-33023**                      **Rice University**                      **3545**  
Study of the electrostatic protection of the solar power satellite  
and rectenna  
*Period*                                      *Obligations*  
06/15/78-05/15/80                      FY79: \$107,718                      TOTAL: \$157,718  
*Prin Invest*                                *NASA Tech Officer*                      *CASE Category*  
Few, A. A.                                      MSFC/Brantley, W.                      49-Engr. NEC  
Freeman, J. W., Jr.                              MSFC/Johnson, W. G.

**NAS 8-33199**                      **Rice University**                      **3546**  
Measurement of high temperature properties of liquid and solid  
tungsten  
*Period*                                      *Obligations*  
11/27/78-04/30/80                      FY79: \$20,000                      TOTAL: \$20,000  
*Prin Invest*                                *NASA Tech Officer*                      *CASE Category*  
Margrave, J.                                      MSFC/Oran, W. A.                      47-Materials Engr  
MSFC/Williams, J. R.

**NAS 8-33361**                      **Rice University**                      **3547**  
Correlative studies of cosmic gamma ray sources under the  
HEAO-A guest investigator program  
*Period*                                      *Obligations*  
07/16/79-07/15/80                      FY79: \$13,651                      TOTAL: \$13,651  
*Prin Invest*                                *NASA Tech Officer*                      *CASE Category*  
Haymes, R. C.                                      MSFC/Jones, J. B., Jr.                      11-Astronomy  
Meegan, C. A.

**NAS 9-15274**                      **Rice University**                      **3548**  
A fundamental study of liquid spray evaporation at a heated  
surface  
*Period*                                      *Obligations*  
04/01/77-09/30/79                      FY79:                                      TOTAL: \$42,466  
*Prin Invest*                                *NASA Tech Officer*                      *CASE Category*  
Wierm, F. A.                                      JSC/Trevino, L. A.                      46-Mech Engr

**NAS 9-15630**                      **Rice University**                      **3549**  
Trace contaminant co-adsorption by charcoal  
*Period*                                      *Obligations*  
07/01/78-10/15/80                      FY79: \$2,500                                      TOTAL: \$17,500  
*Prin Invest*                                *NASA Tech Officer*                      *CASE Category*  
Davis, S. H.                                      JSC/Howard, J. K.                      43-Chem Engr

**NAS 9-15940**                      **Rice University**                      **3550**  
Spectral analysis of galactic and extragalactic Supernova  
remnants  
*Period*                                      *Obligations*  
05/15/79-06/15/80                      FY79: \$13,360                      TOTAL: \$13,360  
*Prin Invest*                                *NASA Tech Officer*                      *CASE Category*  
DuFour, R. J.                                      JSC/Parker, R. A.                      11-Astronomy

**NASW 3164**                      **Rice University**                      **3551**  
Effects of hypogravity on respiration and photosynthesis of higher  
plants  
*Period*                                      *Obligations*  
05/12/78-05/12/80                      FY79:                                      TOTAL: \$20,000  
*Prin Invest*                                *NASA Tech Officer*                      *CASE Category*  
Ward, C. H.                                      HQ-SB/Halstead, T. W.                      51-Biological Sci

**NGL 44-006-001**                      **Rice University**                      **3552**  
Research on physics of solid materials including study of basic  
laws governing behavior of solids at high temperatures  
*Period*                                      *Obligations*  
05/01/72-06/30/78                      FY79:                                      TOTAL: \$4,567,282  
*Prin Invest*                                *NASA Tech Officer*                      *CASE Category*  
Rorschach, H. E.                                      LERC/Lad, R. A.                      13-Physics

**NGL 44-006-012**                      **Rice University**                      **3553**  
Laboratory development of solar wind heavy-ion mass spectrome-  
ter  
*Period*                                      *Obligations*  
06/27/64-06/30/80                      FY79: \$72,000                      TOTAL: \$1,453,736  
*Prin Invest*                                *NASA Tech Officer*                      *CASE Category*  
Michel, F. C.                                      HQ-ST/Cauffman, D. P.                      13-Physics  
HQ-ST/Schmerling, E. R.

**NGL 44-006-127**                      **Rice University**                      **3554**  
Lunar fines, their origin, evolution, and interaction with solar  
wind and cosmic rays  
*Period*                                      *Obligations*  
02/16/71-01/31/80                      FY79:                                      TOTAL: \$562,149  
*Prin Invest*                                *NASA Tech Officer*                      *CASE Category*  
Heymann, D.                                      JSC/Harris, J. W.                      32-Geological Sci

**NGR 44-006-137**                      **Rice University**                      **3555**  
Analysis of data on the magnetotail and solar wind  
*Period*                                      *Obligations*  
12/29/70-06/30/79                      FY79:                                      TOTAL: \$307,697  
*Prin Invest*                                *NASA Tech Officer*                      *CASE Category*  
Dessler, A. J.                                      HQ-ST/Cauffman, D. P.                      13-Physics  
HQ-ST/Schmerling, E. R.

**NSG 5286**                      **Rice University**                      **3556**  
Investigation of low altitude plasma phenomena  
*Period*                                      *Obligations*  
07/01/78-09/30/80                      FY79: \$21,000                      TOTAL: \$41,000  
*Prin Invest*                                *NASA Tech Officer*                      *CASE Category*  
Reiff, P. H.                                      GSFC/Spencer, N. W.                      31-Atmos Sci

**NSG 5364**                      **Rice University**                      **3557**  
Observations of the ultraviolet spectra of Magellanic Clouds  
*Period*                                      *Obligations*  
06/01/79-05/31/80                      FY79: \$11,000                      TOTAL: \$11,000  
*Prin Invest*                                *NASA Tech Officer*                      *CASE Category*  
DuFour, R. J.                                      GSFC/Boggess, A.                      11-Astronomy

**NSG 7032**                      **Rice University**                      **3558**  
Apollo data synthesis: Lunar atmosphere and ionosphere  
*Period*                                      *Obligations*  
04/01/74-02/28/81                      FY79:                                      TOTAL: \$90,307  
*Prin Invest*                                *NASA Tech Officer*                      *CASE Category*  
Michel, F. C.                                      HQ-SL/Quaide, W. L.                      31-Atmos Sci  
HQ-SL/French, B. E.

**NASA'S UNIVERSITY PROGRAM**  
**TEXAS (Continued)**

**NSG 7043** **Rice University** **3559**  
Research on planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
03/01/74-02/29/80	FY79: \$29,427	TOTAL: \$240,617
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chamberlain, J. W.	HQ-SL/Fellows, R. F.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

**NSG 9039** **Saint Mary's University** **3565**  
X-ray diffraction studies of shocked lunar analogs

<i>Period</i>	<i>Obligations</i>	
01/10/76-12/31/79	FY79:	TOTAL: \$57,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hanss, R. E.	JSC/Horz, F.	32-Geological Sci

**NSG 7157** **Rice University** **3560**  
Analysis and synthesis of Apollo Lunar Surface Experiments package suprathemal ion

<i>Period</i>	<i>Obligations</i>	
07/01/75-10/31/79	FY79:	TOTAL: \$199,715
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Freeman, J. W., Jr.	HQ-ST/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. M.	

**NSG 1548** **Southern Methodist University** **3566**  
Measurements on an improved performance wall jet control for turbulent boundary layers

<i>Period</i>	<i>Obligations</i>	
07/01/78-12/31/79	FY79:	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Simpson, R. L.	LARC/Rushnell, D. M.	41-Aero Engr
	LARC/Morrisette, E. L.	

**NSG 7361** **Rice University** **3561**  
Origin of the solar system: The relationship of isotopic and chemical anomalies in meteorites Earth, Moon and planets to astrophysical models of their origin

<i>Period</i>	<i>Obligations</i>	
08/01/77-04/30/80	FY79:	TOTAL: \$36,190
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Clayton, D. D.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. M.	

**NSG 2354** **Southern Methodist University** **3567**  
Experimental measurements of unsteady turbulent boundary layers near separation

<i>Period</i>	<i>Obligations</i>	
12/01/78-09/30/80	FY79: \$127,397	TOTAL: \$127,397
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Simpson, R. L.	ARC/Marvin, J. G.	42-Astro Engr
Nasburg, R. E.	ARC/Seegmiller, H. L.	

**NSG 7362** **Rice University** **3562**  
Thermal history of the inner planets

<i>Period</i>	<i>Obligations</i>	
07/01/77-12/31/79	FY79: \$20,323	TOTAL: \$60,357
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Debremaecker, J. C.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. M.	

**NAS 2-10272** **Texas A&M University** **3568**  
Modification of a Swearingen metro wind tunnel model

<i>Period</i>	<i>Obligations</i>	
06/19/79-02/18/80	FY79: \$86,400	TOTAL: \$86,400
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Brusse, J. C.	ARC/Gambucci, B. J.	41-Aero Engr
	ARC/Williams, L. J.	

**NSG 7386** **Rice University** **3563**  
Study of ion-molecule reactions of importance in planetary atmosphere

<i>Period</i>	<i>Obligations</i>	
09/01/77-12/31/79	FY79: \$20,014	TOTAL: \$56,968
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stebbings, R. F.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

**NAS 5-20796** **Texas A&M University** **3569**  
ERTS follow-on investigation

<i>Period</i>	<i>Obligations</i>	
01/15/75-05/15/79	FY79:	TOTAL: \$151,375
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rouse, J. W., Jr.	GSFC/Stonesifer, G. R.	59-Life Sci, NEC

**NSG 7490** **Rice University** **3564**  
Thermodynamic analysis of the combined free electron laser-storage ring system

<i>Period</i>	<i>Obligations</i>	
09/01/78-08/31/80	FY79: \$38,000	TOTAL: \$67,598
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Swain, P. H.	HQ-RT/McKenzie, R. L.	13-Physics
Landgrebe, D. A.		

**NAS 5-22966** **Texas A&M University** **3570**  
Nimbus-G experiment team for coastal zone color scanner

<i>Period</i>	<i>Obligations</i>	
02/10/76-10/01/80	FY79: \$144,960	TOTAL: \$323,226
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
El-Sayed, S. Z.	GSFC/Nelsen, E. D.	41-Aero Engr

**NAS 5-24383** **Texas A&M University** **3571**  
Applications of heat capacity mapping mission satellite data to the study of urban heating patterns

<i>Period</i>	<i>Obligations</i>	
01/16/78-04/30/80	FY79: \$35,045	TOTAL: \$87,090
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Harlan, J. C.	GSFC/Stonesifer, G. R.	19-Phys Sci, NEC

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**NAS 5-25715** Texas A&M University 3572  
Assessment of thematic mapper simulator improved capabilities over multispectral scanner for arid and semi-arid rangeland application

<i>Period</i>	<i>Obligations</i>	
07/11/79-07/11/80	FY79: \$10,000	TOTAL: \$10,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Haos, R. H.	GSFC/Deering, D. W.	39-Env Sci, NEC

**NAS 5-25846** Texas A&M University 3573  
Resolving the agricultural/residential image classification conflict

<i>Period</i>	<i>Obligations</i>	
09/04/79-09/03/80	FY79: \$4,000	TOTAL: \$4,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Miller, E. D.	GSFC/Toll, D.	55-Agriculture Sci

**NAS 6-2884** Texas A&M University 3574  
Study of the dynamics of ocean surface current and Kuroshio circulation

<i>Period</i>	<i>Obligations</i>	
02/01/78-09/30/80	FY79: \$14,224	TOTAL: \$34,199
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ichye, T	WFC/Huang, N. E.	33-Oceanography
	WFC/Long, S. R.	

**NAS 8-31773** Texas A&M University 3575  
The relationship between severe storms and their environment

<i>Period</i>	<i>Obligations</i>	
01/02/76-05/31/80	FY79: \$41,998	TOTAL: \$226,981
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Scoggins, J. R.	MSFC/Hill, C. K.	31-Atmos Sci
	MSFC/Vaughn, W. W.	

**NAS 8-32527** Texas A&M University 3576  
Bent crystal X-ray topography

<i>Period</i>	<i>Obligations</i>	
07/13/77-09/30/78	FY79:	TOTAL: \$39,954
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Parker, D. L.	MSFC/Nowakowski, M.	13-Physics
	MSFC/Holladay, A. M.	

**NAS 9-12434** Texas A&M University 3577  
Compression of rehydratable vegetables & cereals

<i>Period</i>	<i>Obligations</i>	
01/19/72-08/01/79	FY79:	TOTAL: \$160,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Burns, E. E.	JSC/Smith, M. C., Jr.	59-Life Sci, NEC

**NAS 9-13894** Texas A&M University 3578  
Classification techniques evaluation and yield modeling for a large crop inventory project

<i>Period</i>	<i>Obligations</i>	
01/15/74-11/17/79	FY79: \$41,000	TOTAL: \$471,842
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Freund, R. J.	JSC/Broune, I. D.	22-Computer Science

**NAS 9-13904** Texas A&M University 3579  
Microwave soil moisture measurement and analysis

<i>Period</i>	<i>Obligations</i>	
02/11/74-11/30/79	FY79: \$99,270	TOTAL: \$499,096
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rouse, J. W., Jr.	JSC/Buras, N. T.	39-Env Sci, NEC

**NAS 9-14689** Texas A&M University 3580  
Application of feature selection

<i>Period</i>	<i>Obligations</i>	
06/01/75-10/31/79	FY79: \$60,000	TOTAL: \$266,200
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Guseman, L. F., Jr.	JSC/Browne, I. D.	22-Computer Science

**NAS 9-14828** Texas A&M University 3581  
Lunar sample irradiation services

<i>Period</i>	<i>Obligations</i>	
11/01/75-08/31/80	FY79: \$15,000	TOTAL: \$60,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Randall, J. D.	JSC/Blanchard, D.	39-Env Sci, NEC

**NAS 9-14875** Texas A&M University 3582  
Joint soil moisture experiment scatterometer data processing

<i>Period</i>	<i>Obligations</i>	
01/22/76-08/31/79	FY79:	TOTAL: \$94,900
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Newton, R. R.	JSC/Demel, K. J.	32-Geological Sci
	JSC/Baldwin, R. R.	

**NAS 9-15311** Texas A&M University 3583  
Investigation of microprocessor systems to be used in the development of a 4.76 GHz scatterometer real-time processor

<i>Period</i>	<i>Obligations</i>	
05/11/77-04/16/80	FY79: \$50,000	TOTAL: \$119,253
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jean, B. R.	JSC/Farris, G. W.	45-Elec Engr

**NAS 9-15451** Texas A&M University 3584  
Microwave Remote Sensing symposium workshop

<i>Period</i>	<i>Obligations</i>	
10/12/77-10/31/78	FY79:	TOTAL: \$66,513
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rouse, J. W., Jr.	JSC/Matthews, R. E.	13-Physics

**NAS 9-15465** Texas A&M University 3585  
Rangeland resource evaluation from LANDSAT

<i>Period</i>	<i>Obligations</i>	
12/15/77-06/14/79	FY79:	TOTAL: \$83,673
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Harlan, J. C.	JSC/Amsbury, D. L.	32-Geological Sci

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**NAS 9-15468** Texas A&M University 3586  
Development of map products on state of rangelands  
*Period* *Obligations*  
12/05/77-08/31/79 FY79: TOTAL: \$64,748  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Whitehorn, N. JSC/Amsbury, D. L. 99-Multi-Discip

**NAS 9-15873** Texas A&M University 3587  
Development of a photosynthetic link in a closed ecological life support system  
*Period* *Obligations*  
05/01/79-01/31/80 FY79: \$10,000 TOTAL: \$10,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Morgan, P. W. JSC/Fricks, D. 51-Biological Sci

**NAS 9-15962** Texas A&M University 3588  
Impact testing on orbiter high-temperature reusable surface insulation tiles  
*Period* *Obligations*  
06/01/79-10/01/79 FY79: \$15,366 TOTAL: \$15,366  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Norton, D. JSC/Strouhal, G. 47-Materials Engr  
Rand, J.

**NCC 5 11** Texas A&M University 3589  
Altimeter data over trenches and island arcs and convection in the mantle  
*Period* *Obligations*  
05/01/79-04/30/80 FY79: \$2,000 TOTAL: \$25,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Jones, G. M. GSFC/Taylor, P. T. 32-Geological Sci

**NCC 5 15** Texas A&M University 3590  
Determination of the spatial variability in localized precipitation patterns  
*Period* *Obligations*  
06/01/79-05/31/80 FY79: \$25,478 TOTAL: \$25,478  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Miller, L. D. GSFC/Schmugge, T. J. 39-Env Sci, NEC  
Blanchard, B. J. GSFC/Wang, J. R.

**NGL 44-001-001** Texas A&M University 3591  
Interdisciplinary space-oriented research in physical, life and engineering sciences  
*Period* *Obligations*  
02/01/62-01/31/81 FY79: TOTAL: \$1,915,564  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Blanchard, B. J. HQ-ET/Vitale, J. A. 39-Env Sci, NEC

**NGR 44-001-117** Texas A&M University 3592  
Radiative transfer in realistic planetary atmospheres  
*Period* *Obligations*  
07/19/71-09/30/80 FY79: TOTAL: \$308,520  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Plass, G. N. HQ-SL/Fellows, R. F. 31-Atmos Sci  
HQ-SL/Brunk, W. E.

**NSG 1174** Texas A&M University 3593  
Development of inverse transonic airfoil design methods including boundary layer and viscous interaction effects  
*Period* *Obligations*  
05/01/75-01/31/80 FY79: \$19,998 TOTAL: \$69,827  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Carlson, L. A. LARC/South, J. C., Jr. 41-Aero Engr

**NSG 1374** Texas A&M University 3594  
Low cost avionics for the global positioning system  
*Period* *Obligations*  
01/15/77-10/14/79 FY79: TOTAL: \$46,587  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Painter, J. H. LARC/Lytle, C. D. 45-Elec Engr  
Noe, P. S. LARC/Hearn, C. P.  
Rhyne, V. T.

**NSG 1407** Texas A&M University 3595  
Investigation of the aerodynamics for preventing aircraft stall and the development of technology for stall proof general aviation aircraft  
*Period* *Obligations*  
04/01/77-02/29/80 FY79: \$25,000 TOTAL: \$96,033  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Chevalier, H. L. LARC/Chambers, J. R. 41-Aero Engr  
LARC/Johnson, J. L.

**NSG 1639** Texas A&M University 3596  
Design studies for a technology assessment receiver for the global positioning system  
*Period* *Obligations*  
09/01/79-05/31/80 FY79: \$39,991 TOTAL: \$39,991  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Painter, J. H. LARC/Hearn, C. P. 45-Elec Engr  
Noe, P. S. LARC/Lytle, C. D.  
Rhyne, V. T.

**NSG 2226** Texas A&M University 3597  
Applicability of reliability and survivability program-version I to model reliability and survivability characteristics of aircraft weapon systems  
*Period* *Obligations*  
05/01/77-02/28/80 FY79: \$28,340 TOTAL: \$39,340  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Phillips, D. T. ARC/Wong, J. T. 41-Aero Engr  
Foster, J. W. ARC Andre, W. L.

**NSG 3201** Texas A&M University 3598  
Theoretical calculations relevant to hydrogen storage  
*Period* *Obligations*  
06/15/78-11/15/79 FY79: TOTAL: \$4,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ford, A. L. LERC/Brown, G. V. 13-Physics

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**NSG 5134** Texas A&M University **3599**  
Measurement of soil moisture trends with airborne scatterometers  
*Period* *Obligations*  
10/11/76-12/31/79 **FY79: \$75,000 TOTAL: \$125,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Blanchard, B. J. GSFC/Chang, A. T. 32-Geological Sci

**NSG 5156** Texas A&M University **3600**  
Measurement of the hydrologic soil-cover complex with airborne scatterometers  
*Period* *Obligations*  
02/01/77-09/30/79 **FY79: TOTAL: \$79,085**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Blanchard, B. J. GSFC/Chang, A. T. 32-Geological Sci

**NSG 5193** Texas A&M University **3601**  
Temporal correlations of antecedent precipitation with Nimbus-5 electrically scanning microwave radiometer brightness temperatures  
*Period* *Obligations*  
08/01/77-07/31/80 **FY79 \$42,384 TOTAL: \$88,259**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
McFarland, M. J. GSFC/Schmugge, T. J. 31-Atmos Sci  
Blanchard, B. J.

**NSG 5266** Texas A&M University **3602**  
Research on mathematical model of an orbiting microwave radiometer  
*Period* *Obligations*  
04/01/78-12/31/79 **FY79: TOTAL: \$60,302**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Newton, R. R. GSFC/Wang, J. R. 39-Env Sci, NEC  
Rouse, J. W., Jr.

**NSG 7037** Texas A&M University **3603**  
The origin of the genetic code. A physical chemical model of Codon assignment  
*Period* *Obligations*  
05/07/74-05/31/80 **FY79: \$44,000 TOTAL: \$259,975**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Fendler, J. H. HQ-SB/Young, R. S. 12-Chemistry  
Nagyvary, J.

**NSG 7189** Texas A&M University **3604**  
A comparison of smooth, continuous velocity models and stepwise, layered velocity models for the lunar crust  
*Period* *Obligations*  
02/01/76-03/15/78 **FY79: TOTAL: \$18,565**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gangi, A. F. HQ-SI./Goldstein, B. E. 32-Geological Sci  
Self, S. L.

**NSG 7370** Texas A&M University **3605**  
Spacecraft evidence for sulfur in the clouds of Venus  
*Period* *Obligations*  
06/01/77-11/30/78 **FY79: TOTAL: \$22,854**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Young, A. T. HQ-SL/Murphy, R. E. 32-Geological Sci

**NSG 7417** Texas A&M University **3606**  
Velocity model of the shallow lunar crust  
*Period* *Obligations*  
03/01/78-09/30/79 **FY79: TOTAL: \$21,837**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Gangi, A. F. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. E.

**NAS 9-11162** Texas Tech University **3607**  
Insulated ECG electrodes  
*Period* *Obligations*  
06/29/70-02/01/80 **FY79: TOTAL: \$134,892**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Portnoy, W. M. JSC/Day, J. L. 45-Elec Engr

**NSG 2137** Texas Tech University **3608**  
Pharmacological prevention of calcium and bone loss  
*Period* *Obligations*  
05/01/76-04/30/80 **FY79: \$10,000 TOTAL: \$38,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kenny, A. D. ARC/Holton, E. M. 56-Medical Sciences

**NSG 7435** Texas Tech University **3609**  
Application of laser ranging and very long base interferometry data to a study of plate tectonic driving forces  
*Period* *Obligations*  
05/01/78-04/30/80 **FY79: \$16,458 TOTAL: \$37,636**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hartman, H. B. HQ-SB/Halstead, T. W. 32-Geological Sci

**NAS 2-10087** University of Houston - Houston **3610**  
Influence of weightlessness on lignification in developing plant seedlings  
*Period* *Obligations*  
11/01/78-10/31/79 **FY79: \$48,580 TOTAL: \$48,580**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cowles, J. R. ARC/Tremor, J. W. 59-Life Sci, NEC  
Scheid, H. W.

**NAS 9-11676** University of Houston - Houston **3611**  
Characterization of heat transfer in nutrient materials  
*Period* *Obligations*  
04/28/71-03/01/81 **FY79: \$9,999 TOTAL: \$99,948**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cox, J. E. JSC/Sauer, R. L. 59-Life Sci, NEC

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**NAS 9-15193** University of Houston - Houston 3612  
Analysis and problem-solving of space shuttle aerodynamics and structures

<i>Period</i>	<i>Obligations</i>	
11/01/76-02/01/79	FY79: TOTAL: \$82,900	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Michalopoulos, C. O.	JSC/Eggleston, J. M.	41-Aero Engr
Wheeler, L. T.		

**NAS 9-15521** University of Houston - Houston 3613  
Man-machine analysis of translation and work tasks of Skylab films

<i>Period</i>	<i>Obligations</i>	
02/01/78-12/01/78	FY79: TOTAL: \$10,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Morrow, J. R.	JSC/Jackson, J. T.	19-Phys Sci, NEC

**NAS 9-15543** University of Houston - Houston 3614  
Development of mathematical techniques for the analysis of remote sensing data

<i>Period</i>	<i>Obligations</i>	
03/14/78-12/31/79	FY79: \$59,875 TOTAL: \$117,735	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Decell, H. P., Jr.	JSC/Browne, I. D.	39-Env Sci, NEC

**NAS 9-15680** University of Houston - Houston 3615  
Conceptual design of a flight operations planning scheduling system

<i>Period</i>	<i>Obligations</i>	
09/11/78-08/31/79	FY79: TOTAL: \$35,400	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lee, W. B.	JSC/Kennedy, M. G.	49-Engr, NEC
Steinberg, E.		

**NAS 9-15767** University of Houston - Houston 3616  
Study of multiwire proportional counter technology for medical application

<i>Period</i>	<i>Obligations</i>	
11/30/78-11/30/79	FY79: \$42,500 TOTAL: \$42,500	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lacy, J. L.	JSC/Alexander, W. C.	56-Medical Sciences

**NAS 9-15882** University of Houston - Houston 3617  
Analysis of volatile metabolites in biological fluids as indicators of prodromal disease conditions

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/80	FY79: \$49,948 TOTAL: \$49,948	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zlatkis, A.	JSC/Schneider, H. J.	51-Biological Sci

**NAS 9-15944** University of Houston - Houston 3618  
Design of a food service habitat for a large scale space station

<i>Period</i>	<i>Obligations</i>	
08/23/79-11/30/80	FY79: \$15,000 TOTAL: \$15,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bell, L.	JSC/Smith, M. C., Jr.	99-Multi-Discip
Rappole, C.		

**NGR 44-005-002** University of Houston - Houston 3619  
Studies in organic cosmochemistry, including consideration of compound formation under primitive earth conditions & of organic material in selected meteorites

<i>Period</i>	<i>Obligations</i>	
06/18/62-08/31/80	FY79: \$165,000 TOTAL: \$1,029,905	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Oro, J.	HQ-SB/Young, R. S.	32-Geological Sci

**NGR 44-005-091** University of Houston - Houston 3620  
Spectroscopic and photochemical study of photochromic compounds

<i>Period</i>	<i>Obligations</i>	
03/07/69-08/31/79	FY79: TOTAL: \$505,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Becker, R. S.	HQ-SB/Young, R. S.	12-Chemistry

**NGT 44-005-114** University of Houston - Houston 3621  
Program of faculty space systems engineering institute

<i>Period</i>	<i>Obligations</i>	
04/06/70-03/31/78	FY79: TOTAL: \$825,080	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Huang, C. J.	HQ-LU/Carter, C. H.	49-Engr, NEC

**NGT 44-005-115** University of Houston - Houston 3622  
Summer faculty fellowship program in research

<i>Period</i>	<i>Obligations</i>	
05/06/74-03/31/80	FY79: \$150,987 TOTAL: \$1,265,089	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Huang, C. J.	HQ-LU/Carter, C. H.	49-Engr, NEC

**NSG 1475** University of Houston - Houston 3623  
The large-scale coherent structure in the circular jet

<i>Period</i>	<i>Obligations</i>	
12/01/77-11/30/79	FY79: \$35,000 TOTAL: \$70,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hussain, A. K.	LARC/Maestrello, L.	41-Aero Engr
	LARC/Seiner, J. M.	

**NSG 1603** University of Houston - Houston 3624  
Research on the application of a decoupling algorithm for structural analysis

<i>Period</i>	<i>Obligations</i>	
03/15/79-03/14/80	FY79: \$19,800 TOTAL: \$19,800	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Denman, E. D.	LARC/Horner, G. C.	45-Elec Engr

**NSG 2337** University of Houston - Houston 3625  
The high Reynolds number free shear layer (behind a backward facing step)

<i>Period</i>	<i>Obligations</i>	
09/01/78-06/30/80	FY79: \$78,089 TOTAL: \$143,712	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hussain, A. K.	ARC/Uiegas, J. R.	47-Materials Engr
Kleis, S. J.		

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NSG 6008** University of Houston - Houston 3626  
Investigation of ionospheric disturbances using a parachute  
deployed payload

<i>Period</i>	<i>Obligations</i>	
12/01/75-08/31/79	FY79: TOTAL: \$70,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sheldon, W. R.	WFC/Gray, J. W.	19-Phys Sci, NEC
	WFC/Gray, J. W.	

**NSG 7609** University of Houston - Houston 3632  
Measure electron precipitation induced by barium injections in  
the magnetosphere: Flight of parachute deployed payloads during  
the barium GEOS experiment

<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/80	FY79: \$42,000 TOTAL: \$42,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sheldon, W. R.	HQ-ST/Wiskerchen, M. J.	19-Phys Sci, NEC
	HQ-ST/Schmerling, E. R.	

**NSG 7228** University of Houston - Houston 3627  
Geologic mapping of the planet Mercury

<i>Period</i>	<i>Obligations</i>	
04/01/76-09/30/78	FY79: TOTAL: \$27,358	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
King, E. A.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Wahmann, R.	

**NSG 7617** University of Houston - Houston 3633  
Investigation of multizoned chondrules and dark rim materials  
in ordinary and carbonaceous chondrites

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$24,959 TOTAL: \$24,959	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
King, E. A.	HQ-SL/French, B. M.	32-Geological Sci
	HQ-SL/Quaide, W. L.	

**NSG 7300** University of Houston - Houston 3628  
The role cell membranes in the regulation of lignification in pine  
cells

<i>Period</i>	<i>Obligations</i>	
10/01/76-04/30/80	FY79: \$29,997 TOTAL: \$89,986	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hendrix, D. H.	HQ-SB/Halstead, T. W.	51-Biological Sci
	HQ-SB/Geib, D. S.	

**NSG 9042** University of Houston - Houston 3634  
Aromatic biosynthesis in pine tissues

<i>Period</i>	<i>Obligations</i>	
04/01/76-05/30/80	FY79: \$30,000 TOTAL: \$119,800	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coules, J. R.	HQ-SB/Halstead, T. W.	51-Biological Sci
Scheld, H. W.	HQ-SB/Geib, D. S.	

**NSG 7410** University of Houston - Houston 3629  
Wind regime of various dune types in the southeastern California  
desert

<i>Period</i>	<i>Obligations</i>	
11/01/77-04/30/80	FY79: \$70,007 TOTAL: \$38,714	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, R. S.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Boyce, J. M.	

**DFN 8-1** University of Houston - Clear Lake 3635  
Installation of a solar energy system

<i>Period</i>	<i>Obligations</i>	
06/14/78-10/01/78	FY79: TOTAL: \$201,642	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Samfield, E.	MSFC/Clark, J.	31-Atmos Sci

**NSG 7440** University of Houston - Houston 3630  
Evolutionary relationships in the microbial world

<i>Period</i>	<i>Obligations</i>	
06/01/78-05/31/80	FY79: \$45,000 TOTAL: \$90,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fox, G. E.	HQ-SB/Young, R. S.	51-Biological Sci

**NSG 9-15642** University of Houston - Clear Lake 3636  
Development of quantitative exercise program for use in space  
flight

<i>Period</i>	<i>Obligations</i>	
07/17/78-04/30/80	FY79: \$25,000 TOTAL: \$30,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Coleman, A. E.	JSC/Alexander, W. C.	56-Medical Sciences

**NSG 7551** University of Houston - Houston 3631  
Mars: Significance of large open spaces within the north polar  
dune fields

<i>Period</i>	<i>Obligations</i>	
04/01/79-10/01/79	FY79: \$5,000 TOTAL: \$5,000	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, R.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Boyce, J. M.	

**NSG 9043** University of Houston - Clear Lake 3637  
Cosmic ray and solar flare irradiation history of regolith crystals  
and agglutinates

<i>Period</i>	<i>Obligations</i>	
06/01/76-01/31/80	FY79: \$21,000 TOTAL: \$114,600	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Blanford, G. E.	JSC/Harris, J. W.	13-Physics

**NASA'S UNIVERSITY PROGRAM  
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**NSG 3255** University of Texas - Arlington **3638**  
Generator (MHD) off-design performance with NoX chemical kinetics analysis

<i>Period</i>	<i>Obligations</i>	
03/01/79-01/15/80	FY79: \$24,151	TOTAL: \$24,151
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilson, D. R.	LERC/Smith, J. M.	49-Engr, NEC
Simmons, G. A., Jr.	LERC/Pian, C. C.	

**NAS 8-32906** University of Texas - Austin **3645**  
Scientific investigations in support of the space telescope project, to assure that the space telescope will perform astrometric functions

<i>Period</i>	<i>Obligations</i>	
02/01/78-02/23/84	FY79: \$100,000	TOTAL: \$400,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jefferys, W. H.	MSFC/O'Dell, C. R.	11-Astronomy

**NAS 5-22576** University of Texas - Austin **3639**  
Communications link characterization experiment

<i>Period</i>	<i>Obligations</i>	
09/08/75-04/13/80	FY79:	TOTAL: \$207,700
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Vogel, W.	GSFC/Hirschmann, E.	45-Elec Engr
Staughton, A. W.		

**NAS 9-13680** University of Texas - Austin **3646**  
Assessment of real gas effects on the extrapolation of shuttle flow field phenomena to flight conditions

<i>Period</i>	<i>Obligations</i>	
09/27/73-03/15/80	FY79: \$25,000	TOTAL: \$181,985
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bertin, J. J.	JSC/Goodrich, W. D.	41-Aero Engr

**NAS 5-25018** University of Texas - Austin **3640**  
Research in identifying dominant error sources inherent in the estimation process by solving for points on the earth's surface

<i>Period</i>	<i>Obligations</i>	
05/17/78-08/31/80	FY79: \$29,875	TOTAL: \$48,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tapley, B. D.	GSFC/Kahn, W. D.	19-Phys Sci, NEC
Schutz, B. E.		
Sutton, H. E.		

**NAS 9-14491** University of Texas - Austin **3647**  
Adsorption pumping cryogenic refrigeration study

<i>Period</i>	<i>Obligations</i>	
02/10/75-02/07/80	FY79: \$99,402	TOTAL: \$376,602
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hartwig, W. H.	JSC/Richard, R. R.	49-Engr, NEC
Steinfink, H.	JSC/Nuss, R. W.	

**NAS 5-25656** University of Texas - Austin **3641**  
Space telescope/high resolution spectrograph

<i>Period</i>	<i>Obligations</i>	
05/09/79-01/31/82	FY79: \$4,000	TOTAL: \$4,000
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Trafton, L. M.	GSFC/Liberatore, F. J.	11-Astronomy

**NAS 9-15093** University of Texas - Austin **3648**  
Data analysis and associated data storage unit for interferometer system

<i>Period</i>	<i>Obligations</i>	
08/01/76-01/31/78	FY79:	TOTAL: \$14,872
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Barnes, T.	JSC/Potter, A. E.	11-Astronomy

**NAS 5-25756** University of Texas - Austin **3642**  
Autonomous satellite navigation method using the global positioning satellite system

<i>Period</i>	<i>Obligations</i>	
07/18/79-07/17/80	FY79: \$39,500	TOTAL: \$39,500
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tapley, B. D.	GSFC/Fuchs, A. J.	42-Astro Engr
Schutz, B. E.		

**NAS 9-15217** University of Texas - Austin **3649**  
Imaging radar mathematical model and airborne imaging radar data collecting system

<i>Period</i>	<i>Obligations</i>	
12/15/76-12/31/78	FY79:	TOTAL: \$230,969
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tucker, A. J.	JSC/Pels, G. F.	49-Engr, NEC

**NAS 8-31459** University of Texas - Austin **3643**  
Analysis of ultraviolet stellar spectra obtained with Skylab experiment S-019

<i>Period</i>	<i>Obligations</i>	
06/30/75-08/31/80	FY79:	TOTAL: \$391,821
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Henize, K. G.	MSFC/Snoddy, W. C.	11-Astronomy
Wray, J. D.		

**NAS 9-15401** University of Texas - Austin **3650**  
Shuttle imaging radar flight systems/antenna tradeoff and evaluation study

<i>Period</i>	<i>Obligations</i>	
08/01/77-01/01/80	FY79:	TOTAL: \$66,800
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Crow, G. L.	JSC/Nitschke, H. A.	41-Aero Engr

**NAS 8-32905** University of Texas - Austin **3644**  
Scientific investigation in support of the space telescope project

<i>Period</i>	<i>Obligations</i>	
02/15/78-02/15/84	FY79:	TOTAL: \$285,400
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lambert, D. L.	MSFC/O'Dell, C. R.	11-Astronomy

**NAS 9-15567** University of Texas - Austin **3651**  
Interaction of numerical and dynamical stability

<i>Period</i>	<i>Obligations</i>	
04/26/78-06/30/80	FY79: \$15,200	TOTAL: \$22,200
<i>Pnn Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Szebekely, V. G.	JSC/Bond, V.	12-Chemistry



**NASA'S UNIVERSITY PROGRAM  
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**NASW 2974** University of Texas - Austin 3652  
Design, development, construction and operational testing of a completely operational transportable lunar laser tracking station capable of attaining a three century range accuracy

<i>Period</i>	<i>Obligations</i>	
07/16/76-09/30/79	FY79: TOTAL: \$1,351,631	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Silverberg, E. C.	HQ-SM/Shirey, W. H.	19-Phys Sci, NEC

**NGR 44-012-283** University of Texas - Austin 3658  
Precision orbit determination for near-earth satellites

<i>Period</i>	<i>Obligations</i>	
01/14/74-12/31/79	FY79: TOTAL: \$144,410	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tapley, B. D.	GSFC/Kolenkiewicz, R.	
Schutz, B. E.	GSFC/Smith, D. E.	32-Geological Sci

**NGL 44-012-006** University of Texas - Austin 3653  
Research on millimeter wavelength radiation from solar bodies

<i>Period</i>	<i>Obligations</i>	
04/29/63-03/31/80	FY79: TOTAL: \$1,466,333	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilson, W. J.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Quaide, W. L.	

**NSG 1440** University of Texas - Austin 3659  
Accelerating convergence of collocation methods

<i>Period</i>	<i>Obligations</i>	
09/01/77-08/31/79	FY79: TOTAL: \$27,618	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Daniel, J. W.	LARC/Shoosmith, J. N.	21-Mathematics

**NGL 44-012-055** University of Texas - Austin 3654  
Polarization and time structure of Jovian decametric radiation and the structure of interplanetary plasma

<i>Period</i>	<i>Obligations</i>	
05/25/66-04/30/80	FY79: \$19,908 TOTAL: \$1,041,980	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Douglas, J. N.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Murphy, R. E.	

**NSG 1446** University of Texas - Austin 3660  
Research into a data management system for scientific/engineering applications

<i>Period</i>	<i>Obligations</i>	
09/01/77-12/31/79	FY79: \$20,000 TOTAL: \$97,800	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Browne, J. C.	LARC/Shipman, F. S.	22-Computer Science
	LARC/Shoosmith, J. N.	

**NGR 44-012-152** University of Texas - Austin 3655  
A program of planetary studies

<i>Period</i>	<i>Obligations</i>	
06/25/69-04/30/80	FY79: \$440,000 TOTAL: \$3,689,198	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, H. J.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Murphy, R. E.	

**NSG 1479** University of Texas - Austin 3661  
Verification/validation of space shuttle flight computer programming language (HAL/S)

<i>Period</i>	<i>Obligations</i>	
01/01/78-12/31/79	FY79: TOTAL: \$51,747	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Browne, J. C.	LARC/Will, R. W.	22-Computer Science
Good, D. I.	LARC/Foudriat, E. C.	

**NGR 44-012-165** University of Texas - Austin 3656  
Continuation of lunar laser ranging experiments at McDonald Observatory

<i>Period</i>	<i>Obligations</i>	
10/1/69-12/31/79	FY79: \$348,775 TOTAL: \$3,278,199	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Silverberg, E. C.	GSFC/White, W. W.	32-Geological Sci
	HQ-ER/Flinn, E. A.	

**NSG 1544** University of Texas - Austin 3662  
Surface smoothing

<i>Period</i>	<i>Obligations</i>	
06/01/78-06/30/80	FY79: \$13,000 TOTAL: \$29,046	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cline, A. K.	LARC/Schiess, J. R.	22-Computer Science

**NGR 44-012-282** University of Texas - Austin 3657  
Outer planet satellite studies

<i>Period</i>	<i>Obligations</i>	
09/01/73-07/31/80	FY79: \$89,539 TOTAL: \$284,507	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mulholland, J. D.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Murphy, R. E.	

**NSG 1632** University of Texas - Austin 3663  
Algorithm and software development for multi-level schemes for partial differential equations

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$14,738 TOTAL: \$14,738	
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sherman, A. H.	LARC/Smith, R. E.	21-Mathematics
Bank, R. E.	LARC/Shoosmith, J. N.	

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NSG 2065** University of Texas - Austin **3664**  
Antecedents of achievement and creativity  
*Period* *Obligations*  
02/01/75-11/30/79 FY79: \$79,331 TOTAL: \$295,517  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Frey, J. ARC/Patton, R. M. 69-Psych, NEC  
ARC/Tanner, T. A.

**NSG 2338** University of Texas - Austin **3665**  
Finite elements and Navier-Stokes' problems  
*Period* *Obligations*  
10/01/78-10/01/79 FY79: TOTAL: \$5,329  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Carey, G. F. ARC/Ballhaus, W. F. 41-Aero Engr  
ARC/Holst, T. L.

**NSG 2345** University of Texas - Austin **3666**  
A program of far-infrared observations of star formation regions  
in molecular clouds  
*Period* *Obligations*  
10/01/78-09/30/80 FY79: \$9,745 TOTAL: \$9,745  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Evans, N. J., II ARC/Haughney, L. C. 11-Astronomy  
ARC/Cameron, R. M.

**NSG 3089** University of Texas - Austin **3667**  
Plasma fluctuation diagnostic tool for the Bumpy Torus  
experiment  
*Period* *Obligations*  
11/17/75-12/31/78 FY79: \$340 TOTAL: \$80,340  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Powers, E. J. LERC/Moekkel, W. E. 45-Elec Engr  
LERC/Roth, J. R.

**NSG 3190** University of Texas - Austin **3668**  
Preparation, characterization, physical testing and performance  
of fluorocarbon membranes and separators  
*Period* *Obligations*  
06/01/78-05/31/80 FY79: \$40,000 TOTAL: \$75,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lagow, R. J. LERC/Sheibley, D. W.  
Dumitru, E. T. LERC/Hsu, L. C. 56-Medical Sciences

**NSG 3198** University of Texas - Austin **3669**  
Acoustic properties of duct lining materials  
*Period* *Obligations*  
07/01/78-06/30/81 FY79: TOTAL: \$60,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Blackstock, D. T. LERC/Rice, E. J. 13-Physics  
Panton, R. L. LERC/Baumeister, K. J.  
Perreira, N. D.

**NSG 5154** University of Texas - Austin **3670**  
Research of autonomous satellite navigational methods using  
global positioning satellite system  
*Period* *Obligations*  
03/01/77-05/31/79 FY79: TOTAL: \$76,843  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tapley, B. D. GSFC/Fuchs, A. J. 21-Mathematics  
Schutz, B. E. GSFC/Wooden, W. H., II

**NSG 5167** University of Texas - Austin **3671**  
Copernicus observations of stellar winds in early B-type stars  
*Period* *Obligations*  
03/14/77-09/13/78 FY79: TOTAL: \$2,801  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Smith, M. A. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 5233** University of Texas - Austin **3672**  
Ultraviolet spectroscopy of X-ray emitting binary systems and  
ultraviolet observations of interstellar molecules  
*Period* *Obligations*  
02/19/78-08/31/79 FY79: TOTAL: \$12,906  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
VandenBout, P. A. GSFC/Bogges, A. 11-Astronomy  
GSFC/West, D. K.

**NSG 5309** University of Texas - Austin **3673**  
Copernicus ultraviolet spectroscopic observations  
*Period* *Obligations*  
12/15/78-12/14/79 FY79: \$3,111 TOTAL: \$3,111  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Smith, M. A. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NSG 5328** University of Texas - Austin **3674**  
Ultraviolet spectroscopy of giant and supergiant stars  
*Period* *Obligations*  
02/01/79-01/31/80 FY79: \$11,720 TOTAL: \$11,720  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Parsons, S. B. GSFC/Bogges, A. 11-Astronomy

**NSG 5337** University of Texas - Austin **3675**  
Spectrophotometry of selected early type stars  
*Period* *Obligations*  
12/15/78-01/31/80 FY79: \$9,455 TOTAL: \$9,455  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Wray, J. D. GSFC/Bogges, A. 11-Astronomy  
Henize, K. G.

**NSG 5379** University of Texas - Austin **3676**  
Ultraviolet spectroscopy of symbiotic stars, recurrent and old  
novae  
*Period* *Obligations*  
06/25/79-11/30/79 FY79: \$5,000 TOTAL: \$5,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Lambert, D. L. GSFC/Bogges, A. 11-Astronomy  
Shield, G. A.

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NSG 5387** University of Texas - Austin **3677**  
 Ultraviolet-optical spectrophotometry of interesting quasi-stellar objects  
*Period* Obligations  
 07/01/79-06/30/80 FY79: \$1,670 TOTAL: \$1,670  
*Prin Invest* NASA Tech Officer CASE Category  
 Wills, B. J. GSFC/Bogges, A. 11-Astronomy  
 Wills, D.

**NSG 7371** University of Texas - Austin **3684**  
 Analysis of ultraviolet stellar spectra obtained with Skylab experiment S-019  
*Period* Obligations  
 08/01/77-07/31/80 FY79: \$22,000 TOTAL: \$117,000  
*Prin Invest* NASA Tech Officer CASE Category  
 Henize, K. G. HQ-SC/Roman, N. G. 11-Astronomy  
 HQ-SC/Rosendhal, J. D.

**NSG 7159** University of Texas - Austin **3678**  
 Preliminary geophysical and geological site survey of the region of the McDonald Observatory  
*Period* Obligations  
 09/08/75-10/31/79 FY79: TOTAL: \$289,057  
*Prin Invest* NASA Tech Officer CASE Category  
 Dornan, J. H. HQ-ER/Flinn, E. A. 19-Phys Sci, NEC

**NSG 7381** University of Texas - Austin **3685**  
 Program of 1-5 micron photometry of infrared sources embedded in molecular clouds  
*Period* Obligations  
 09/01/77-08/31/80 FY79: \$13,512 TOTAL: \$25,945  
*Prin Invest* NASA Tech Officer CASE Category  
 Evans, N. J., II HQ-SC/Bogges, N. W. 11-Astronomy  
 HQ-SC/Roman, N. G.

**NSG 7162** University of Texas - Austin **3679**  
 Lunar laser data identification and management  
*Period* Obligations  
 09/01/75-12/31/79 FY79: \$79,713 TOTAL: \$302,916  
*Prin Invest* NASA Tech Officer CASE Category  
 Shelus, P. J. GSFC/White, W. W. 19-Phys Sci, NEC  
 HQ-ER/Flinn, E. A.

**NSG 7408** University of Texas - Austin **3686**  
 Orbital theories of outer planet satellites  
*Period* Obligations  
 12/01/77-11/30/79 FY79: TOTAL: \$20,143  
*Prin Invest* NASA Tech Officer CASE Category  
 Jefferys, W. H. HQ-SL/Brunk, W. E. 11-Astronomy  
 HQ-SL/Quaide, W. L.

**NSG 7232** University of Texas - Austin **3680**  
 Astrophysics of supermassive accretion disks  
*Period* Obligations  
 05/01/76-08/31/80 FY79: \$19,000 TOTAL: \$73,088  
*Prin Invest* NASA Tech Officer CASE Category  
 Shield, G. A. HQ-SC/Roman, N. G. 11-Astronomy  
 Wheeler, J. C. HQ-SC/Weiler, E. J.

**NSG 7480** University of Texas - Austin **3687**  
 The cellular bases of gravity-and light-induced geotropism  
*Period* Obligations  
 08/15/78-08/14/80 FY79: \$70,000 TOTAL: \$70,000  
*Prin Invest* NASA Tech Officer CASE Category  
 Roux, S. J. HQ-SB/Halstead, T. W. 51-Biological Sci  
 HQ-SB/Getb, D. S.

**NSG 7326** University of Texas - Austin **3681**  
 Origin of channels on Mars  
*Period* Obligations  
 01/01/77-12/31/79 FY79: TOTAL: \$121,440  
*Prin Invest* NASA Tech Officer CASE Category  
 Baker, V. R. HQ-SL/Dwornik, S. E. 32-Geological Sci  
 HQ-SL/Boyce, J. M.

**NSG 7505** University of Texas - Austin **3688**  
 Solid state problems in the solar systems  
*Period* Obligations  
 09/01/78-08/31/79 FY79: \$67,538 TOTAL: \$67,538  
*Prin Invest* NASA Tech Officer CASE Category  
 Smoluchowski, R. HQ-SL/Quaide, W. L. 32-Geological Sci  
 HQ-SL/Dwornik, S. E.

**NSG 7347** University of Texas - Austin **3682**  
 Atomic line strengths and Stark broadening for selected compounds  
*Period* Obligations  
 06/01/77-09/30/78 FY79: TOTAL: \$6,000  
*Prin Invest* NASA Tech Officer CASE Category  
 Bengtson, R. D. HQ-SC/Rosendhal, J. D. 11-Astronomy  
 HQ-SC/Roman, N. G.

**NSG 7557** University of Texas - Austin **3689**  
 Morphogenetic studies of Martian channels  
*Period* Obligations  
 04/01/79-03/31/80 FY79: \$20,000 TOTAL: \$20,000  
*Prin Invest* NASA Tech Officer CASE Category  
 Baker, V. R. HQ-SL/Dwornik, S. E. 32-Geological Sci  
 HQ-SL/Boyce, J. M.

**NSG 7363** University of Texas - Austin **3683**  
 Lunar tectonics through space and time  
*Period* Obligations  
 07/01/77-07/31/80 FY79: TOTAL: \$50,509  
*Prin Invest* NASA Tech Officer CASE Category  
 Muehlberger, W. R. HQ-SL/Dwornik, S. E. 32-Geological Sci  
 HQ-SL/Quaide, W. L.

**NSG 9021** University of Texas - Austin **3690**  
 Origin of magnetization in lunar breccias and its bearing on their formation  
*Period* Obligations  
 02/01/75-01/31/80 FY79: \$8,900 TOTAL: \$117,125  
*Prin Invest* NASA Tech Officer CASE Category  
 Gose, W. A. JSC/Harris, J. W. 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NAS 2-9485** University of Texas - Dallas 3691  
Pioneer/Venus data analysis

<i>Period</i>	<i>Obligations</i>	
06/16/77-12/31/79	FY79: \$197,161	TOTAL: \$283,382
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hoffman, J. H.	ARC/Hall, C. F.	31-Atmos Sci
Hodges, R. R., Jr.	ARC/Porter, D. L.	

**NAS 8-31775** University of Texas - Dallas 3698  
Study of ATS 6 and OGO 5 data analysis

<i>Period</i>	<i>Obligations</i>	
03/18/76-09/27/80	FY79: \$21,164	TOTAL \$76,933
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hanson, W. B.	MSFC/Chappell, C. R.	
	MSFC/Fields, S. A.	19-Phys Sci, NEC

**NAS 5-11406** University of Texas - Dallas 3692  
Atmosphere Explorer magnetic ion mass spectrometer

<i>Period</i>	<i>Obligations</i>	
04/06/71-09/30/80	FY79: \$106,344	TOTAL: \$1,598,867
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hoffman, J. H.	GSFC/Rice, C. F.	31-Atmos Sci

**NAS 8-32689** University of Texas - Dallas 3699  
Technology demonstration measurement for the molecular wake shield

<i>Period</i>	<i>Obligations</i>	
05/19/78-11/18/79	FY79:	TOTAL \$29,969
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hoffman, J. H.	MSFC/Oran, W. A.	31-Atmos Sci
Hodges, R. R., Jr.	MSFC/Rathz, T. J.	
Duerksen, K.		

**NAS 5-11407** University of Texas - Dallas 3693  
Planar ion trap experiment

<i>Period</i>	<i>Obligations</i>	
04/06/71-09/30/80	FY79: \$183,000	TOTAL: \$1,848,079
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hanson, W. B.	GSFC/Rice, C. F.	31-Atmos Sci

**NAS 8-32831** University of Texas - Dallas 3700  
Retarding ion mass spectrometer for Dynamic Explorer (DE)

<i>Period</i>	<i>Obligations</i>	
01/17/78-05/30/83	FY79: \$323,000	TOTAL \$583,612
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hanson, W. B.	MSFC/Chappell, C. R.	13-Physics
Hoffman, J. H.	MSFC/Fields, S. A.	

**NAS 5-24297** University of Texas - Dallas 3694  
Ion drift meter for the Dynamic Explorer (DE)

<i>Period</i>	<i>Obligations</i>	
07/26/77-02/28/81	FY79: \$210,000	TOTAL: \$361,277
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Heelis, R. A.	GSFC/Fellerman, K. D.	13-Physics
Hanson, W. B.	GSFC/Lidston, J. M.	

**NGI 44-004-026** University of Texas - Dallas 3701  
Investigations into the mechanism and rates of atmospheric mixing in the lower thermosphere

<i>Period</i>	<i>Obligations</i>	
05/05/65-03/31/81	FY79: \$26,666	TOTAL: \$2,364,751
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Johnson, F. S.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

**NAS 5-24298** University of Texas - Dallas 3695  
Retarding potential analyzer for Dynamic Explorer (DE)

<i>Period</i>	<i>Obligations</i>	
07/26/77-02/28/81	FY79: \$200,000	TOTAL: \$372,704
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hanson, W. B.	GSFC/Fellerman, K. D.	13-Physics
Heelis, R. A.	GSFC/Lidston, J. M.	

**NGI 44-004-130** University of Texas - Dallas 3702  
Selected studies in the space sciences

<i>Period</i>	<i>Obligations</i>	
03/17/72-03/31/82	FY79: \$250,000	TOTAL: \$1,800,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Johnson, F. S.	HQ-SP/Tate, F.	99-Multi-Discip

**NAS 5-24299** University of Texas - Dallas 3696  
Low altitude plasma instrument for Dynamic Explorer (DE)

<i>Period</i>	<i>Obligations</i>	
11/21/77-05/30/81	FY79: \$325,950	TOTAL: \$599,334
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Winningham, J. D.	GSFC/Fellerman, K. D.	13-Physics
	GSFC/Lidston, J. M.	

**NAS 5-25310** University of Texas - Dallas 3697  
Design, development, fabrication, test and calibration of the ion velocity instrument for the San Marco spacecraft

<i>Period</i>	<i>Obligations</i>	
09/18/78-04/30/83	FY79: \$73,000	TOTAL: \$110,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hanson, W. B.	GSFC/Caporale, A. J.	13-Physics

**NGR 44-004-120** University of Texas - Dallas 3703  
Rocket probes for the upper F-region

<i>Period</i>	<i>Obligations</i>	
02/09/71-03/03/80	FY79: \$145,000	TOTAL: \$1,130,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hanson, W. B.	HQ-ST/Wiskerchen, M. J.	31-Atmos Sci
	HQ-ST/Schmerling, E. R.	

**NASA'S UNIVERSITY PROGRAM**

**TEXAS (Continued)**

**NSG 44-004-124** University of Texas - Dallas 3704  
 Rocket investigation of auroral zone disturbances  
*Period Obligations*  
 08/10/71-08/31/80 FY79: \$146,595 TOTAL: \$1,201,616  
*Prin Invest NASA Tech Officer CASE Category*  
 Winningham, J. D. GSFC/Bissell, E. E. 13-Physics  
 Heikkila, W. J. HQ-S<sup>1</sup>/Schmerling, E. R.  
 Eaker, N.

**NSG 7599** University of Texas - Dallas 3710  
 Continued analysis of data from the Viking Retarding Potential Analyzer (RPA)  
*Period Obligations*  
 03/01/79-09/30/79 FY79 \$20,000 TOTAL: \$20,000  
*Prin Invest NASA Tech Officer CASE Category*  
 Hanson, W. B. HQ-SL/Murphy, R. E. 31-Atmos Sci  
 HQ-SL/Brunk, W. E.

**NSG 5085** University of Texas - Dallas 3705  
 Particle spectrometer onboard ISIS-2  
*Period Obligations*  
 11/01/75-12/31/79 FY79: \$30,000 TOTAL: \$155,000  
*Prin Invest NASA Tech Officer CASE Category*  
 Heikkila, W. J. GSFC/Brace, L. H. 31-Atmos Sci  
 Winningham, J. D.

**NSG 1316** University of Texas - El Paso 3711  
 ESR studies of viscous liquid crystals: Electric field effects  
*Period Obligations*  
 07/01/76-01/31/80 FY79: \$25,000 TOTAL: \$103,740  
*Prin Invest NASA Tech Officer CASE Category*  
 Eastman, M. P. LARC/Robertson, J. B. 13-Physics  
 Lawson, J. O.

**NSG 5087** University of Texas - Dallas 3706  
 Ion composition research on ISIS-2  
*Period Obligations*  
 12/01/75-12/31/79 FY79: \$30,000 TOTAL: \$115,000  
*Prin Invest NASA Tech Officer CASE Category*  
 Hoffman, J. H. GSFC/Brace, L. H. 31-Atmos Sci  
 Dodson, W. H.

**NSG 3146** University of Texas - El Paso 3712  
 Size effect studies of thin metal films  
*Period Obligations*  
 05/02/77-02/01/80 FY79: TOTAL: \$54,993  
*Prin Invest NASA Tech Officer CASE Category*  
 Brient, S. J. LERC/Brandhorst, H. W., Jr. 47-Materials Engr  
 Roser, W. R.

**NSG 5280** University of Texas - Dallas 3707  
 Electrodynamic coupling in the ionosphere magnetosphere system  
*Period Obligations*  
 07/01/78-08/15/80 FY79: \$22,611 TOTAL: \$49,178  
*Prin Invest NASA Tech Officer CASE Category*  
 Klumpar, D. M. GSFC/Spencer, N. W. 31-Atmos Sci  
 Burrows, J. R.  
 Wallis, D. D.

**NSG 9062** University of Texas - El Paso 3713  
 Occurrence and mineral chemistry of high pressure phases  
*Period Obligations*  
 06/01/78-12/31/79 FY79. TOTAL: \$25,374  
*Prin Invest NASA Tech Officer CASE Category*  
 Hoffer, J. M. JSC/Duke, M. 12-Chemistry

**NSG 6023** University of Texas - Dallas 3708  
 A rocket program in aeronomy  
*Period Obligations*  
 02/01/78-03/31/79 FY79. TOTAL: \$37,001  
*Prin Invest NASA Tech Officer CASE Category*  
 Christensen, A. B. WFC/Gray, J. W. 19-Phys Sci, NEC  
 WFC/Pless, R. H.

**NSG 9-14641** Univ of Texas Medical Branch - Galveston 3714  
 Analysis of spontaneous vestibular primary afferent discharge following application of drugs  
*Period Obligations*  
 05/01/75-03/31/80 FY79: \$45,000 TOTAL: \$154,973  
*Prin Invest NASA Tech Officer CASE Category*  
 Correia, M. J. JSC/Reschke, M. F. 69-Psych, NEC

**NSG 7034** University of Texas - Dallas 3709  
 Investigation of the daytime lunar atmosphere for lunar synthesis program  
*Period Obligations*  
 04/01/74-03/31/80 FY79: \$52,376 TOTAL: \$283,016  
*Prin Invest NASA Tech Officer CASE Category*  
 Hodges, R. R., Jr. HQ-SL/Quaide, W. L. 31-Atmos Sci  
 HQ-SL/French, B. E.

**NSG 9-15565** Univ of Texas Medical Branch - Galveston 3715  
 Micro assay for catecholamine concentration in body fluids  
*Period Obligations*  
 03/27/78-06/30/80 FY79. \$7,500 TOTAL: \$15,000  
*Prin Invest NASA Tech Officer CASE Category*  
 Ziegler, M. G. JSC/Leach, C. S. 59-Life Sci, NEC

**NSG 7418** Univ of Texas Medical Branch - Galveston 3716  
 Lunar seismic data analysis  
*Period Obligations*  
 02/01/78-01/31/80 FY79: \$200,000 TOTAL \$489,378  
*Prin Invest NASA Tech Officer CASE Category*  
 Makamura, Y. HQ-SL/Quaide, W. L. 32-Geological Sci  
 HQ-SL/French, B. E.

**NASA'S UNIVERSITY PROGRAM**

**TEXAS (Continued)**

**NSG 9026** University of Texas Health Center - Dallas 3717  
 Cardiovascular effect of variations in habitual levels of physical activity  
*Period* *Obligations*  
 03/01/75-03/31/80 FY79: \$60,300 TOTAL: \$267,700  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Blomquist, C. G. JSC/Hull, W. E. 56-Medical Sciences  
 Mitchell, J. H.

**NSG 9049** Univ of Texas Health Sci Ctr-San Antonio 3718  
 Trace elements in planetary material by activation analysis  
*Period* *Obligations*  
 02/01/77-01/31/78 FY79: \$62,100 TOTAL: \$62,100  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Morgan, J. W. JSC/Harris, J. W. 13-Physics

**NAS 9-15388** Univ of Texas-Health Science Center 3719  
 Biochemical adaptation of antigravity muscle fibers to disuse atrophy  
*Period* *Obligations*  
 08/01/77-07/31/80 FY79: \$29,750 TOTAL: \$86,350  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Booth, F. JSC/Smith, M. A. 51-Biological Sci

**NAS 8-32584** University of Texas - San Antonio 3720  
 Atmosphere Explorer data analysis and Electrodynamic Explorer instrument development  
*Period* *Obligations*  
 06/15/77-01/31/80 FY79: TOTAL: \$28,423  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Burch, J. L. MSFC/Chappell, C. R. 31-Atmos Sci  
 MSFC/Thomas, P. E.

**NSG 5418** University of Texas - San Antonio 3721  
 Solar-wind and magnetospheric electric fields and plasmas  
*Period* *Obligations*  
 10/01/79-09/30/80 FY79: \$19,744 TOTAL: \$19,744  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Burch, J. L. GSFC/Spencer, N. W. 31-Atmos Sci

**NAS 2-10064** University of Utah 3723  
 Manufacture of DPFC-DMS polymer in the five kg range  
*Period* *Obligations*  
 10/02/78-10/01/79 FY79: TOTAL: \$73,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Hughes, B. M. ARC/Kourtidis, D.A. 19-Phys Sci, NEC  
 Arhart, R. W.

**NAS 2-10308** University of Utah 3724  
 Growth rate and histology of long bones and vertebrae  
*Period* *Obligations*  
 09/01/79-08/31/80 FY79: \$1,000 TOTAL: \$1,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Jee, W. S. ARC/Souza, K. A. 51-Biological Sci  
 Kimmel, D. B.

**NAS 5-25373** University of Utah 3725  
 Linear and nonlinear interactions of the large scale atmospheric waves  
*Period* *Obligations*  
 11/27/78-12/26/80 FY79: \$37,998 TOTAL: \$37,998  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Kao, S. K. GSFC/Greaves, J. R. 31-Atmos Sci  
 GSFC/Stetina, F. L.

**NAS 6-2498** University of Utah 3726  
 Upper atmospheric physical and dynamic processes  
*Period* *Obligations*  
 04/26/74-06/30/79 FY79: TOTAL: \$110,860  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Kao, S. K. WFC/Duke, J. R. 31-Atmos Sci

**NAS 6-2627** University of Utah 3727  
 Rocketsonde data processing and participation in the meteorological rocket/Nimbus satellite data comparison project  
*Period* *Obligations*  
 03/21/75-10/06/79 FY79: \$35,199 TOTAL: \$230,431  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Staffanson, F. L. WFC/Duke, J. R. 31-Atmos Sci  
 WFC/Schmidlin, F. J.

**NASW 2967** University of Utah 3728  
 Construction and testing of rotating Sagnac interferometer  
*Period* *Obligations*  
 09/28/76-09/20/77 FY79: TOTAL: \$39,129  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Vali, V. HQ-RT/Randolph, L. P. 13-Physics  
 JPL/Gosc, W.

**UTAH**

**NAS 2-7358** Brigham Young University 3722  
 Pioneer F/G data analysis of the solar terrestrial relations portion of the magnetic field experiment  
*Period* *Obligations*  
 00/00/00-04/30/80 FY79: \$26,500 TOTAL: \$73,900  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Jones, D. E. ARC/Hall, C. F. 13-Physics  
 ARC/Porter, D. L.

**NSG 1313** University of Utah 3729  
 Innovative concepts in large area space structures  
*Period* *Obligations*  
 07/01/76-03/31/80 FY79: TOTAL: \$32,463  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
 Resch, R. D. LARC/Card, M. F. 49-Engr, NEC  
 LARC/Mikulas, M. M., Jr.

**NASA'S UNIVERSITY PROGRAM  
UTAH (Continued)**

**NSG 1534** University of Utah 3730  
Fluid dynamics of crystallization from vapors  
*Period* *Obligations*  
06/01/78-09/30/79 FY79: \$15,000 TOTAL: \$100,950  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Rosenberger, F. E. LARC/Fripp, A. L. 47-Materials Engr  
LARC/Crouch, R. K.

**NSG 2350** University of Utah 3731  
Development of behavioral tests of vestibular functioning in the wistar rat  
*Period* *Obligations*  
12/01/78-11/30/79 FY79: \$18,033 TOTAL: \$18,033  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Nielson, H. C. ARC/Sharp, J. C. 61-Biol Aspects

**NSG 7226** University of Utah 3732  
Identifying environmental features for land management decisions  
*Period* *Obligations*  
08/01/76-07/31/81 FY79: \$100,000 TOTAL: \$400,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Ridd, M. K. HQ-ET/Vitale, J. A. 39-Env Sci, NEC

**NSG 7425** University of Utah 3733  
Infrared map in the vicinity of the crater Plato  
*Period* *Obligations*  
04/01/78-07/31/79 FY79: \$13,070 TOTAL: \$13,070  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Shorthill, R. W. HQ-SL/Quaide, W. L. 32-Geological Sci  
HQ-SL/French, B. E.

**NSG 7516** University of Utah 3734  
Mechanistic studies of prebiotic chemistry  
*Period* *Obligations*  
10/01/78-12/31/79 FY79: \$40,000 TOTAL: \$40,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Guillory, W. A. HQ-LU/Pohly, J. G. 12-Chemistry  
Smith, G. R.

**NAS 2-457** Utah State University 3735  
Liquid phase ozone in Freon gas  
*Period* *Obligations*  
04/01/77-03/31/80 FY79: \$3,060 TOTAL: \$10,348  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Jeppesen, H. ARC/Lowenstein, M. 31-Atmos Sci

**NAS 5-24455** Utah State University 3736  
Investigations of Vehicle Charging and Potential (VCAP) on orbital flight test four experiment  
*Period* *Obligations*  
03/01/78-10/31/81 FY79: \$567,729 TOTAL: \$1,000,729  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Banks, P. M. GSFC/Eiband, A. M. 13-Physics  
Raitt, W. J.

**NAS 8-32636** Utah State University 3737  
Large spacecraft interaction with ambient environment at geosynchronous earth orbit charging  
*Period* *Obligations*  
09/20/77-06/11/80 FY79: \$20,000 TOTAL: \$79,864  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Raitt, W. J. MSFC/Chappell, C. R. 31-Atmos Sci  
MSFC/Baugher, C. R.

**NAS 8-33381** Utah State University 3738  
Studies related to electro dynamics of the tethered subsatellite system  
*Period* *Obligations*  
04/16/79-04/15/80 FY79: \$35,000 TOTAL: \$35,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Williamson, P. R. MSFC/Johnson, W. G. 31-Atmos Sci  
MSFC/Lundquist, C. A.

**NAS 8-33383** Utah State University 3739  
Establish a tethered subsatellite facility definition team  
*Period* *Obligations*  
05/07/79-05/06/80 FY79: \$35,000 TOTAL: \$35,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Banks, P. M. MSFC/Johnson, W. G. 31-Atmos Sci  
MSFC/Stone, N. H.

**NAS 9-14871** Utah State University 3740  
Higher plant response to elevated ultraviolet irradiance  
*Period* *Obligations*  
10/08/75-12/31/79 FY79: \$80,000 TOTAL: \$360,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Caldwell, M. M. JSC/Nachtwey, D. S. 54-Env Biology

**NSG 5215** Utah State University 3741  
Studies of high latitude ion dynamics  
*Period* *Obligations*  
10/01/77-08/31/80 FY79: \$20,380 TOTAL: \$42,380  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
StMaurice, J. P. GSFC/Spencer, N. W. 13-Physics  
Sojka, J.  
Raitt, W. J.

**NSG 5216** Utah State University 3742  
Investigation of electric fields in the vicinity of plasmopause mid-latitude trough and polar cleft  
*Period* *Obligations*  
10/01/77-08/31/80 FY79: \$19,300 TOTAL: \$40,300  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Foster, J. C. GSFC/Spencer, N. W. 13-Physics  
Doupnik, J. R.

## NASA'S UNIVERSITY PROGRAM

### UTAH (Continued)

**NSG 6027** Utah State University 3743  
 An investigation of current collection processes in the ionospheric plasma at high potential

<i>Period</i>	<i>Obligations</i>	
03/01/79-02/29/80	FY79: \$57,900	TOTAL: \$57,900
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Williamson, P. R.	WFC/Gray, J. W.	19-Phys Sci, NEC
	WFC/Pless, R. H.	

**NSG 7038** Utah State University 3744  
 The diagenesis of geologically important organic matter and amino acids under simulated natural conditions

<i>Period</i>	<i>Obligations</i>	
06/01/74-05/30/80	FY79: \$78,861	TOTAL: \$342,213
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, G. G.	HQ-SB/Young, R. S.	32-Geological Sci

**NSG 7206** Utah State University 3745  
 Mass spectrometric study of chlorinated species by negative surface ionization

<i>Period</i>	<i>Obligations</i>	
03/15/76-07/31/79	FY79: \$53,392	TOTAL: \$105,788
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Megill, L. R.	HQ-ST/Kakar, R. K.	12-Chemistry
Moore, W. M.	HQ-ST/Tilford, S. G.	
McCullough, E. A.		

**NSG 7210** Utah State University 3746  
 Stratospheric monitoring with longterm balloon flights

<i>Period</i>	<i>Obligations</i>	
03/01/76-02/28/79	FY79:	TOTAL: \$481,189
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Baker, K. D.	HQ-ST/Tilford, S. G.	31-Atmos Sci
Williamson, P. R.		

**NSG 7289** Utah State University 3747  
 Study of the dynamics of atmosphere-ionosphere magnetosphere interactions

<i>Period</i>	<i>Obligations</i>	
07/01/76-09/30/80	FY79: \$110,000	TOTAL: \$368,686
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Banks, P. M.	HQ-ST/Hedin, A. E.	31-Atmos Sci
	HQ-ST/Schmerling, E. R.	

**NSG 7388** Utah State University 3748  
 Method of inferring mesoscale mixing phenomenon

<i>Period</i>	<i>Obligations</i>	
09/01/77-08/31/78	FY79:	TOTAL: \$19,880
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Megill, L. R.	HQ-ST/Kakar, R. K.	31-Atmos Sci
	HQ-ST/Simon, N. K.	

**NSG 7567** Utah State University 3749  
 An examination of the clinostat problem using leafy plants

<i>Period</i>	<i>Obligations</i>	
07/01/71-06/30/80	FY79: \$21,460	TOTAL: \$21,460
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Salisbury, F. B.	HQ-SB/Halstead, T. W.	51-Biological Sci
	HQ-SB/Geib, D. S.	

**NAS 8-33113** Weber State College 3750  
 Spectrum synthesis of extreme ultraviolet solar flare profiles

<i>Period</i>	<i>Obligations</i>	
01/24/79-01/23/80	FY79: \$17,991	TOTAL: \$17,991
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tripp, D. A.	MSFC/DeLoach, A. C.	31-Atmos Sci
	MSFC/Thomas, P. E.	

### VERMONT

**NAS 8-33335** Middlebury College 3751  
 Study of Supernova remnant

<i>Period</i>	<i>Obligations</i>	
03/08/79-03/07/80	FY79: \$9,168	TOTAL: \$9,168
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Winkler, P. F., Jr.	MSFC/Jones, J. B., Jr.	11-Astronomy

**NSG 5198** Middlebury College 3752  
 Investigations of X-ray emission from Supernova remnants

<i>Period</i>	<i>Obligations</i>	
08/01/77-01/31/79	FY79:	TOTAL: \$14,980
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Winkler, P. F., Jr.	GSFC/Kupperian, J. L., Jr.	11-Astronomy

**NSG 7453** University of Vermont 3753  
 Development of a remote sensing applications program in Vermont

<i>Period</i>	<i>Obligations</i>	
06/01/78-05/31/82	FY79: \$100,000	TOTAL: \$300,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
John, H. H.	HQ-ET/Vitale, J. A.	32-Geological Sci

### VIRGINIA

**NSG 1514** Christopher Newport College 3754  
 An investigation of semiconductor electrodes

<i>Period</i>	<i>Obligations</i>	
09/01/78-12/31/79	FY79: \$18,190	TOTAL: \$28,257
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Buoncrisiani, A. M.	LARC/Byvik, C. E.	13-Physics
	LARC/Conway, E. J.	



**NASA'S UNIVERSITY PROGRAM  
VIRGINIA (Continued)**

<b>NSG 1614</b>	<b>Christopher Newport College</b>	<b>3755</b>
Theoretical study of radiation effects in composite materials for space use		
<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$32,000	TOTAL: \$32,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Chang, C. K.	LARC/Wilson, J. W.	19-Phys Sci, NEC
<b>NSG 47-006-058</b>	<b>College of William And Mary</b>	<b>3762</b>
Research in the applied science program		
<i>Period</i>	<i>Obligations</i>	
08/15/72-08/31/79	FY79:	TOTAL: \$398,400
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Rublein, G. T.	LARC/Anderson, A. F.	99-Multi-Discip
<b>NSG 1095</b>	<b>College of William And Mary</b>	<b>3763</b>
Molecular weight-property relationships of high performance polymers used for adhesives and composites		
<i>Period</i>	<i>Obligations</i>	
09/01/74-11/30/79	FY79: \$9,974	TOTAL: \$51,268
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kranbuehl, D. E.	LARC/Burks, H. D.	12-Chemistry
	LARC/Johnston, N. J.	
<b>NSG 1203</b>	<b>College of William And Mary</b>	<b>3764</b>
Analysis of remote sensors for pollution		
<i>Period</i>	<i>Obligations</i>	
08/01/75-07/31/79	FY79: \$2,500	TOTAL: \$127,250
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Park, J. H.	LARC/Sullivan, E. M.	31-Atmos Sci
	LARC/Russell, J. M., III	
<b>NSG 14972</b>	<b>College of William And Mary</b>	<b>3757</b>
Research in the area of physical sciences		
<i>Period</i>	<i>Obligations</i>	
05/31/77-05/30/80	FY79: \$101,860	TOTAL: \$298,618
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Aceto, H., Jr.	LARC/Anderson, A. F.	99-Multi-Discip
<b>NSG 15899</b>	<b>College of William And Mary</b>	<b>3758</b>
Lecture series, 'Our Future in the Cosmos'		
<i>Period</i>	<i>Obligations</i>	
07/31/79-10/30/80	FY79: \$32,119	TOTAL: \$32,119
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Barnes, C. H., Jr.	LARC/Greene, R. F., Jr.	99-Multi-Discip
	LARC/Long, S. A.	
<b>NSG 1385</b>	<b>College of William And Mary</b>	<b>3765</b>
New infrared detectors and solar cells		
<i>Period</i>	<i>Obligations</i>	
02/01/77-05/31/80	FY79: \$47,200	TOTAL: \$137,200
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sher, A.	LARC/Miller, W. E.	13-Physics
	LARC/Hendricks, H. D.	
<b>NSG 15965</b>	<b>College of William And Mary</b>	<b>3759</b>
Tire nonlinear model		
<i>Period</i>	<i>Obligations</i>	
09/07/79-06/06/80	FY79: \$31,000	TOTAL: \$31,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Andersen, C. M.	LARC/Tanner, J. A.	46-Mech Engr
<b>NSG 1435</b>	<b>College of William And Mary</b>	<b>3766</b>
Development of a multi-target compiler writing system		
<i>Period</i>	<i>Obligations</i>	
07/11/77-09/30/80	FY79: \$124,875	TOTAL: \$206,960
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Donegan, M. K.	LARC/Harris, J. L.	21-Mathematics
Noonan, R. E.	LARC/Voigt, S. J.	
Donegan, M. K.		
<b>NCC 1 3</b>	<b>College of William And Mary</b>	<b>3760</b>
Atmos Spacelab science investigation		
<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY79: \$35,000	TOTAL: \$35,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, M. A.	LARC/Sullivan, E. M.	31-Atmos Sci
Smith, M. A.	LARC/Russell, J. M., III	
<b>NCC 1 16</b>	<b>College of William And Mary</b>	<b>3761</b>
Analysis of remote sensors for pollution		
<i>Period</i>	<i>Obligations</i>	
08/01/79-07/31/80	FY79: \$48,361	TOTAL: \$48,361
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Smith, M. A.	LARC/Sullivan, E. M.	31-Atmos Sci
	LARC/Russell I, J. M.	
<b>NSG 1625</b>	<b>College of William And Mary</b>	<b>3768</b>
Methodologies for optimizing maintenance models for advanced, avionics control systems		
<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/80	FY79: \$28,419	TOTAL: \$28,419
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schaefer, M. K.	LARC/Migneault, G. E.	49-Engr, NEC

**NASA'S UNIVERSITY PROGRAM  
VIRGINIA (Continued)**

**NSG 1626** College of William And Mary 3769  
Investigation of portability techniques for a large flight-oriented programming language

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/80	FY79: \$40,137	TOTAL: \$40,137
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Feyock, S.	LARC/Foudriat, E. C.	22-Computer Science

**NSG 5403** George Mason University 3776  
Interpretation of survey work of Supernova shocks, bubbles and studying variability of active galaxies

<i>Period</i>	<i>Obligations</i>	
07/01/79-05/31/80	FY79: \$7,864	TOTAL: \$7,864
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kafotos, M.	GSFC/Gull, T. R.	11-Astronomy
	GSFC/Bogges, A.	

**NSG 1653** College of William And Mary 3770  
Insulators for plumbum-stannum-tellurium metal-insulator-semiconductor devices

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/80	FY79: \$26,560	TOTAL: \$26,560
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sher, A.	LARC/Fripp, A. L.	13-Physics
Tsuo, Y. N.	LARC/Crouch, R. K.	

**NAS 1-14507** Hampton Institute 3777  
Conversion of flight records

<i>Period</i>	<i>Obligations</i>	
07/01/76-09/30/79	FY79: \$38,921	TOTAL: \$73,609
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Williams, G. K.	LARC/Jewel, J. W., Jr.	41-Aero Engr
	LARC/Morris, G. J.	

**NSG 7416** College of William And Mary 3771  
Research on turbulence in plasmas

<i>Period</i>	<i>Obligations</i>	
12/01/77-11/30/80	FY79: \$38,300	TOTAL: \$70,900
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Montgomery, D. C.	HQ-ST/Cauffman, D. P.	19-Phys Sci, NEC
	HQ-ST/Schmerling, E. R.	

**NAS 1-14832** Hampton Institute 3778  
Summer research fellowship program

<i>Period</i>	<i>Obligations</i>	
02/04/77-10/31/79	FY79: \$4,125	TOTAL: \$147,125
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Darden, G. C.	LARC/Erickson, W. D.	19-Phys Sci, NEC

**NAS 6-2964** Eastern Shore Community College 3772  
Provide a public information program

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/79	FY79: \$14,758	TOTAL: \$14,758
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Layman, P.	WFC/Milliner, J. B.	99-Multi-Discip
	WFC/Gladding, M. T.	

**NAS 1-15445** Hampton Institute 3779  
Minimization of differences between simulated and actual flight data for area navigation (R-Nav) on high speed aircraft

<i>Period</i>	<i>Obligations</i>	
07/06/78-07/05/79	FY79:	TOTAL: \$14,592
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hargrove, A.	LARC/Knox, C. E.	41-Aero Engr
	LARC/Taylor, R. T.	

**NCA 5-92** George Mason University 3773  
Study of forbidden line emission from abundant heavy elements in hot nebulae

<i>Period</i>	<i>Obligations</i>	
08/01/78-10/31/78	FY79:	TOTAL: \$4,700
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kafotos, M.	GSFC/Hobbs, R. W.	11-Astronomy

**NAS 1-15877** Hampton Institute 3780  
Experimental and theoretical investigations of freestream noise in supersonic nozzles and its effects on boundary layer stability and transition

<i>Period</i>	<i>Obligations</i>	
07/11/79-10/01/80	FY79: \$44,409	TOTAL: \$44,409
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anyiwo, J. C.	LARC/Beckwith, I. E.	41-Aero Engr
Schopper, M. R.	LARC/Bushnell, D. M.	

**NSG 5305** George Mason University 3774  
Calculations of forbidden line emission from hot, interstellar gas regions

<i>Period</i>	<i>Obligations</i>	
11/01/78-11/30/79	FY79: \$4,701	TOTAL: \$4,701
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kafotos, M.	GSFC/Hobbs, R. W.	11-Astronomy

**NSG 5371** George Mason University 3775  
Observation of circumstellar shells around cool giants and supergiants

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/80	FY79: \$5,498	TOTAL: \$5,498
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kafotos, M.	GSFC/Bogges, A.	11-Astronomy

**NCA 1-25** Hampton Institute 3781  
Summer student training program with Hampton Institute

<i>Period</i>	<i>Obligations</i>	
06/05/79-04/01/80	FY79: \$16,109	TOTAL: \$16,109
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Slaughter, L. H.	LARC/Cox, J. J.	49-Engr, NEC

**NASA'S UNIVERSITY PROGRAM  
VIRGINIA (Continued)**

**NCC 1 7 Hampton Institute 3782**  
Algorithms for effective use of the CDC Star-100 computer in the solution of over-determined linear system of linear equations  
*Period* *Obligations*  
04/15/79-01/18/80 FY79: \$31,997 TOTAL: \$31,997  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Shan, S. N. LARC/Haigler, G. W. 21-Mathematics  
LARC/Lambiotte, J. J., Jr.

**NCC 1 11 Hampton Institute 3783**  
Radiative transfer model for remote sensing of laser-induced fluorescence of phytoplankton in non-homogeneous turbid waters  
*Period* *Obligations*  
05/01/79-04/30/80 FY79: \$42,648 TOTAL: \$42,648  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Peterson, A. M. LARC/Poole, L. R. 39-Env Sci, NEC  
LARC/Campbell, J. W.

**NSG 1294 Hampton Institute 3784**  
A study of digital techniques for high-speed processing of detector array data  
*Period* *Obligations*  
04/01/76-03/31/80 FY79: \$40,409 TOTAL: \$149,706  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Trehan, A. K. LARC/Jobson, D. J. 45-Elec Engr  
LARC/Katzberg, S. J.

**NSG 1478 Hampton Institute 3785**  
Improvements in digital optimal control of nonlinear multivariable constrained systems  
*Period* *Obligations*  
02/01/78-05/31/79 FY79: TOTAL: \$39,383  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Hargrove, A. LARC/Hogge, J. E. 21-Mathematics  
LARC/Parks, C. L.

**NSG 1505 Hampton Institute 3786**  
Experimental and theoretical investigation of free stream noise in supersonic nozzles  
*Period* *Obligations*  
04/01/78-10/31/79 FY79: TOTAL: \$35,970  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Anyiwo, J. C. LARC/Beckwith, I. E. 41-Aero Engr  
Schopper, M. R. LARC/Bushnell, D. M.

**NSG 1552 Hampton Institute 3787**  
Investigation of microprocessors for use as controllers for tunable diode lasers  
*Period* *Obligations*  
07/24/78-09/23/80 FY79: \$36,032 TOTAL: \$71,485  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Trehan, A. K. LARC/Katzberg, S. J. 45-Elec Engr  
Davenport, J. E. LARC/Kowitz, H. R.

**NSG 1595 Hampton Institute 3788**  
Studies of new media for radiation induced lasers  
*Period* *Obligations*  
02/01/79-01/31/80 FY79: \$39,423 TOTAL: \$39,423  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Han, K. S. LARC/Hohl, F. 13-Physics

**NAS 1-14193 Old Dominion University 3789**  
Research in physical and life sciences  
*Period* *Obligations*  
10/01/75-09/30/78 FY79: \$44,286 TOTAL: \$632,791  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Maygarden, E. M. LARC/Anderson, A. F. 99-Multi-Discip

**NAS 1-15648 Old Dominion University 3790**  
Research in aerodynamics and related fields  
*Period* *Obligations*  
12/13/78-12/12/81 FY79: \$167,688 TOTAL: \$167,688  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Unavailable LARC/Erickson, W. D. 41-Aero Engr  
LARC/Duberg, J. E.

**NCC 1 2 Old Dominion University 3791**  
Measurements of the global distribution of carbon monoxide in the troposphere  
*Period* *Obligations*  
04/01/79-12/31/79 FY79: \$76,925 TOTAL: \$76,925  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kindle, E. C. LARC/Reichle, H. G., Jr. 31-Atmos Sci  
LARC/Beck, S. M.

**NCC 1 9 Old Dominion University 3792**  
Wind tunnel studies of advanced cargo aircraft concepts  
*Period* *Obligations*  
06/22/79-06/21/80 FY79: \$60,538 TOTAL: \$60,538  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Goglia, G. L. LARC/Peterson, J. B., Jr. 41-Aero Engr  
Rao, D. M.

**NGR 47-003-052 Old Dominion University 3793**  
Graduate research program in aeronautics and air transportation  
*Period* *Obligations*  
05/12/71-08/31/81 FY79: \$54,004 TOTAL: \$633,922  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Roberts, A. S., Jr. LARC/Erickson, W. D. 41-Aero Engr

**NGT 47-003-028 Old Dominion University 3794**  
Summer faculty fellowship program in engineering systems design  
*Period* *Obligations*  
11/14/69-03/31/80 FY79: \$124,141 TOTAL: \$1,021,937  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
McRec, G. J. HQ-LU/Carter, C. H. 49-Engr, NEC

**NASA'S UNIVERSITY PROGRAM  
VIRGINIA (Continued)**

**NGT 47-003-029** Old Dominion University 3795  
Summer faculty fellowship program in research  
*Period* *Obligations*  
11/14/69-03/31/80 FY79: \$147,112 TOTAL: \$1,154,656  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Goglia, G. L. HQ-LU/Carter, C. H. 49-Engr, NEC

**NSG 1079** Old Dominion University 3796  
Optimal adaptive wind tunnel control  
*Period* *Obligations*  
09/01/74-11/30/79 FY79: \$23,137 TOTAL: \$121,786  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tcheng, P. L. LARC/Trupp, J. S. 45-Elec Engr

**NSG 1131** Old Dominion University 3797  
Remote measurements of atmospheric trace constituents  
*Period* *Obligations*  
01/01/75-01/31/75 FY79: TOTAL: \$120,963  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kindle, E. C. LARC/Dodgen, J. A. 31 Atmos Sci  
Twitty, J. LARC/Lebel, P. J.  
Brost, R.

**NSG 1143** Old Dominion University 3798  
Sensor for measuring instantaneous angle of attack of helicopter blades  
*Period* *Obligations*  
01/13/75-07/31/79 FY79: TOTAL: \$127,676  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Barna, P. S. LARC/Kershner, D. D. 41-Aero Engr  
LARC/Pitts, F.

**NSG 1167** Old Dominion University 3799  
The structural behavior of advanced composite materials  
*Period* *Obligations*  
06/01/75-05/31/81 FY79: TOTAL: \$135,490  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Thornton, E. A. LARC/Davis, J. G., Jr. 41-Aero Engr  
LARC/Pride, R. A.

**NSG 1177** Old Dominion University 3800  
Experimental and analytical studies in fluids  
*Period* *Obligations*  
05/01/75-02/28/82 FY79: \$23,431 TOTAL: \$106,733  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Rogerson, A. C. LARC/Hellbaum, R. F. 45-Elec Engr  
Brown, N. B., Jr.

**NSG 1271** Old Dominion University 3801  
Space shuttle experiments studies  
*Period* *Obligations*  
03/01/76-02/29/80 FY79: \$141,086 TOTAL: \$543,561  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Brock, F. J. LARC/Melfi, L. T., Jr. 13-Physics  
Clay, F. P., Jr. LARC/Outlaw, R. A.  
Hueser, J. L.

**NSG 1279** Old Dominion University 3802  
Preliminary investigations into the active control of large space structures  
*Period* *Obligations*  
02/15/76-06/30/80 FY79: \$46,998 TOTAL: \$130,162  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tweed, J. LARC/Card, M. F. 49-Engr, NEC  
Hyer, M. W. LARC/Housner, J. M.

**NSG 1315** Old Dominion University 3803  
Wind tunnel studies of advanced cargo concepts  
*Period* *Obligations*  
06/22/76-06/21/79 FY79: TC TOTAL: \$122,821  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Goglia, G. L. LARC/Peterson, J. B., Jr. 49-Engr  
Rao, D. M.

**NSG 1321** Old Dominion University 3804  
Concepts for structurally compatible thermal finite elements  
*Period* *Obligations*  
09/01/76-12/31/79 FY79: \$35,708 TOTAL: \$82,249  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Thornton, E. A. LARC/Wieting, A. R. 49-Engr, NEC

**NSG 1324** Old Dominion University 3805  
The contribution of molecular relaxation in nitrogen to the absorption of sound in the atmosphere  
*Period* *Obligations*  
09/01/76-12/31/79 FY79: \$51,495 TOTAL: \$155,699  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Zuckerwar, A. J. LARC/Holmes, H. K. 13-Physics  
Becher, J.

**NSG 1331** Old Dominion University 3806  
Antenna design and development for microwave subsystem experiments for the terminal configured vehicle project  
*Period* *Obligations*  
08/01/76-12/31/79 FY79: \$14,522 TOTAL: \$61,617  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Becher, J. LARC/Campbell, T. G. 45-Elec Engr  
Cohen, N. V. LARC/Young, W. H., Jr.

**NSG 1341** Old Dominion University 3807  
Science and software support for spacecraft solar occultation experiments  
*Period* *Obligations*  
10/01/76-09/30/79 FY79: TOTAL: \$40,514  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Chu, W. P. LARC/McMaster, L. R. 31-Atmos Sci  
Becher, J. LARC/McCormick, M. P.

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<b>NSG 1357</b>	<b>Old Dominion University</b>	<b>3808</b>
Implementation of advanced Trefftz plane drag optimization technique in vortex lattice wing design program		
<i>Period</i>	<i>Obligations</i>	
11/08/76-08/31/80	FY79: \$34,374	TOTAL: \$66,039
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kuhlman, J. M.	LARC/Peterson, J. B., Jr.	41-Aero Engr
	LARC/Polhamus, E. C.	
<b>NSG 1362</b>	<b>Old Dominion University</b>	<b>3809</b>
Fission induced plasmas		
<i>Period</i>	<i>Obligations</i>	
12/10/76-12/15/78	FY79:	TOTAL \$51,784
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Harries, W. L.	LARC/Hohl, F.	13-Physics
<b>NSG 1379</b>	<b>Old Dominion University</b>	<b>3810</b>
Feasibility study of a microprocessor based oculometer system		
<i>Period</i>	<i>Obligations</i>	
01/01/77-12/31/79	FY79: \$63,386	TOTAL \$166,648
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Varanasi, M. R.	LARC/Gainer, P. A.	45-Elec Engr
	LARC/Waller, M. C.	
<b>NSG 1393</b>	<b>Old Dominion University</b>	<b>3811</b>
Computational solution of atmospheric chemistry problems		
<i>Period</i>	<i>Obligations</i>	
06/01/77-12/31/80	FY79 \$50,463	TOTAL \$92,291
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ake, R. L.	LARC/Phillips, D. H.	12-Chemistry
Jafri, J. A.	LARC/Rogowski, R. S.	
<b>NSG 1394</b>	<b>Old Dominion University</b>	<b>3812</b>
Evaluation of atmospheric trace constituent sensors operating from remote space and airborne platforms		
<i>Period</i>	<i>Obligations</i>	
02/14/77-06/13/79	FY79:	TOTAL \$70,083
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kindle, E. C.	LARC/Reichle, H. G., Jr.	31-Atmos Sci
<b>NSG 1395</b>	<b>Old Dominion University</b>	<b>3813</b>
Data reduction analysis and application technique development for atmospheric trace gas constituents derived from remote sensors on satellite or airborne platforms		
<i>Period</i>	<i>Obligations</i>	
02/14/77-12/31/79	FY79: \$85,495	TOTAL: \$222,332
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kindle, E. C.	LARC/Beck, S. M.	31-Atmos Sci
Casas, J. C.	LARC/Reichle, H. G., Jr	
<b>NSG 1459</b>	<b>Old Dominion University</b>	<b>3814</b>
Analysis and identification of flight measurements by time-domain/randomdec technique		
<i>Period</i>	<i>Obligations</i>	
10/01/77-01/31/80	FY79:	TOTAL: \$44,202
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ibrahim, S. R.	LARC/Hanks, B. R.	46-Mech Engr
<b>NSG 1464</b>	<b>Old Dominion University</b>	<b>3815</b>
Effects of angle-of-attack on the coupled radiative and convective heat transfer about blunt planetary entry bodies		
<i>Period</i>	<i>Obligations</i>	
11/01/77-12/31/79	FY79: \$42,930	TOTAL: \$77,364
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tiwari, S. N.	LARC/Graves, R. A., Jr	1-Aero Engr
Kumar, A.		
<b>NSG 1466</b>	<b>Old Dominion University</b>	<b>3816</b>
Expanded development of heterodyne detector systems for measurement of atmospheric trace constituents		
<i>Period</i>	<i>Obligations</i>	
10/15/77-12/14/79	FY79: \$44,776	TOTAL \$110,376
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Copeland, G. E.	LARC/Joell, J. M.	1-Atmos Sci
Harward, C. N.	LARC/Bair, C.	
<b>NSG 1473</b>	<b>Old Dominion University</b>	<b>3817</b>
Development of controller design methodology for large flexible space structures		
<i>Period</i>	<i>Obligations</i>	
11/15/77-11/14/79	FY79: \$45,997	TOTAL \$85,638
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Roberts, A. S., Jr.	LARC/Groom, N. J.	49-Engr, NEC
Joshi, S. M.		
<b>NSG 1477</b>	<b>Old Dominion University</b>	<b>3818</b>
Investigation of potential of differential absorption lidar techniques for remote sensing of atmospheric pollutants		
<i>Period</i>	<i>Obligations</i>	
11/15/77-12/14/79	FY79 \$148,712	TOTAL: \$261,690
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kindle, E. C.	LARC/Browell, E. V.	39-Env Sci, NEC
<b>NSG 1480</b>	<b>Old Dominion University</b>	<b>3819</b>
Comparative study of flare control laws		
<i>Period</i>	<i>Obligations</i>	
12/15/77-12/14/79	FY79 \$39,076	TOTAL \$71,999
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Tcheng, P. L.	LARC/Creedon, J. F.	41-Aero Engr
Nadkarni, A. A.	LARC/Hueschen, R. M.	
<b>NSG 1491</b>	<b>Old Dominion University</b>	<b>3820</b>
Hot wire laser Doppler velocimeter and mean measurements on flow phenomena induced by suction through perforated surfaces		
<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/80	FY79 \$30,390	TOTAL \$60,857
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gogha, G. L.	LARC/Bushnell, D. M.	41-Aero Engr
Wilkerson, S.	LARC/Hefner, J. N.	

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**NSG 1500** **Old Dominion University** **3821**  
Investigation of the flow-phenomena around a Jovian entry body  
under chemical and radiative nonequilibrium conditions  
*Period* *Obligations*  
02/01/78-01/31/80 **FY79: \$20,428** **TOTAL: \$35,334**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tiwari, S. N. LARC/Sutton, K. 49-Engr, NEC  
LARC/Walberg, G. D.

**NSG 1503** **Old Dominion University** **3822**  
Cryogenic transonic tunnel modeling and flow control  
*Period* *Obligations*  
03/15/78-03/14/80 **FY79: \$39,191** **TOTAL: \$75,536**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Goglia, G. I. LARC/Kilgore, R. A. 41-Aero Engr  
Balakrishna, S. LARC/Adcock, J. B.

**NSG 1507** **Old Dominion University** **3823**  
Photoelastic studies of advanced lap joint concept  
*Period* *Obligations*  
03/15/78-09/30/79 **FY79: \$9,045** **TOTAL: \$26,198**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Prabhakaran, R. LARC/Mikulas, M. M., Jr. 42-Astro Engr

**NSG 1517** **Old Dominion University** **3824**  
A numerical investigation of viscous slot flow  
*Period* *Obligations*  
04/15/78-09/30/79 **FY79:** **TOTAL: \$31,210**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cooke, C. H. LARC/Dwoyer, D. L. 41-Aero Engr

**NSG 1519** **Old Dominion University** **3825**  
Output feedback synthesis for stochastic multivariable systems  
*Period* *Obligations*  
04/01/78-09/15/79 **FY79:** **TOTAL: \$40,168**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Liberty, S. R. LARC/Moul, M. T. 41-Aero Engr  
LARC/Elliott, J. R.

**NSG 1521** **Old Dominion University** **3826**  
Development of high strength and toughness 7000 series aluminum  
alloys  
*Period* *Obligations*  
05/01/78-11/15/79 **FY79:** **TOTAL: \$34,000**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cupschalk, S. G. LARC/Lisagor, W. B. 47-Materials Engr

**NSG 1522** **Old Dominion University** **3827**  
Radiative transfer models for the earth radiation budget and  
climatic studies  
*Period* *Obligations*  
04/01/78-12/31/79 **FY79: \$30,302** **TOTAL: \$59,739**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tiwari, S. N. LARC/Suttles, J. T. 31-Atmos Sci  
LARC/Young, G. R.

**NSG 1560** **Old Dominion University** **3828**  
Development of a nonlinear vortex method  
*Period* *Obligations*  
09/01/78-09/30/80 **FY79: \$35,000** **TOTAL: \$58,230**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kandil, O. A. LARC/Yates, E. C., Jr. 41-Aero Engr  
LARC/Young, W. H., Jr.

**NSG 1561** **Old Dominion University** **3829**  
Investigation of aerodynamic characteristics of wings having vortex  
flow using different numerical codes  
*Period* *Obligations*  
09/01/78-08/31/81 **FY79: \$85,079** **TOTAL: \$93,079**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Goglia, G. L. LARC/Lamar, J. E. 41-Aero Engr  
Reddy, C. S. LARC/Polhamus, E. C.

**NSG 1563** **Old Dominion University** **3830**  
Scale models for the improvement of flow patterns of a low  
speed tunnel  
*Period* *Obligations*  
09/15/78-09/14/80 **FY79: \$51,124** **TOTAL: \$51,124**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Barna, P. S. LARC/Gentry, G. L. 41-Aero Engr

**NSG 1565** **Old Dominion University** **3831**  
An investigation of the feasibility of improving oculometer data  
analysis through application of advanced statistical techniques  
*Period* *Obligations*  
11/01/78-10/31/79 **FY79: \$19,859** **TOTAL: \$19,859**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Rana, D. S. LARC/Waller, M. C. 21-Mathematics  
LARC/Harris, R. L.

**NSG 1568** **Old Dominion University** **3832**  
Theoretical study of solar pumped lasers  
*Period* *Obligations*  
12/15/78-01/14/80 **FY79: \$19,998** **TOTAL: \$19,998**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Harries, W. L. LARC/Hohl, F. 13-Physics

**NSG 1618** **Old Dominion University** **3833**  
Free stream disturbances, continuous eigenfunction boundary layer  
in stability and transition  
*Period* *Obligations*  
05/16/79-05/15/80 **FY79: \$24,904** **TOTAL: \$24,904**  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Grosch, C. E. LARC/Bushnell, D. M. 41-Aero Engr  
LARC/Hefner, J. N.

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**NSG 1634**                      **Old Dominion University**                      **3834**  
Investigation of the effect of standing pressure waves on laminated transitional boundary layer flow

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/80	FY79: \$20,071	TOTAL: \$20,071
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ash, R. L.	LARC/Hefner, J. N.	41-Aero Engr
	LARC/Bushnell, D. M.	

**NSG 1645**                      **Old Dominion University**                      **3835**  
Application of stability theory to laminar flow control

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/80	FY79: \$44,642	TOTAL: \$44,642
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Goglia, G. L.	LARC/Harvey, W. D.	41-Aero Engr
Eihady, N. M.		

**NSG 1649**                      **Old Dominion University**                      **3836**  
Dynamic identification for control of large space structures

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/80	FY79: \$36,807	TOTAL: \$36,807
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Ibrahim, S. R.	LARC/Card, M. F.	46-Mech Engr

**NSG 1650**                      **Old Dominion University**                      **3837**  
Design of multi-variable feedback control systems via spectral assignment

<i>Period</i>	<i>Obligations</i>	
09/01/79-07/31/80	FY79: \$40,084	TOTAL: \$40,084
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Liberty, S. R.	LARC/Moul, M. T.	41-Aero Engr
Mielke, R. R.	LARC/Elliott, J. R.	

**NSG 1655**                      **Old Dominion University**                      **3838**  
Airborne antenna pattern calculations

<i>Period</i>	<i>Obligations</i>	
11/01/79-10/31/80	FY79: \$20,101	TOTAL: \$20,101
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mielke, R. R.	LARC/Gilreath, M. C.	45-Elec Engr

**NSG 5053**                      **Old Dominion University**                      **3839**  
Radiation investigations of optical and electronic components used in astronomical satellite studies

<i>Period</i>	<i>Obligations</i>	
02/17/75-01/31/80	FY79:	TOTAL: \$177,747
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Becher, J.	GSFC/Fowler, W. B.	19-Phys Sci, NEC
Kernell, R. L.		

**NSG 5289**                      **Old Dominion University**                      **3840**  
Radiation effects studies for the high resolution spectrograph

<i>Period</i>	<i>Obligations</i>	
07/10/78-11/30/79	FY79: \$65,000	TOTAL: \$105,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Becher, J.	GSFC/Fowler, W. B.	13-Physics

**NAS 1-14862**                      **University of Virginia**                      **3841**  
Interactive software invocation system

<i>Period</i>	<i>Obligations</i>	
04/01/77-10/15/79	FY79: \$37,880	TOTAL: \$143,438
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Berman, W. J.	LARC/Will, R. W.	22-Computer Science
	LARC/Straeter, T. A.	

**NAS 1-14908**                      **University of Virginia**                      **3842**  
Air transportation systems research

<i>Period</i>	<i>Obligations</i>	
05/02/77-05/02/80	FY79: \$101,000	TOTAL: \$198,658
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Kuhlthau, A. R.	LARC/Conner, D. W.	49-Engr, NEC
	LARC/Brissenden, R. F.	

**NAS 2-10195**                      **University of Virginia**                      **3843**  
Effect of weightlessness on body mass and organ mass and composition in the rat

<i>Period</i>	<i>Obligations</i>	
02/21/79-08/31/80	FY79: \$12,177	TOTAL: \$12,177
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pitts, G. C.	ARC/Souza, K. A.	59-Life Sci, NEC

**NAS 5-22346**                      **University of Virginia**                      **3844**  
Design and application of a one meter UV-optical telescope for Spacelab astronomy missions

<i>Period</i>	<i>Obligations</i>	
04/29/75-06/30/80	FY79:	TOTAL: \$33,468
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
O'connell, R. W.	GSFC/Wilson, L.	11-Astronomy

**NAS 5-24218**                      **University of Virginia**                      **3845**  
Research study on mixer diodes for submillimeter applications

<i>Period</i>	<i>Obligations</i>	
06/23/77-10/31/79	FY79: \$35,000	TOTAL: \$64,548
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mattauch, R. J.	GSFC/Lamb, G. M.	49-Engr, NEC
	GSFC/Buhl, D.	

**NAS 5-25634**                      **University of Virginia**                      **3846**  
Study of the trellis phase codes for improved power/bandwidth efficiency in satellite communications

<i>Period</i>	<i>Obligations</i>	
04/11/79-04/10/81	FY79: \$85,000	TOTAL: \$85,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wilson, S. G.	GSFC/Kahle, D. R.	45-Elec Engr

**NAS 8-31951**                      **University of Virginia**                      **3847**  
Space shuttle main engine whirl problem

<i>Period</i>	<i>Obligations</i>	
04/19/76-11/15/79	FY79: \$59,916	TOTAL: \$271,245
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Gunter, E. J.	MSFC/Winter, S. W.	46-Mech Engr
	MSFC/Goetz, O. K.	

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**NAS 8-33327** University of Virginia 3848  
X-ray observations of selected areas

<i>Period</i>	<i>Obligations</i>	
03/26/79-06/25/80	FY79: \$4,915	TOTAL: \$4,915
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Thuan, T. X.	MSFC/Jones, J. B., Jr.	11-Astronomy
Owen, F. M.		

**NSG 1427** University of Virginia 3855  
Studies of the interplanetary particulate environment

<i>Period</i>	<i>Obligations</i>	
07/01/77-09/30/79	FY79:	TOTAL: \$37,400
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Singer, S. F.	LARC/Humes, D. H.	11-Astronomy
Stanley, J. E.		

**NAS 8-33348** University of Virginia 3849  
X-ray observations of M51 and M58: The dynamics of spiral galaxies

<i>Period</i>	<i>Obligations</i>	
04/16/79-07/15/80	FY79: \$2,000	TOTAL: \$2,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Sarazin, C. L.	MSFC/Jones, J. B., Jr.	11-Astronomy
Roberts, W. W., Jr.		

**NSG 1458** University of Virginia 3856  
Definition of subsets for restricted computer architectures (HAL/S)

<i>Period</i>	<i>Obligations</i>	
10/01/77-12/31/79	FY79:	TOTAL: \$50,408
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pratt, T. W.	LARC/Will, R. W.	22-Computer Science
	LARC/Foudriat, E. C.	

**NGL 47-005-066** University of Virginia 3850  
Studies in astronomy and related scientific and engineering fields

<i>Period</i>	<i>Obligations</i>	
10/10/66-09/14/77	FY79:	TOTAL: \$199,164
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Frederick, L. W.	HQ-SC/Roman, N. G.	11-Astronomy
	HQ-SC/Bogges, N. W.	

**NSG 1509** University of Virginia 3857  
Evaluating and minimizing noise impact due to aircraft flyover

<i>Period</i>	<i>Obligations</i>	
04/01/78-03/31/80	FY79: \$44,889	TOTAL: \$104,109
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jacobson, I. D.	LARC/DeLoach, R.	69-Psych, NFC
Cook, G.		

**NGR 47-005-172** University of Virginia 3851  
Interpretation of surface features and surface processes on Mars

<i>Period</i>	<i>Obligations</i>	
03/03/71-03/30/79	FY79:	TOTAL: \$244,693
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Howard, A.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Boyce, J. M.	

**NSG 1567** University of Virginia 3858  
Investigation of direct integrated optics modulators

<i>Period</i>	<i>Obligations</i>	
11/01/78-10/31/79	FY79: \$36,993	TOTAL: \$36,993
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Batchman, T. E.	LARC/Beatty, M. E.	13-Physics
	LARC/Breckenridge, R. A.	

**NSG 1010** University of Virginia 3852  
Superconducting magnetic suspension and balance experiment

<i>Period</i>	<i>Obligations</i>	
03/01/74-06/30/78	FY79:	TOTAL: \$274,491
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Zapata, R. N.	LARC/Kilgore, R. A.	41-Aero Engr
Humphris, R. R.		

**NSG 1599** University of Virginia 3859  
Polymorphic reconfigurable emulator for parallel simulation

<i>Period</i>	<i>Obligations</i>	
03/01/79-03/31/80	FY79: \$68,176	TOTAL: \$68,176
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Parrish, E. A.	LARC/Ashworth, B. R.	45-Elec Engr
McVey, E. S.	LARC/Bowles, R. L.	
Cook, G.		

**NSG 1335** University of Virginia 3853  
Investigation of numerical methods for use in real-time simulation

<i>Period</i>	<i>Obligations</i>	
10/01/76-09/30/79	FY79:	TOTAL: \$58,085
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Brown, R. L., Jr.	LARC/Bowles, R. L.	21-Mathematics

**NSG 1652** University of Virginia 3860  
The terrestrial growth of lead-tin-telluride by techniques related to low-gravity growth

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/80	FY79: \$26,256	TOTAL: \$26,256
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jesser, W. A.	LARC/Fripp, A. L.	47-Materials Engr
	LARC/Crouch, R. K.	

**NSG 1399** University of Virginia 3854  
A study of the instrument flight rules helicopter system

<i>Period</i>	<i>Obligations</i>	
03/01/77-09/30/78	FY79:	TOTAL: \$43,495
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jacobson, I. D.	LARC/Tapscott, R. J.	49-Engr, NEC
	LARC/Garren, J. F., Jr.	

**NSG 2225** University of Virginia 3861  
Mammalian body size, composition and growth as influenced by hypokinesia

<i>Period</i>	<i>Obligations</i>	
04/01/77-03/31/80	FY79: \$25,000	TOTAL: \$75,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pitts, G. C.	LARC/Holton, E. M.	51-Biological Sci



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**NSG 3177** University of Virginia 3862  
Investigation of rotor transient analysis by the model method  
*Period* 12/15/77-12/14/79 *Obligations* FY79: \$36,095 TOTAL: \$70,960  
*Prn Invest* Barrett, L. E. NASA Tech Officer CASE Category: 46-Mech Engr  
Gunter, E. J. LERC/Kascak, A. F.  
Allaire, P. E. LERC/Fleming, D. C.

**NSG 3242** University of Virginia 3863  
Investigation of the formation of diffusion barrier materials on silicon carbide filaments and their incorporation into metal matrix composites  
*Period* 01/03/79-01/02/80 *Obligations* FY79: \$39,606 TOTAL: \$39,606  
*Prn Invest* Wawner, F. E., Jr. NASA Tech Officer CASE Category: 47-Materials Engr  
LERC/Behrendt, D. R.  
LERC/Grimes, H. H.

**NSG 7266** University of Virginia 3864  
Demand modeling and its effect on the design and operation of transport aircraft  
*Period* 10/01/76-05/31/78 *Obligations* FY79: \$60,000 TOTAL: \$60,000  
*Prn Invest* Kuhlthau, A. R. NASA Tech Officer CASE Category: 72-Economics  
Jacobson, I. D. HQ-RX/Rollins, R. H.  
LARC/Conner, D. W.

**NSG 7364** University of Virginia 3865  
Observations of the satellites of the outer planets  
*Period* 07/01/78-06/30/80 *Obligations* FY79: \$20,803 TOTAL: \$60,854  
*Prn Invest* Ianna, P. A. NASA Tech Officer CASE Category: 11-Astronomy  
HQ-SL/Brunk, W. E.  
HQ-SL/Murphy, R. E.

**NSG 7572** University of Virginia 3866  
Study of layered deposits and paleoclimates on Mars  
*Period* 04/01/79-03/31/80 *Obligations* FY79: \$16,679 TOTAL: \$16,679  
*Prn Invest* Howard, A. NASA Tech Officer CASE Category: 32-Geological Sci  
HQ-SL/Dwornik, S. E.  
HQ-SL/Boyce, J. M.

**NSG 9063** Virginia Commonwealth University 3867  
Carotid arterial baroreflex mechanisms  
*Period* 10/01/77-12/31/79 *Obligations* FY79: \$48,724 TOTAL: \$79,102  
*Prn Invest* Eckberg, D. L. NASA Tech Officer CASE Category: 56-Medical Sciences  
JSC/Hull, W. E.

**NSG 7355** Virginia Military Institute 3868  
Oxidation-reduction processes in synthetic silicate melts  
*Period* 06/01/77-12/31/79 *Obligations* FY79: \$20,375 TOTAL: \$55,282  
*Prn Invest* Gates, W. L. NASA Tech Officer CASE Category: 32-Geological Sci  
HQ-SL/Quaide, W. L.  
HQ-SL/French, B. M.

**DEN 3 65** Va Polytechnic Inst & St Univ 3869  
Electronically computed dc motor for electric passenger vehicles  
*Period* 09/13/78-09/27/80 *Obligations* FY79: \$48,071 TOTAL: \$159,776  
*Prn Invest* Demerdash, N. A. NASA Tech Officer CASE Category: 45-Elec Engr  
Lee, F. C. LERC/Maslowski, E. A.

**NAS I-15080** Va Polytechnic Inst & St Univ 3870  
Research in the area of physical sciences  
*Period* 08/25/77-08/24/80 *Obligations* FY79: \$104,968 TOTAL: \$176,415  
*Prn Invest* Unavailable NASA Tech Officer CASE Category: 99-Multi-Discip  
LARC/Anderson, A. F.  
LARC/Royall, J. F.

**NAS 5-22577** Va Polytechnic Inst & St Univ 3871  
Communications link characterization study  
*Period* 09/08/76-03/08/80 *Obligations* FY79: \$51,883 TOTAL: \$511,872  
*Prn Invest* Bostian, C. W. NASA Tech Officer CASE Category: 45-Elec Engr  
Stutzman, W. L. GSFC/Hirschmann, E.  
Wiley, P. H.

**NAS 5-25839** Va Polytechnic Inst & St Univ 3872  
Development of micro and macro texture measures for LANDSAT scenes  
*Period* 09/07/79-06/06/80 *Obligations* FY79: \$40,184 TOTAL: \$40,184  
*Prn Invest* Havalick, R. M. NASA Tech Officer CASE Category: 31-Atmos Sci  
GSFC/Argeniero, P. D.

**NAS 6-2388** Va Polytechnic Inst & St Univ 3873  
Remote sensing in agriculture  
*Period* 11/01/73-02/28/79 *Obligations* FY79: \$29,899 TOTAL: \$449,578  
*Prn Invest* Powell, N. L. NASA Tech Officer CASE Category: 39-Env Sci, NEC  
WFC/Scott, J. H., Jr.

**NAS 8-33359** Va Polytechnic Inst & St Univ 3874  
Magnetic fields in cluster of galaxies  
*Period* 05/25/79-05/24/80 *Obligations* FY79: \$6,988 TOTAL: \$6,988  
*Prn Invest* Dennison, B. K. NASA Tech Officer CASE Category: 11-Astronomy  
MSFC/Jones, J. B., Jr.

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**NAS 8-33449** Va Polytechnic Inst & St Univ 3875  
 Research study: Strength and constitutive behavior of soils in a very low gravitational field  
 Period Obligations  
 07/16/79-03/19/80 FY79: \$50,000 TOTAL: \$50,000  
 Prn Invest NASA Tech Officer CASE Category  
 Storre, S. MSFC/Costes, N. C. 32-Geological Sci

**NAS 9-15287** Va Polytechnic Inst & St Univ 3876  
 Development of a stereofluoroscopy system  
 Period Obligations  
 06/01/77-07/01/79 FY79: TOTAL: \$35,000  
 Prn Invest NASA Tech Officer CASE Category  
 Rivers, D. B. JSC/Day, J. L. 56-Medical Sciences

**NCC 1 4** Va Polytechnic Inst & St Univ 3877  
 Dynamics and control of large flexible spacecraft  
 Period Obligations  
 05/01/79-04/30/80 FY79: \$49,992 TOTAL: \$49,992  
 Prn Invest NASA Tech Officer CASE Category  
 Meirovitch, L. LARC/Montgomery, R. C. 42-Astro Engr

**NCC 1 10** Va Polytechnic Inst & St Univ 3878  
 Environmental effects on advanced composites  
 Period Obligations  
 08/01/79-11/30/80 FY79: \$89,417 TOTAL: \$89,417  
 Prn Invest NASA Tech Officer CASE Category  
 Unnam, J. LARC/Tenney, D. R. 39-Env Sci, NEC  
 Houska, C. R. LARC/Brewer, W. D.

**NCC 1 15** Va Polytechnic Inst & St Univ 3879  
 Composite materials research and education  
 Period Obligations  
 09/01/79-08/31/80 FY79: \$164,184 TOTAL: \$164,184  
 Prn Invest NASA Tech Officer CASE Category  
 Herakovich, C. T. LARC/Davis, J. G., Jr. 49-Engr, NEC  
 LARC/Dexter, H. B.

**NCC 1 20** Va Polytechnic Inst & St Univ 3880  
 Graduate study research program in aeronautics and air transportation systems  
 Period Obligations  
 07/01/79-06/30/80 FY79: \$79,991 TOTAL: \$79,991  
 Prn Invest NASA Tech Officer CASE Category  
 Hobeika, A. G. LARC/Erickson, W. D. 41-Aero Engr

**NGL 47-004-067** Va Polytechnic Inst & St Univ 3881  
 Measurement of the ground wind structure  
 Period Obligations  
 06/15/70-09/30/79 FY79: \$35,115 TOTAL: \$568,375  
 Prn Invest NASA Tech Officer CASE Category  
 Tieleman, H. W. WFC/Schmidlin, F. J. 31-Atmos Sci  
 WFC/McGoogan, J. T.

**NGL 47-004-080** Va Polytechnic Inst & St Univ 3882  
 Synthesis, energetics, and chemical characterization of unusual molecules of interest in astronomy at temperatures below 100 k  
 Period Obligations  
 04/19/71-06/30/78 FY79: TOTAL: \$61,960  
 Prn Invest NASA Tech Officer CASE Category  
 McGee, H. A. HQ-SL/Brunk, W. E. 11-Astronomy

**NGR 47-004-129** Va Polytechnic Inst & St Univ 3883  
 Composite materials research and education  
 Period Obligations  
 01/01/74-12/31/79 FY79: TOTAL: \$530,515  
 Prn Invest NASA Tech Officer CASE Category  
 Herakovich, C. T. LARC/Davis, J. G., Jr. 49-Engr, NEC  
 LARC/Pride, R. A.

**NSG 1020** Va Polytechnic Inst & St Univ 3884  
 Determining ion kinetic energies by a method of mass spectrometer peak-shape variation  
 Period Obligations  
 07/01/74-09/30/79 FY79: TOTAL: \$27,500  
 Prn Invest NASA Tech Officer CASE Category  
 Sanzone, G. LARC/Smith, A. 13-Physics

**NSG 1064** Va Polytechnic Inst & St Univ 3885  
 Synthesis and polymerization of aromatic secondary diamines  
 Period Obligations  
 06/01/74-10/31/77 FY79: TOTAL: \$43,173  
 Prn Invest NASA Tech Officer CASE Category  
 Wolfe, J. F. LARC/Johnston, N. J. 12-Chemistry  
 LARC/Bell, V. L.

**NSG 1085** Va Polytechnic Inst & St Univ 3886  
 Kinetics of the reactions of acid anhydrides with aromatic amines in aprotic solvents  
 Period Obligations  
 07/01/74-04/30/80 FY79: TOTAL: \$93,519  
 Prn Invest NASA Tech Officer CASE Category  
 Mason, J. G. LARC/Young, P. R. 12-Chemistry

**NSG 1124** Va Polytechnic Inst & St Univ 3887  
 A fundamental approach to adhesion: Synthesis surface analysis, thermodynamics and mechanics  
 Period Obligations  
 12/01/74-11/30/79 FY79: \$69,901 TOTAL: \$342,794  
 Prn Invest NASA Tech Officer CASE Category  
 Wightman, J. P. LARC/Progar, D. J. 12-Chemistry  
 LARC/Nelson, J. B.

**NSG 1250** Va Polytechnic Inst & St Univ 3888  
 High temperature composite materials for aerospace structures research  
 Period Obligations  
 10/01/75-01/31/80 FY79: TOTAL: \$65,562  
 Prn Invest NASA Tech Officer CASE Category  
 Herakovich, C. T. LARC/Hoffman, E. L. 49-Engr, NEC  
 Hodges, W. T. LARC/Davis, J. G., Jr.

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**NSG 1254** Va Polytechnic Inst & St Univ 3889  
Short beam shear tests of polymeric laminates and unidirectional composites

<i>Period</i>	<i>Obligations</i>	
10/01/75-09/30/79	FY79: \$20,000	TOTAL: \$79,994
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stinchcomb, W. W.	LARC/Hoffman, E. L.	46-Mech Engr
Henneke, E. G.	LARC/Deaton, J. W.	

**NSG 1520** Va Polytechnic Inst & St Univ 3896  
Hypersonic viscous flows over three-dimensional bodies at angle of attack

<i>Period</i>	<i>Obligations</i>	
04/01/78-09/30/79	FY79:	TOTAL: \$25,004
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lewis, C. H.	LARC/Moss, J. N.	41-Aero Engr

**NSG 1255** Va Polytechnic Inst & St Univ 3890  
Application of stability theory to laminar flow control

<i>Period</i>	<i>Obligations</i>	
10/01/75-10/31/79	FY79: \$52,400	TOTAL: \$232,400
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nayfeh, A. H.	LARC/Srokowski, A. J.	41-Aero Engr
Saric, W. S.	LARC/Hefner, J. N.	

**NSG 1524** Va Polytechnic Inst & St Univ 3897  
New aromatic polyamides containing n-propargyl groups as potential cross linking functions

<i>Period</i>	<i>Obligations</i>	
06/01/78-05/31/80	FY79: \$34,815	TOTAL: \$57,287
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wolfe, J. F.	LARC/StClair, T. L.	12-Chemistry
	LARC/StClair, A. K.	

**NSG 1262** Va Polytechnic Inst & St Univ 3891  
Steady vortex lattice technique development

<i>Period</i>	<i>Obligations</i>	
12/01/75-12/31/79	FY79: \$15,000	TOTAL: \$70,141
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mook, D. T.	LARC/Yates, E. C., Jr.	41-Aero Engr
Nayfeh, A. H.		

**NSG 1526** Va Polytechnic Inst & St Univ 3898  
Active damping of modal vibrations by force apportioning

<i>Period</i>	<i>Obligations</i>	
06/16/78-12/16/79	FY79:	TOTAL: \$28,211
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hallauer, W. L., Jr.	LARC/Miserentino, R.	46-Mech Engr

**NSG 1354** Va Polytechnic Inst & St Univ 3892  
Study of an automatic trajectory following control system

<i>Period</i>	<i>Obligations</i>	
10/15/76-11/14/79	FY79: \$34,966	TOTAL: \$98,688
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
VanLandingham, H. F.	LARC/Creedon, J. F.	41-Aero Engr
Moose, R. L.	LARC/Hueschen, R. M.	

**NSG 1527** Va Polytechnic Inst & St Univ 3899  
Distributed surface control for large space systems

<i>Period</i>	<i>Obligations</i>	
06/01/78-07/31/80	FY79: \$99,407	TOTAL: \$127,373
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
VanLandingham, H. F.	LARC/Montgomery, R. C.	45-Elec Engr
Johnson, C. R.		

**NSG 1382** Va Polytechnic Inst & St Univ 3893  
Fault-free analysis of tensile failure of fibrous composites

<i>Period</i>	<i>Obligations</i>	
02/01/77-06/30/79	FY79:	TOTAL: \$23,296
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Louthan, M. R., Jr.	LARC/Tenney, D. R.	47-Materials Engr
	LARC/Brewer, W. D.	

**NSG 1531** Va Polytechnic Inst & St Univ 3900  
Environmental effects on advanced composites

<i>Period</i>	<i>Obligations</i>	
08/01/78-07/31/79	FY79: \$3,700	TOTAL: \$60,870
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Unnam, J.	LARC/Tenney, D. R.	47-Materials Engr
Houska, C. R.	LARC/Brewer, W. D.	

**NSG 1428** Va Polytechnic Inst & St Univ 3894  
The incorporation of metal ions polyimides

<i>Period</i>	<i>Obligations</i>	
07/01/77-01/31/80	FY79: \$62,384	TOTAL: \$109,751
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Taylor, L. T.	LARC/StClair, A. K.	12-Chemistry
	LARC/Slemp, W. S.	

**NSG 1571** Va Polytechnic Inst & St Univ 3901  
Fracture testing of graphite/polyimide

<i>Period</i>	<i>Obligations</i>	
03/27/79-03/26/80	FY79: \$25,705	TOTAL: \$25,705
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Morris, D. H.	LARC/Everett, R. A., Jr.	
	LARC/Crews, J. H., Jr.	47-Materials Engr

**NSG 1470** Va Polytechnic Inst & St Univ 3895  
Control of interface reactions in composites

<i>Period</i>	<i>Obligations</i>	
11/07/77-11/06/79	FY79: \$28,399	TOTAL: \$55,384
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Houska, C. R.	LARC/Tenney, D. R.	47-Materials Engr
	LARC/Brewer, W. D.	

**NSG 1573** Va Polytechnic Inst & St Univ 3902  
Nonlinear wave choke inlets

<i>Period</i>	<i>Obligations</i>	
11/01/78-10/31/79	FY79: \$25,000	TOTAL: \$25,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Nayfeh, A. H.	LARC/Watson, W. R.	45-Elec Engr
	LARC/Lester, H. C.	

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**NSG 1589** Va Polytechnic Inst & St Univ 3903  
Mass transfer effects on turbulent flow along surfaces

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/80	FY79: \$49,858	TOTAL: \$49,858
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schetz, J. A.	LARC/Hefner, J. N.	41-Aero Engr
Inger, G. R.	LARC/Bushnell, D. M.	

**NSG 2301** Va Polytechnic Inst & St Univ 3910  
Near-wall similarity in three-dimensional turbulent flows

<i>Period</i>	<i>Obligations</i>	
04/01/78-03/31/80	FY79: \$54,995	TOTAL: \$107,463
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Pierce, F. J.	ARC/Marvin, J. G.	41-Aero Engr
	ARC/Cleary, J. W.	

**NSG 1597** Va Polytechnic Inst & St Univ 3904  
Advanced matrix resins for graphite composites

<i>Period</i>	<i>Obligations</i>	
03/01/79-02/29/80	FY79: \$33,099	TOTAL: \$33,099
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McGrath, J. E.	LARC/StClair, A. K.	12-Chemistry
Ward, T. C.	LARC/StClair, T. L.	

**NSG 3073** Va Polytechnic Inst & St Univ 3911  
Studies of internal flowfields of high throat-Mach-number quiet engine inlets

<i>Period</i>	<i>Obligations</i>	
10/01/75-02/15/80	FY79:	TOTAL: \$63,122
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Jakubowski, A. K.	LERC/Jones, A. L.	41-Aero Engr
Scher, J. A.		

**NSG 1598** Va Polytechnic Inst & St Univ 3905  
Selected parameters to minimize community annoyance from airport noise

<i>Period</i>	<i>Obligations</i>	
04/01/79-03/31/80	FY79: \$30,588	TOTAL: \$30,588
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Frair, L.	LARC/DeLoach, R.	99-Multi-Discip
	LARC/Stephens, D. G.	

**NSG 3204** Va Polytechnic Inst & St Univ 3912  
Ion beam surface modification: Surface analysis and adhesion

<i>Period</i>	<i>Obligations</i>	
06/07/78-06/07/80	FY79: \$9,996	TOTAL: \$19,871
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dwight, D. W.	LERC/Sovey, J. S.	47-Materials Engr
	LERC/Banks, B. A.	

**NSG 1608** Va Polytechnic Inst & St Univ 3906  
Experiments to verify non-parallel stability theory

<i>Period</i>	<i>Obligations</i>	
04/01/79-12/31/79	FY79: \$62,600	TOTAL: \$62,600
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Saric, W. S.	LARC/Hefner, J. N.	41-Aero Engr
	LARC/Bushnell, D. M.	

**NSG 3239** Va Polytechnic Inst & St Univ 3913  
Investigation of coupled torsional-axial-lateral coupled response of geared systems

<i>Period</i>	<i>Obligations</i>	
01/02/79-01/02/80	FY79: \$47,451	TOTAL: \$47,451
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mitchell, L. D.	LERC/Ludwig, L. P.	41-Aero Engr

**NSG 1621** Va Polytechnic Inst & St Univ 3907  
Use of two-dimensional transmission photoelastic models to study the stresses in double lap bolted joints

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/80	FY79: \$27,802	TOTAL: \$27,802
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hyer, M. W.	LARC/Baker, D. J.	47-Materials Engr
	LARC/Dexter, H. B.	

**NSG 3274** Va Polytechnic Inst & St Univ 3914  
An improved model for switching converter power stages

<i>Period</i>	<i>Obligations</i>	
06/01/79-11/30/80	FY79: \$30,000	TOTAL: \$30,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lee, F. C.	LERC/Kolecki, J. C.	45-Elec Engr

**NSG 1627** Va Polytechnic Inst & St Univ 3908  
Order reduction of structural dynamic eigenvalue problems

<i>Period</i>	<i>Obligations</i>	
06/15/79-12/14/79	FY79: \$19,700	TOTAL: \$19,700
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Anderson, L. R.	LARC/Sobieski, J.	49-Engr, NEC
Hallauer, W. L., Jr.	LARC/Giles, G. L.	

**NSG 3275** Va Polytechnic Inst & St Univ 3915  
An adaptive controller for an aircraft gas turbine propulsion system

<i>Period</i>	<i>Obligations</i>	
05/01/79-03/31/81	FY79: \$40,713	TOTAL: \$40,713
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Leonard, R. G.	LERC/Lehtinen, B.	41-Aero Engr

**NSG 2038** Va Polytechnic Inst & St Univ 3909  
Fundamental investigation of failure of fiber composites

<i>Period</i>	<i>Obligations</i>	
10/01/74-09/30/80	FY79: \$57,394	TOTAL: \$460,274
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Brinson, H. F.	ARC/Nelson, H. G.	47-Materials Engr

**NSG 5221** Va Polytechnic Inst & St Univ 3916  
High brightness quasars SAS-3

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/79	FY79:	TOTAL: \$6,423
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dennison, B. K.	GSFC/Kupperman, J. E., Jr.	11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
VIRGINIA (Continued)**

**NSG 6029** Va Polytechnic Inst & St Univ **3917**  
 Demonstration of a peanut leafspot advisory system based on  
 agro environmental monitoring system data

<i>Period</i>	<i>Obligations</i>	
04/01/79-09/30/79	FY79: \$25,100	TOTAL: \$25,100
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Powell, N. L.	WFC/Parker, L. C.	19-Phys Sci, NEC
Phipps, P. M.	WFC/Scott, J. H., Jr.	

**NSG 6030** Va Polytechnic Inst & St Univ **3918**  
 Agro-environmental monitoring and management model develop-  
 ment and implementation program

<i>Period</i>	<i>Obligations</i>	
04/01/79-09/30/79	FY79: \$49,800	TOTAL: \$49,800
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Powell, N. L.	WFC/Parker, L. C.	19-Phys Sci, NEC
	WFC/Scott, J. H., Jr.	

**NSG 6031** Va Polytechnic Inst & St Univ **3919**  
 Development of water management systems for crop production  
 utilizing soil, crop and agro environmental monitoring systems  
 data

<i>Period</i>	<i>Obligations</i>	
04/01/79-09/30/79	FY79: \$25,500	TOTAL: \$25,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Powell, N. L.	WFC/Parker, L. C.	19-Phys Sci, NEC
	WFC/Scott, J. H., Jr.	

**NGL 47-014-009** Virginia State University **3920**  
 Numerical treatment of sound propagation through a duct

<i>Period</i>	<i>Obligations</i>	
06/29/73-08/31/79	FY79:	TOTAL: \$79,442
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Agrawal, K. M.	LARC/Lansing, D. L.	41-Aero Engr

**NSG 1342** Virginia State University **3921**  
 Material science and solid state physics studies with positive muon  
 spin precession

<i>Period</i>	<i>Obligations</i>	
01/01/77-09/30/80	FY79: \$16,392	TOTAL: \$49,913
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stronach, C. E.	LARC/Singh, J. J.	13-Physics

**NSG 1646** Virginia State University **3922**  
 Medium-energy nuclear physics studies

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/80	FY79: \$26,618	TOTAL: \$26,618
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Stronach, C. E.	LARC/Wilson, J. W.	13-Physics

**WASHINGTON**

**NAS 1-9694** University of Washington **3923**  
 Participation in the science planning for the Viking 1975 missions  
 in the area of meteorology

<i>Period</i>	<i>Obligations</i>	
04/27/70-09/30/78	FY79:	TOTAL: \$563,240
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Leovy, C. B.	LARC/Williams, T. S., Jr.	31-Atmos Sci
	LARC/Glenny, W. R.	

**NAS 1-14341** University of Washington **3924**  
 Science support for the limb infrared monitor of the stratosphere  
 experiment

<i>Period</i>	<i>Obligations</i>	
04/12/76-10/31/80	FY79: \$59,352	TOTAL: \$104,352
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Leovy, C. B.	LARC/Russell, J. M., III	31-Atmos Sci
	LARC/James, R. L., Jr.	

**NAS 6-2996** University of Washington **3925**  
 Air/sea interaction studies for satellite measurements

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/80	FY79: \$91,300	TOTAL: \$91,300
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Katsaros, K. B.	WFC/Huang, N. E.	33-Oceanography
Brown, R. A.	WFC/Long, S. R.	
Businger, J. A.		

**NAS 8-33148** University of Washington **3926**  
 Atmospheric cloud physics laboratory gas scavenging experiment

<i>Period</i>	<i>Obligations</i>	
07/07/78-01/16/80	FY79: \$32,456	TOTAL: \$47,103
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hobbs, P. V.	MSFC/Fallon, R. A.	31-Atmos Sci
	MSFC/Smith, R. E.	

**NAS 8-33337** University of Washington **3927**  
 X-ray and optical study of the high polarization of variable AN  
 UMA

<i>Period</i>	<i>Obligations</i>	
02/23/79-02/22/80	FY79: \$10,925	TOTAL: \$10,925
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Szkody, P.	MSFC/Jones, J. B., Jr.	11-Astronomy
Wallerstein, G.		
Crosa, L.		

**NAS 8-33344** University of Washington **3928**  
 Coordinated X-ray infrared observations of rich clusters of  
 galaxies

<i>Period</i>	<i>Obligations</i>	
02/27/79-12/26/79	FY79: \$2,436	TOTAL: \$2,436
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Boynton, P. E.	MSFC/Jones, J. B., Jr.	11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
WASHINGTON (Continued)**

**NAS 8-33360** University of Washington 3929  
Analysis and interpretation of X-ray timing observations

<i>Period</i>	<i>Obligations</i>	
06/12/79-06/11/80	FY79: \$24,571	TOTAL: \$24,571
<i>Prin Invest.</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Boynton, P. E.	MSFC/Jones, J. B., Jr.	11-Astronomy
Lamb, F. K.		

**NSG 2228** University of Washington 3936  
Stratospheric planetary waves

<i>Period</i>	<i>Obligations</i>	
08/01/77-07/31/80	FY79: \$109,634	TOTAL: \$295,106
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Holton, J. R.	ARC/Young, R. E.	31-Atmos Sci
Leovy, C. B.		

**NGL 48-002-004** University of Washington 3930  
Multidisciplinary research in materials sciences with emphasis on investigation of inorganic nonmetallic ceramic materials

<i>Period</i>	<i>Obligations</i>	
06/28/73-05/31/81	FY79:	TOTAL: \$4,369,171
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Mueller, J. I.	HQ-RW/Gangler, J. J.47-Materials Engr	
	HQ-RW/Deutsch, G. C.	

**NSG 2260** University of Washington 3937  
Study of a minimum interference wind tunnel for high lift wings in three dimensions

<i>Period</i>	<i>Obligations</i>	
10/01/77-12/31/79	FY79:	TOTAL: \$73,953
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Joppa, R. G.	ARC/Corsiglia, V. R.	41-Aero Engr

**NGL 48-002-044** University of Washington 3931  
Generation of coherent radiation and the use of intense coherent radiation for generation of plasmas

<i>Period</i>	<i>Obligations</i>	
05/19/67-11/14/79	FY79: \$136,000	TOTAL: \$1,092,900
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Hertzberg, A.	HQ-RT/Schwenk, F. C.	13-Physics
	ARC/Billman, K. W.	

**NSG 2362** University of Washington 3938  
Direct measurement of extinction by stratospheric aerosols

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/79	FY79: \$35,167	TOTAL: \$35,167
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Charlson, R. J.	ARC/Pollack, J. B.	31-Atmos Sci
Waggoner, A. P.		

**NGL 48-002-047** University of Washington 3932  
Interaction shock wave and turbulent boundary layer

<i>Period</i>	<i>Obligations</i>	
09/16/67-09/30/81	FY79: \$23,000	TOTAL: \$442,659
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Childs, M. E.	ARC/Chapman, G. T.	41-Aero Engr
	ARC/Presley, L. L.	

**NSG 2365** University of Washington 3939  
Configuration interaction

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$21,000	TOTAL: \$21,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Davidson, E. R.	ARC/Langhoff, S. R.	12-Chemistry

**NGR 48-002-141** University of Washington 3933  
Research program in aeronautics & air transportation

<i>Period</i>	<i>Obligations</i>	
05/10/72-10/31/79	FY79:	TOTAL: \$273,485
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Childs, M. E.	ARC/Lee, G.	41-Aero Engr
Gessner, F. B.	ARC/Watson, E. C.	

**NSG 2385** University of Washington 3940  
Telemetry of in vivo bone strain information

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/80	FY79: \$20,000	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Carter, D. R.	ARC/Holton, E. M.	59-Life Sci. NEC

**NGR 48-002-142** University of Washington 3934  
Analysis of continuum channel light curves

<i>Period</i>	<i>Obligations</i>	
10/03/72-06/30/79	FY79:	TOTAL: \$107,031
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Greene, T. F.	HQ-SL/Brunk, W. E.	11-Astronomy

**NSG 3152** University of Washington 3941  
A design manual for stirling engines

<i>Period</i>	<i>Obligations</i>	
06/01/77-01/31/78	FY79:	TOTAL: \$44,925
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Martini, W. R.	LERC/Valentine, H. H.	46-Mech Engr

**NSG 2176** University of Washington 3935  
Wind shear detection by total energy method for use in landing of aircraft

<i>Period</i>	<i>Obligations</i>	
10/01/76-12/31/79	FY79: \$10,000	TOTAL: \$100,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Joppa, R. G.	ARC/Creer, B. Y.	41-Aero Engr

**NSG 3194** University of Washington 3942  
Stirling engine design manual

<i>Period</i>	<i>Obligations</i>	
05/01/78-10/31/79	FY79: \$35,419	TOTAL: \$51,858
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Martini, W. R.	LERC/Valentine, H. H.	46-Mech Engr
	LERC/Tew, R. C.	

**NASA'S UNIVERSITY PROGRAM  
WASHINGTON (Continued)**

**NSG 3261** University of Washington 3943  
Design methods for shock-free cascades with future application to turbomachinery components

<i>Period</i>	<i>Obligations</i>	
03/15/79-03/14/80	FY79: \$28,693	TOTAL: \$28,693
<i>Prin Invest.</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Seebass, A. R.	LERC/B'aun, W. H.	41-Aero Engr

**NSG 5410** University of Washington 3950  
Studies of discrete electromagnetic emissions in the magnetosphere

<i>Period</i>	<i>Obligations</i>	
09/15/79-09/14/80	FY79: \$22,418	TOTAL: \$22,418
<i>Prin Invest.</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lin, C. S.	GSFC/Corrigan, J. P.	11-Astronomy

**NSG 5142** University of Washington 3944  
The kinematics and ionization of the Gum Nebula

<i>Period</i>	<i>Obligations</i>	
12/01/76-11/30/77	FY79:	TOTAL: \$1,310
<i>Prin Invest.</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wallerstein, G.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

**NSG 7085** University of Washington 3951  
Dynamics of planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
07/01/74-10/01/79	FY79: \$43,633	TOTAL: \$186,833
<i>Prin Invest.</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Leovy, C. B.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

**NSG 5240** University of Washington 3945  
Line identification in A stars: Termination of hydrogen convection

<i>Period</i>	<i>Obligations</i>	
03/01/78-10/31/79	FY79: \$467	TOTAL: \$19,467
<i>Prin Invest.</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bohm-Vitense, E.	GSFC/Bogges., A.	11-Astronomy
	GSFC/West, D. K.	

**NSG 7173** University of Washington 3952  
Application of spectral reflectance of lunar samples to telescopic spectra of unvisited parts of the moon

<i>Period</i>	<i>Obligations</i>	
07/01/75-02/28/81	FY79: \$33,891	TOTAL: \$184,453
<i>Prin Invest.</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Adams, J. B.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. M.	

**NSG 5283** University of Washington 3946  
Field-aligned particle fluxes and parallel electric potential

<i>Period</i>	<i>Obligations</i>	
07/01/78-07/31/79	FY79:	TOTAL: \$21,732
<i>Prin Invest.</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lin, C. S.	GSFC/Spencer, N. W.	31-Atmos Sci

**NSG 7174** University of Washington 3953  
Visible and near-infrared reflectance spectroscopy

<i>Period</i>	<i>Obligations</i>	
07/01/75-01/31/79	FY79:	TOTAL: \$132,274
<i>Prin Invest.</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Adams, J. B.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. E.	

**NSG 5374** University of Washington 3947  
Kinematics and physical conditions in shocked clouds in Supernova remnants

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/80	FY79: \$17,182	TOTAL: \$17,182
<i>Prin Invest.</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Wallerstein, G.	GSFC/Bogges, A.	11-Astronomy
Silk, J.		
Jenkins, E. B.		

**NSG 7313** University of Washington 3954  
Crystal-liquid distribution coefficients for selected elements

<i>Period</i>	<i>Obligations</i>	
03/01/77-02/29/80	FY79: \$46,294	TOTAL: \$118,108
<i>Prin Invest.</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
McCallum, I. S.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. E.	

**NSG 5395** University of Washington 3948  
Ultraviolet observations of selected cataclysmic variables

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$9,604	TOTAL: \$9,604
<i>Prin Invest.</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Szkody, P.	GSFC/Bogges, A.	11-Astronomy

**NSG 7318** University of Washington 3955  
Analysis of data on very high energy galactic electrons

<i>Period</i>	<i>Obligations</i>	
12/01/76-11/30/79	FY79: \$30,000	TOTAL: \$68,061
<i>Prin Invest.</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lord, J. J.	HQ-SC/Kaluzienski, L. J.	11-Astronomy
	HQ-SC/Opp, A. G.	

**NSG 5398** University of Washington 3949  
Observations of classical stellar chromospheres

<i>Period</i>	<i>Obligations</i>	
07/15/79-01/14/80	FY79: \$9,000	TOTAL: \$9,000
<i>Prin Invest.</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bohm-Vitense, E.	GSFC/Bogges, A.	11-Astronomy

**NSG 7448** University of Washington 3956  
Mars spectral photometry and surface composition

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/80	FY79: \$31,645	TOTAL: \$41,326
<i>Prin Invest.</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Adams, J. B.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/Dwornik, S. E.	

**NASA'S UNIVERSITY PROGRAM  
WASHINGTON (Continued)**

**NSG 7611** University of Washington 3957  
Investigations of Martian meteorological processes using Viking meteorological data

<i>Period</i>	<i>Obligations</i>	
03/01/79-12/31/79	FY79: \$44,000	TOTAL: \$44,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Leovy, C. B.	HQ-SL/Murphy, R. E.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

**NSG 7214** Washington State University 3964  
Atmospheric measurements of nitrous oxide and the halocarbons

<i>Period</i>	<i>Obligations</i>	
02/01/76-04/30/80	FY79: \$32,000	TOTAL: \$232,168
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cronn, D.	HQ-EB/Kakar, R. K.	31-Atmos Sci
Harsch, D. E.	HQ-EB/Seals, R. K., Jr.	
Robinson, E.		

**NSG 9032** University of Washington 3958  
Reflectance spectroscopy of lunar samples

<i>Period</i>	<i>Obligations</i>	
07/01/75-01/31/80	FY79: \$52,694	TOTAL: \$282,005
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Adams, J. B.	JSC/Harris, J. W.	32-Geological Sci

**WISCONSIN**

**NSG 9052** University of Washington 3959  
A study of interplanetary dust

<i>Period</i>	<i>Obligations</i>	
03/01/77-02/29/80	FY79: \$83,874	TOTAL: \$239,174
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Brownlee, D. E.	ISC/Harris, J. W.	31-Atmos Sci

**NAS 8-32901** Beloit College 3965  
Scientific investigations in support of the space telescope project

<i>Period</i>	<i>Obligations</i>	
02/22/78-02/22/84	FY79: \$33,865	TOTAL: \$102,965
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Schroeder, D. J.	MSFC/O'Dell, C. R.	11-Astronomy

**NAS 5-25063** Walla Walla College 3960  
Study of high speed complex number algorithms

<i>Period</i>	<i>Obligations</i>	
06/12/78-08/12/79	FY79:	TOTAL: \$11,864
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Heisler, R.	GSFC/Schmidt, R. L.	45-Elec Engr
	GSFC/Keating, T., Jr.	

**NAS 8-33355** Beloit College 3966  
Guest investigation of three young Supernova remnants

<i>Period</i>	<i>Obligations</i>	
06/15/79-06/14/80	FY79: \$6,922	TOTAL: \$6,922
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Winkler, P. F., Jr.	MSFC/Jones, J. B., Jr.	11-Astronomy

**NCA 2-840801** Washington State University 3961  
Chemical reactions on supported metal particles

<i>Period</i>	<i>Obligations</i>	
06/01/78-05/31/80	FY79: \$14,075	TOTAL: \$27,271
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dickinson, J. T.	ARC/Poppa, H. R.	13-Physics

**NAS 9-15711** Marquette University 3967  
Alterations in skeletal muscle with disuse atrophy

<i>Period</i>	<i>Obligations</i>	
09/21/78-10/01/80	FY79: \$35,000	TOTAL: \$75,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fitts, R. H.	JSC/Smith, M. C., Jr.	59-Life Sci, NEC

**NCA 2-840901** Washington State University 3962  
Studies and applications of hydrogen mapping on surfaces

<i>Period</i>	<i>Obligations</i>	
03/01/79-02/28/81	FY79: \$20,000	TOTAL: \$20,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Dickinson, J. T.	ARC/Poppa, H. R.	13-Physics

**NAS 1-14136** University of Wisconsin - Madison 3968  
Laser radar for meteorological measurements

<i>Period</i>	<i>Obligations</i>	
09/11/75-11/30/79	FY79: \$34,299	TOTAL: \$619,554
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Eloranta, E.	LARC/Browell, E. V.	31-Atmos Sci
Parent, R. J.	LARC/Reimberg, E. E.	
Roesler, F. L.		

**NSG 5385** Washington State University 3963  
Observations of planetary nebula shells and central stars

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/80	FY79: \$2,550	TOTAL: \$2,550
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Lutz, J. H.	GSFC/Bogges, A.	11-Astronomy

**NAS 2-9480** University of Wisconsin - Madison 3969  
Pioneer/Venus data analysis of net flux radiometer experiment

<i>Period</i>	<i>Obligations</i>	
09/27/77-03/31/80	FY79: \$89,200	TOTAL: \$178,865
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Suomi, D. V.	ARC/Hall, C. F.	31-Atmos Sci
Sromousky, L. A.	ARC/Porter, D. L.	



**NASA'S UNIVERSITY PROGRAM  
WISCONSIN (Continued)**

**NAS 2-10359** University of Wisconsin - Madison 3970  
Dual photon absorptiometry system for ground based measurements of the lumbar spine in man  
*Period* *Obligations*  
09/24/79-09/24/80 FY79: \$30,047 TOTAL: \$30,047  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Mazess, R. B. ARC/Young, D. R. 56-Medical Sciences

**NAS 5-21965** University of Wisconsin - Madison 3971  
Development of an IR temperature sounder for SMS spacecraft  
*Period* *Obligations*  
08/01/73-10/15/81 FY79: \$695,000 TOTAL: \$1,719,533  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Suomi, V. E. GSFC/Montgomery, H. E. 31-Atmos Sci

**NAS 5-22349** University of Wisconsin - Madison 3972  
High resolution spectroscopy for a one meter class UV-optical telescope for Spacelab astronomy missions  
*Period* *Obligations*  
04/23/75-06/30/80 FY79: TOTAL: \$16,747  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Anderson, C. M. GSFC/Waincott, F. H. 11-Astronomy  
Hendrix, J.  
Curtis, C. R.

**NAS 5-22410** University of Wisconsin - Madison 3973  
Reduction and analysis of data from OSO-1 soft X-ray background experiment  
*Period* *Obligations*  
06/26/75-09/30/80 FY79: \$141,749 TOTAL: \$682,537  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kraushaar, W. L. GSFC/Gemmell, J. D. 31-Atmos Sci

**NAS 5-23462** University of Wisconsin - Madison 3974  
Global atmospheric research project  
*Period* *Obligations*  
06/07/76-05/31/80 FY79: \$132,920 TOTAL: \$335,920  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Suomi, V. E. GSFC/Greaves, J. R. 31-Atmos Sci

**NAS 5-23706** University of Wisconsin - Madison 3975  
Study of the economic benefits of meteorological satellite data  
*Period* *Obligations*  
08/30/76-08/29/80 FY79: \$50,000 TOTAL: \$316,912  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Suomi, V. E. GSFC/Hasler, A. F. 31-Atmos Sci  
Suchman, D. GSFC/Shenk, W. E.

**NAS 5-24230** University of Wisconsin - Madison 3976  
Remote monitoring of precipitation by analyzing data from Nimbus scanning microwave radiometers  
*Period* *Obligations*  
07/29/77-01/28/79 FY79: TOTAL: \$30,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Weinman, J. A. GSFC/Theon, J. S. 31-Atmos Sci

**NAS 5-24385** University of Wisconsin - Madison 3977  
Operation of a biomedical applications team  
*Period* *Obligations*  
12/19/77-12/31/80 FY79: \$230,000 TOTAL: \$445,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Siedbank, M. P. GSFC/Friedman, D. S.  
Huston, N. E. 56-Medical Sciences

**NAS 5-24487** University of Wisconsin - Madison 3978  
High speed photometer for the space telescope printer  
*Period* *Obligations*  
03/08/78-03/31/84 FY79: \$766,887 TOTAL: \$1,119,151  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bless, R. C. GSFC/White, R. A. 11-Astronomy

**NAS 5-25148** University of Wisconsin - Madison 3979  
Technical support to the first GARP global experiment special effort  
*Period* *Obligations*  
08/18/78-04/17/81 FY79: \$150,942 TOTAL: \$240,942  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Suomi, V. E. GSFC/Greaves, J. R. 31-Atmos Sci

**NAS 5-25377** University of Wisconsin - Madison 3980  
A study on the meteorological significance of cloud tracked winds during data systems test 5 and 6  
*Period* *Obligations*  
12/27/78-01/26/80 FY79: \$28,160 TOTAL: \$28,160  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Suomi, V. E. GSFC/Greaves, J. R. 31-Atmos Sci  
GSFC/Stetina, F. L.

**NAS 5-25399** University of Wisconsin - Madison 3981  
Data systems test evaluation  
*Period* *Obligations*  
12/27/78-01/26/80 FY79: \$34,637 TOTAL: \$34,637  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Johnson, D. R. GSFC/Greaves, J. R. 31-Atmos Sci  
Gallimore, R. G. GSFC/Stetina, F. L.

**NAS 5-25487** University of Wisconsin - Madison 3982  
Support to the space telescope wide field planetary camera development team  
*Period* *Obligations*  
02/01/79-10/31/79 FY79: \$12,536 TOTAL: \$12,536  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Code, A. D. GSFC/Sours, W. T. 11-Astronomy

**NAS 5-25505** University of Wisconsin - Madison 3983  
Demonstration project to evaluate the opportunities for operational applications of LANDSAT data  
*Period* *Obligations*  
03/23/79-01/22/80 FY79: \$9,860 TOTAL: \$9,860  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Scarpice, F. L. GSFC/Middleton, E. 39-Env Sci, NEC

**NASA'S UNIVERSITY PROGRAM  
WISCONSIN (Continued)**

**NAS 5-25714** University of Wisconsin - Madison **3984**  
Support of High Resolution Spectrograph (HRS)  
*Period* *Obligations*  
05/16/79-03/15/84 FY79: \$20,000 TOTAL: \$20,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Savage, B. D. GSFC/Vitagliano, H. D. 11-Astronomy

**NAS 8-33222** University of Wisconsin - Madison **3985**  
Diagnostics of severe convection and sub synoptic scale geostrophic circulations  
*Period* *Obligations*  
06/01/79-05/31/80 FY79: \$78,488 TOTAL: \$78,488  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Johnson, D. R. MSFC/Turner, R. E. 31-Atmos Sci  
MSFC/Johnson, R.

**NAS 8-33340** University of Wisconsin - Madison **3986**  
Search and analysis of the X-ray emission from luminous type stars  
*Period* *Obligations*  
02/06/79-02/05/80 FY79: \$12,299 TOTAL: \$12,299  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Cassinelli, J. P. MSFC/Jones, J. B., Jr. 11-Astronomy

**NAS 9-15580** University of Wisconsin - Madison **3987**  
Vitamin D metabolites and bone demineralization  
*Period* *Obligations*  
04/01/78-01/01/80 FY79: \$75,000 TOTAL: \$115,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Schnoes, H. K. JSC/Cintron, N. M. 56-Medical Sciences  
Holton, E. M.  
DeLuca, H. F.

**NCA 2-865701** University of Wisconsin - Madison **3988**  
Influence of hypodynamia on the serum levels and production of the active metabolites of vitamin D in the rat  
*Period* *Obligations*  
08/01/76-12/31/79 FY79: TOTAL: \$32,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
DeLuca, H. F. ARC/Holton, E. M. 51-Biological Sci

**NGL 50-002-013** University of Wisconsin - Madison **3989**  
Investigations and studies of ultraviolet stellar spectra and associated instrumentation  
*Period* *Obligations*  
05/20/64-04/30/81 FY79: \$62,070 TOTAL: \$2,817,490  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Code, A. D. GSFC/Bissell, E. E. 11-Astronomy  
HQ-SC/Roman, N. G.

**NGL 50-002-044** University of Wisconsin - Madison **3990**  
Research in cosmic and solar physics  
*Period* *Obligations*  
10/25/65-12/31/81 FY79: \$180,000 TOTAL: \$2,352,626  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Kraushaar, W. L. GSFC/Bissell, E. E. 11-Astronomy  
HQ-SC/Opp, A. G.

**NGL 50-002-127** University of Wisconsin - Madison **3991**  
Multidisciplinary research in space science & engineering  
*Period* *Obligations*  
12/19/69-07/31/81 FY79: TOTAL: \$1,737,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Clapp, J. L. HQ-ET/Vitale, J. A. 39-Env Sci, NEC

**NGR 50-002-051** University of Wisconsin - Madison **3992**  
Applications of the direct photon absorption techniques for measuring bone-mineral content  
*Period* *Obligations*  
09/01/66-10/31/79 FY79: \$20,028 TOTAL: \$631,264  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Mazess, R. B. ARC/Young, D. R. 56-Medical Sciences  
Cameron, J. R.

**NGR 50-002-162** University of Wisconsin - Madison **3993**  
Solar wind physics  
*Period* *Obligations*  
01/26/71-12/31/79 FY79: TOTAL: \$377,463  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Scherb, F. HQ-ST/King, J. H. 13-Physics  
HQ-ST/Schmerling, E. R.

**NGR 50-002-189** University of Wisconsin - Madison **3994**  
Cloud image processing for planetary flybys  
*Period* *Obligations*  
01/19/72-03/31/80 FY79: \$41,786 TOTAL: \$158,083  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Suomi, V. E. HQ-SL/Murphy, R. E. 31-Atmos Sci  
HQ-SL/Brunk, W. E.

**NSG 2104** University of Wisconsin - Madison **3995**  
Viral etiology and epidemiology of respiratory infection in an isolated Antarctic station  
*Period* *Obligations*  
09/01/75-11/30/79 FY79: \$30,000 TOTAL: \$150,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Dick, E. C. ARC/Mandel, A. D. 56-Medical Sciences

**NSG 2405** University of Wisconsin - Madison **3996**  
Definition of plant characteristics for controlled ecology life support system and study of physiological injuries to plants anticipated in controlled ecology life support system  
*Period* *Obligations*  
09/01/79-05/31/80 FY79: \$39,855 TOTAL: \$39,855  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tibbitts, T. W. ARC/Zill, L. P. 51-Biological Sci

**NSG 5100** University of Wisconsin - Madison **3997**  
Ultraviolet studies with the Princeton telescope aboard the Copernicus satellite  
*Period* *Obligations*  
06/01/76-05/31/78 FY79: TOTAL: \$10,578  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Savage, B. D. GSFC/Kupperian, J. E., Jr. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
WISCONSIN (Continued)**

**NSG 5152** University of Wisconsin - Madison 3998  
Research of clouds and ice in the planetary scale circulation and in climate

<i>Period</i>	<i>Obligations</i>	
01/01/77-12/31/81	FY79: \$55,000	TOTAL: \$201,639
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Houghton, D. D.	GSFC/Halem, M.	31-Atmos Sci
Suomi, V. E.		

**NSG 5180** University of Wisconsin - Madison 3999  
Analysis of the ultraviolet line profiles in the Wolf-Rayet star HD 50896

<i>Period</i>	<i>Obligations</i>	
06/20/77-12/31/78	FY79:	TOTAL: \$9,993
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cassinelli, J. P.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

**NSG 5181** University of Wisconsin - Madison 4000  
A source of interstellar abundances/ultraviolet studies of the interstellar medium, hot stars and cosmic X-ray sources

<i>Period</i>	<i>Obligations</i>	
07/01/77-06/30/79	FY79:	TOTAL: \$17,500
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Savage, B. D.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

**NSG 5223** University of Wisconsin - Madison 4001  
Research of the effect of synoptic scale processes in global circulation models modeling

<i>Period</i>	<i>Obligations</i>	
01/16/78-02/15/80	FY79: \$66,170	TOTAL: \$90,170
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Herman, G. F.	GSFC/Halem, M.	31-Atmos Sci
Johnson, D. R.		

**NSG 5241** University of Wisconsin - Madison 4002  
Interstellar Lyman alpha observations with the IUE satellite

<i>Period</i>	<i>Obligations</i>	
02/15/78-02/14/80	FY79: \$3,861	TOTAL: \$23,361
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Savage, B. D.	GSFC/Boggett, A.	11-Astronomy
	GSFC/West, D. K.	

**NSG 5242** University of Wisconsin - Madison 4003  
High resolution spectral observations with the IUE satellite

<i>Period</i>	<i>Obligations</i>	
02/15/78-02/14/80	FY79:	TOTAL: \$16,000
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Doherty, L. R.	GSFC/Boggett, A.	11-Astronomy
	GSFC/West, D. K.	

**NSG 5251** University of Wisconsin - Madison 4004  
Investigation of computer processing method of multiple geostationary satellite transmissions for cloud height determination

<i>Period</i>	<i>Obligations</i>	
03/01/78-03/31/80	FY79:	TOTAL: \$34,864
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Suomi, V. E.	GSFC/Minzner, R. A.	31-Atmos Sci
Stremler, F. G.	GSFC/Shenk, W. E.	

**NSG 5252** University of Wisconsin - Madison 4005  
Optimum employment of satellite

<i>Period</i>	<i>Obligations</i>	
03/15/78-02/14/80	FY79:	TOTAL: \$61,492
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Horr, L. H.	GSFC/Halem, M.	31-Atmos Sci

**NSG 5363** University of Wisconsin - Madison 4006  
Studies of the ultraviolet spectra of astronomical sources

<i>Period</i>	<i>Obligations</i>	
06/01/79-11/30/79	FY79: \$32,229	TOTAL: \$32,229
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Cassinelli, J. P.	GSFC/Boggett, A.	11-Astronomy
Code, A. D.		
Doherty, L. R.		

**NSG 7050** University of Wisconsin - Madison 4007  
Data analysis of OAO-2 ultraviolet spectrophotometry

<i>Period</i>	<i>Obligations</i>	
07/01/74-05/31/80	FY79 \$22,734	TOTAL: \$421,267
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Williamson, P. R.	HQ-SC/Weiler, E. J.	11-Astronomy
	HQ-SC/Roman, N. G.	

**NSG 7215** University of Wisconsin - Madison 4008  
Vacuum ultraviolet photon excitation and electron ejection from surfaces

<i>Period</i>	<i>Obligations</i>	
02/01/76-01/31/80	FY79: \$20,000	TOTAL: \$132,555
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Taylor, J. W.	HQ-SL/Quaide, W. L.	32-Geological Sci
	HQ-SL/French, B. E.	

**NSG 7521** University of Wisconsin - Madison 4009  
Origin of bacteria

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/80	FY79: \$41,250	TOTAL: \$41,250
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Fitch, W. M.	HQ-SB/Young, R. S.	51-Biological Sci

**NSG 50-007-001** University of Wisconsin - Milwaukee 4010  
Dynamic response and flow visualization analyses for helicopter rotor blades

<i>Period</i>	<i>Obligations</i>	
12/02/70-06/30/79	FY79:	TOTAL: \$289,825
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Bratanow, T.	LARC/Young, W. H., Jr.	41-Aero Engr

**NASA'S UNIVERSITY PROGRAM  
WISCONSIN (Continued)**

**NGR 50-009-001** University of Wisconsin - Parkside **4011**  
Identification, distribution and significance of forms on Mars  
*Period* *Obligations*  
00/00/00-09/30/78 FY79: TOTAL: \$29,581  
*Prin Invest* NASA Tech Officer CASE Category  
Smith, E. I. HQ-SL/Dwornik, S. E. 32-Geological Sci  
HQ-SL/Boyce, J. M.

**NAS 8-32486** University of Wyoming **4017**  
Space processing applications rocket: Charged water-drop  
oscillations  
*Period* *Obligations*  
04/30/77-03/29/80 FY79: TOTAL: \$25,307  
*Prin Invest* NASA Tech Officer CASE Category  
Saunders, C. MSFC/Reeves, F. A. 47-Materials Engr  
MSFC/Chassay, R. P.

**WYOMING**

**NAS 1-13797** University of Wyoming **4012**  
Stratospheric aerosol measurement instrument  
*Period* *Obligations*  
01/29/75-04/28/79 FY79: TOTAL: \$3,140,000  
*Prin Invest* NASA Tech Officer CASE Category  
Pepin, T. J. LARC/Hedgepeth, K. D. 31-Atmos Sci  
LARC/Mauldin, L. E., III

**NAS 8-33150** University of Wyoming **4018**  
Atmospheric cloud physics laboratory ice forming experiment  
preliminary definition  
*Period* *Obligations*  
08/07/78-01/15/80 FY79: \$28,014 TOTAL: \$43,212  
*Prin Invest* NASA Tech Officer CASE Category  
Vali, G. MSFC/Fallon, R. A. 31-Atmos Sci  
MSFC/Smith, R. E.

**NAS 1-14373** University of Wyoming **4013**  
Science support for the Nimbus G stratospheric aerosol measure-  
ment experiment  
*Period* *Obligations*  
04/02/76-12/31/79 FY79: \$70,000 TOTAL: \$211,131  
*Prin Invest* NASA Tech Officer CASE Category  
Pepin, T. J. LARC/McCormick, M. P. 31-Atmos Sci  
LARC/McMaster, L. R.

**NSG 1518** University of Wyoming **4019**  
Preliminary Aerosol Measurement (PAM II) data reduction  
*Period* *Obligations*  
04/15/78-04/14/80 FY79: \$105,987 TOTAL: \$133,825  
*Prin Invest* NASA Tech Officer CASE Category  
Pepin, T. J. LARC/McMaster, L. R. 31-Atmos Sci  
LARC/McCormick, M. P.

**NAS 1-14931** University of Wyoming **4014**  
Stratospheric aerosol and gas experiment  
*Period* *Obligations*  
07/19/77-09/30/79 FY79: TOTAL: \$60,000  
*Prin Invest* NASA Tech Officer CASE Category  
Pepin, T. J. LARC/McMaster, L. R. 31-Atmos Sci  
LARC/McCormick, M. P.

**NSG 3217** University of Wyoming **4020**  
Energy absorption mechanisms during crack propagation in metal  
matrix composites  
*Period* *Obligations*  
08/01/78-07/31/80 FY79: \$35,140 TOTAL: \$65,254  
*Prin Invest* NASA Tech Officer CASE Category  
Adams, D. F. LERC/DiCarlo, J. A. 47-Materials Engr  
LERC/Grimes, H. H.

**NAS 1-15377** University of Wyoming **4015**  
Balloon-borne aerosol measurements: Ground truth for SAM  
II  
*Period* *Obligations*  
05/04/78-08/31/79 FY79: \$52,800 TOTAL: \$79,800  
*Prin Invest* NASA Tech Officer CASE Category  
Hofmann, D. J. LARC/McMaster, L. R. 31-Atmos Sci  
Rosen, J. M. LARC/McCormick, M. P.

**NSG 7349** University of Wyoming **4021**  
Measurements of the natural background of condensation nuclei  
at high altitude for assessment of future space shuttle effluent  
effect  
*Period* *Obligations*  
07/01/77-06/30/80 FY79: \$53,000 TOTAL: \$153,985  
*Prin Invest* NASA Tech Officer CASE Category  
Hofmann, D. J. HQ-EB/Kakar, R. K. 31-Atmos Sci  
Rosen, J. M. HQ-EB/Scals, R. K., Jr.

**NAS 8-32067** University of Wyoming **4016**  
Aerosol and nucleation research in support of NASA cloud physics  
experiment in space  
*Period* *Obligations*  
05/10/76-07/01/78 FY79: TOTAL: \$121,236  
*Prin Invest* NASA Tech Officer CASE Category  
Vali, G. MSFC/Schrick, W. J. 31-Atmos Sci  
MSFC/Smith, R. E.

**PUERTO RICO**

**NAS 5-25844** University of Puerto Rico **4022**  
Computerized safety information system for GSFC's Health and  
Safety Engineering Office  
*Period* *Obligations*  
09/06/79-09/14/80 FY79: \$17,318 TOTAL: \$17,318  
*Prin Invest* NASA Tech Officer CASE Category  
Cabassa, H. D. GSFC/Lopez, J. J. 22-Computer Science

**NASA'S UNIVERSITY PROGRAM  
AUSTRALIA**

**AUSTRALIA**

**NSG 7272** University of Sydney **4023**  
Rarefied flow field analysis  
*Period* *Obligations*  
07/01/76-06/30/79 FY79: TOTAL: \$10,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Bird, G. A. LARC/Melfi, L. T., Jr. 13-Physics  
LARC/Outlaw, R. A.

**CANADA**

**NSG 7409** University of Toronto **4024**  
Application of the cubic strength criterion to the failure analysis  
of composite structures  
*Period* *Obligations*  
03/01/78-02/28/80 FY79: TOTAL: \$22,880  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Tennyson, R. C. LARC/Baker, D. J. 47-Materials Engr  
LARC/Pride, R. A.

**NSG 52-134-005** York University **4025**  
Studies of production and reaction processes of O (2D2) of interest  
in the earth's atmosphere  
*Period* *Obligations*  
04/26/73-12/31/79 FY79: \$39,993 TOTAL: \$159,754  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Schiff, H. I. HQ-ST/Newton, G. P. 31-Atmos Sci  
Dudley, W. W. HQ-ST/Tilford, S. G.  
Ridley, B. A.

**NSG 7223** York University **4026**  
Studies of the spectrum chlorine monoxide in the stratosphere  
*Period* *Obligations*  
05/01/76-09/01/79 FY79: TOTAL: \$160,234  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Nicholls, R. W. ARC/Cooper, D. M. 31-Atmos Sci  
ARC/Arnold, J. O.

**CHILE**

**NAS 5-1925** University of Chile **4027**  
Maintenance & operation of minitrack facilities  
*Period* *Obligations*  
09/21/62-10/31/81 FY79: \$3,591,141 TOTAL: \$34,487,837  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Diaz, E. GSFC/Force, C. A. 99-Multi-Discip  
GSFC/Spintman, D.

**GREAT BRITAIN**

**NASW 3258** Imperial College of Science & Technology **4028**  
Analysis of DOD conducted research and technology programs:  
Benchmark measurements in three-dimensional subsonic dif-  
fusers  
*Period* *Obligations*  
04/15/79-04/15/80 FY79: \$74,340 TOTAL: \$74,340  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Whitlow, J. HQ-RP/Povinelli, F. P. 41-Aero Engr

**NSG 7517** University of Sheffield **4029**  
Vaporization of droplets in premixing chambers  
*Period* *Obligations*  
10/01/78-09/30/79 FY79: \$50,000 TOTAL: \$50,000  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Chigier, N. A. LERC/Lyons, V. J. 43-Chem Engr

**NSG 7172** University of Southampton **4030**  
Self-streamlining of the test section of a transonic wind tunnel  
*Period* *Obligations*  
10/01/75-09/31/79 FY79: TOTAL: \$154,786  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Goodyer, M. J. LARC/Kilgore, R. A. 41-Aero Engr  
LARC/Ladson, C. L.

**NSG 7523** University of Southampton **4031**  
Investigations into the technology required to raise reliability levels  
of magnetic suspension system  
*Period* *Obligations*  
01/01/79-12/31/79 FY79: \$9,800 TOTAL: \$9,800  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Goodyer, M. J. LARC/Boyd R. P. 41-Aero Engr  
LARC/Kilgore, R. A.

**ISRAEL**

**NSG 7317** Israel Institute of Technology **4032**  
Study of radial face seal mechanism of operation  
*Period* *Obligations*  
04/01/77-03/31/79 FY79: \$21,940 TOTAL: \$42,140  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Etsion, I. LERC/Ludwig, L. P. 46-Mech Engr  
LERC/Anderson, W. J.

**NSG 7373** Israel Institute of Technology **4033**  
Study of active control systems for application to supersonic cruise  
aircraft  
*Period* *Obligations*  
11/01/77-10/30/80 FY79: \$16,675 TOTAL: \$41,707  
*Prin Invest* *NASA Tech Officer* *CASE Category*  
Nissim, E. LARC/Abel, I. 41-Aero Engr  
LARC/Doggett, R. V., Jr.

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**PERU**

<b>NASW 7</b>	<b>University of Peru</b>	<b>4034</b>
<b>Operation of tracking station</b>		
<i>Period</i>	<i>Obligations</i>	
12/01/68-06/01/79	FY79:	TOTAL: \$3,300,512
<i>Prin Invest</i>	<i>NASA Tech Officer</i>	<i>CASE Category</i>
Unavailable	GSFC/Christie, C. J.	49-Engr, NEC

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APPENDIX A  
CROSS INDEX BY AGREEMENT NUMBER**

Entries are arranged alphanumerically. Grants are identifiable by prefix letters NAG, NGF, NGL, NGR, NGT and NSG. Cooperative agreements use the prefix NCC. All other prefixes denote contracts.

AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.
DEN 3 50	1070	NAS 1-15648	3790	NAS 2-10150	3065
DEN 3 65	3869	NAS 1-15668	1168	NAS 2-10158	1797
DEN 3 73	1975	NAS 1-15669	2905	NAS 2-10161	1665
DEN 8 1	3635	NAS 1-15680	3208	NAS 2-10162	1624
NAS 1-9683	2950	NAS 1-15724	1906	NAS 2-10164	1625
NAS 1-9684	2485	NAS 1-15758	2835	NAS 2-10177	2778
NAS 1-9692	1305	NAS 1-15764	2836	NAS 2-10195	3843
NAS 1-9693	1915	NAS 1-15770	2227	NAS 2-10227	1096
NAS 1-9694	3923	NAS 1-15775	1794	NAS 2-10249	2443
NAS 1-9703	1167	NAS 1-15877	3780	NAS 2-10258	1482
NAS 1-9705	2833	NAS 1-15899	3758	NAS 2-10272	3568
NAS 1-9990	3756	NAS 1-15925	1710	NAS 2-10308	3724
NAS 1-10492	2441	NAS 1-15965	3759	NAS 2-10338	1820
NAS 1-10493	3064	NAS 1-15969	3209	NAS 2-10338	1820
NAS 1-11854	1260	NAS 2-6265	1092	NAS 2-10350	1626
NAS 1-13502	2834	NAS 2-6551	2074	NAS 2-10354	3526
NAS 1-13797	4012	NAS 2-6552	1568	NAS 2-10359	3970
NAS 1-13889	2777	NAS 2-6553	2200	NAS 2-10364	1234
NAS 1-14136	3968	NAS 2-6556	1169	NAS 3-18547	3189
NAS 1-14193	3789	NAS 2-6558	1689	NAS 3-20110	1981
NAS 1-14332	1090	NAS 2-7358	3722	NAS 3-20370	3341
NAS 1-14341	3924	NAS 2-7969	1690	NAS 3-20392	3259
NAS 1-14351	1976	NAS 2-8812	2697	NAS 3-20473	2492
NAS 1-14373	4013	NAS 2-8898	1306	NAS 3-21018	2175
NAS 1-14393	3346	NAS 2-9126	2631	NAS 3-21046	3140
NAS 1-14394	2629	NAS 2-9127	2442	NAS 3-21261	2063
NAS 1-14406	3207	NAS 2-9128	1501	NAS 3-21355	3260
NAS 1-14507	3777	NAS 2-9129	2612	NAS 3-21365	3141
NAS 1-14605	1844	NAS 2-9130	2632	NAS 3-21370	3261
NAS 1-14654	1977	NAS 2-9131	1502	NAS 3-21386	1569
NAS 1-14731	2112	NAS 2-9300	2302	NAS 3-21473	1570
NAS 1-14832	3778	NAS 2-9473	2489	NAS 3-21609	3245
NAS 1-14862	3841	NAS 2-9476	2490	NAS 3-21698	3262
NAS 1-14908	3842	NAS 2-9477	1741	NAS 3-21945	3199
NAS 1-14928	1091	NAS 2-9478	1691	NAS 3-21946	3142
NAS 1-14929	1796	NAS 2-9480	3969	NAS 3-21963	1496
NAS 1-14930	1916	NAS 2-9483	2491	NAS 3-21965	3143
NAS 1-14931	4014	NAS 2-9485	3691	NAS 3-22259	3144
NAS 1-14932	2486	NAS 2-9486	1093	NAS 5-1925	4027
NAS 1-14947	1978	NAS 2-9487	1094	NAS 5-3949	2444
NAS 1-14972	3757	NAS 2-9491	1503	NAS 5-11062	2493
NAS 1-15080	3870	NAS 2-9504	1663	NAS 5-11063	2336
NAS 1-15154	2487	NAS 2-9557	3735	NAS 5-11064	2201
NAS 1-15158	1979	NAS 2-9845	1664	NAS 5-11066	1170
NAS 1-15168	1071	NAS 2-9877	3297	NAS 5-11067	2075
NAS 1-15268	2488	NAS 2-9967	1672	NAS 5-11279	2202
NAS 1-15333	2630	NAS 2-9976	1926	NAS 5-11310	2698
NAS 1-15335	2279	NAS 2-10047	3210	NAS 5-11376	2633
NAS 1-15370	1980	NAS 2-10064	3723	NAS 5-11380	2634
NAS 1-15377	4015	NAS 2-10070	3423	NAS 5-11405	1742
NAS 1-15445	3779	NAS 2-10087	3610	NAS 5-11406	3692
NAS 1-15580	1709	NAS 2-10089	1095	NAS 5-11407	3693
				NAS 5-11415	2303

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AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.
NAS 5-11431	2203	NAS 5-23706	3975	NAS 5-24479	1312
NAS 5-11438	2699	NAS 5-23710	1982	NAS 5-24486	2839
NAS 5-11450	2494	NAS 5-23732	2304	NAS 5-24487	3978
NAS 5-20062	2337	NAS 5-23738	3318	NAS 5-24493	2501
NAS 5-20064	1504	NAS 5-23761	2819	NAS 5-25002	2641
NAS 5-20079	1410	NAS 5-23777	2228	NAS 5-25007	1416
NAS 5-20080	1411	NAS 5-23785	2952	NAS 5-25013	3433
NAS 5-20093	2204	NAS 5-23799	1875	NAS 5-25018	3640
NAS 5-20094	2205	NAS 5-23800	3373	NAS 5-25030	2147
NAS 5-20674	2076	NAS 5-23801	3486	NAS 5-25031	2642
NAS 5-20721	1171	NAS 5-23808	1746	NAS 5-25032	3543
NAS 5-20796	3569	NAS 5-23859	3375	NAS 5-25038	2643
NAS 5-20871	1307	NAS 5-23891	2796	NAS 5-25039	1506
NAS 5-20939	2635	NAS 5-24101	3110	NAS 5-25043	1313
NAS 5-20995	1412	NAS 5-24134	2446	NAS 5-25049	1176
NAS 5-21960	1308	NAS 5-24139	2499	NAS 5-25054	1576
NAS 5-21965	3971	NAS 5-24144	3145	NAS 5-25062	2114
NAS 5-21980	2495	NAS 5-24148	1983	NAS 5-25063	3960
NAS 5-22307	1413	NAS 5-24152	2919	NAS 5-25070	1417
NAS 5-22346	3844	NAS 5-24189	1414	NAS 5-25076	3015
NAS 5-22349	3972	NAS 5-24206	3478	NAS 5-25081	1712
NAS 5-22360	2837	NAS 5-24218	3845	NAS 5-25084	2840
NAS 5-22375	1571	NAS 5-24230	3976	NAS 5-25091	2502
NAS 5-22409	1743	NAS 5-24232	1309	NAS 5-25097	1798
NAS 5-22410	3973	NAS 5-24241	2886	NAS 5-25101	3492
NAS 5-22575	3211	NAS 5-24242	1876	NAS 5-25120	2328
NAS 5-22576	3639	NAS 5-24251	1877	NAS 5-25132	2340
NAS 5-22577	3871	NAS 5-24264	3376	NAS 5-25136	3424
NAS 5-22816	2145	NAS 5-24275	2113	NAS 5-25145	2644
NAS 5-22833	1744	NAS 5-24293	2206	NAS 5-25148	3979
NAS 5-22892	3432	NAS 5-24294	2207	NAS 5-25151	2701
NAS 5-22908	1927	NAS 5-24295	2637	NAS 5-25153	2645
NAS 5-22915	2496	NAS 5-24296	2638	NAS 5-25158	2646
NAS 5-22929	2497	NAS 5-24297	3694	NAS 5-25165	1907
NAS 5-22939	1172	NAS 5-24298	3695	NAS 5-25181	2027
NAS 5-22946	3347	NAS 5-24299	3696	NAS 5-25185	1879
NAS 5-22959	1711	NAS 5-24308	1097	NAS 5-25310	3697
NAS 5-22963	1952	NAS 5-24328	2820	NAS 5-25351	3104
NAS 5-22964	1483	NAS 5-24329	3377	NAS 5-25358	2305
NAS 5-22965	1173	NAS 5-24331	2639	NAS 5-25373	3725
NAS 5-22966	3570	NAS 5-24336	2208	NAS 5-25374	1953
NAS 5-22987	2136	NAS 5-24339	1175	NAS 5-25375	3308
NAS 5-23006	2636	NAS 5-24354	2821	NAS 5-25376	2028
NAS 5-23236	2951	NAS 5-24383	3571	NAS 5-25377	3980
NAS 5-23237	2338	NAS 5-24385	3977	NAS 5-25378	2029
NAS 5-23274	1745	NAS 5-24409	1310	NAS 5-25388	2341
NAS 5-23315	1174	NAS 5-24420	1311	NAS 5-25389	2702
NAS 5-23338	3542	NAS 5-24422	1878	NAS 5-25399	3981
NAS 5-23457	2339	NAS 5-24430	2077	NAS 5-25409	2647
NAS 5-23462	3974	NAS 5-24431	1845	NAS 5-25420	2822
NAS 5-23481	1572	NAS 5-24436	1249	NAS 5-25422	2921
NAS 5-23494	2445	NAS 5-24441	2500	NAS 5-25428	3493
NAS 5-23558	2329	NAS 5-24445	1415	NAS 5-25437	2342
NAS 5-23571	2011	NAS 5-24454	2640	NAS 5-25445	2428
NAS 5-23576	2838	NAS 5-24455	3736	NAS 5-25448	1577
NAS 5-23677	2498	NAS 5-24457	2920	NAS 5-25450	1578
NAS 5-23702	1505	NAS 5-24462	2146	NAS 5-25451	1177
NAS 5-23703	2700	NAS 5-24463	1574	NAS 5-25453	1418
NAS 5-23705	1573	NAS 5-24466	1575	NAS 5-25472	2343



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AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.
NAS 5-25483	2832	NAS 6-3018	3119	NAS 8-32111	3265
NAS 5-25484	1098	NAS 8-20247	1928	NAS 8-32148	2347
NAS 5-25486	2344	NAS 8-26146	3027	NAS 8-32162	3336
NAS 5-25487	3982	NAS 8-26749	2733	NAS 8-32212	2924
NAS 5-25505	3983	NAS 8-26758	1666	NAS 8-32215	1019
NAS 5-25530	2209	NAS 8-27972	2505	NAS 8-32220	1015
NAS 5-25533	2330	NAS 8-27974	1579	NAS 8-32230	1072
NAS 5-25543	2503	NAS 8-27975	2506	NAS 8-32263	1315
NAS 5-25544	1314	NAS 8-27976	2779	NAS 8-32313	2810
NAS 5-25634	3846	NAS 8-27977	2704	NAS 8-32332	2651
NAS 5-25642	2823	NAS 8-27978	1178	NAS 8-32353	3337
NAS 5-25656	3641	NAS 8-28097	1040	NAS 8-32354	2780
NAS 5-25657	1507	NAS 8-28660	3472	NAS 8-32355	1316
NAS 5-25667	3378	NAS 8-29271	3494	NAS 8-32357	1073
NAS 5-25696	1713	NAS 8-29313	1179	NAS 8-32386	1058
NAS 5-25700	2331	NAS 8-29316	1041	NAS 8-32425	3028
NAS 5-25702	3379	NAS 8-29584	3495	NAS 8-32485	3048
NAS 5-25714	3984	NAS 8-29603	1421	NAS 8-32486	4017
NAS 5-25715	3572	NAS 8-30537	2507	NAS 8-32527	3576
NAS 5-25717	2504	NAS 8-30563	1042	NAS 8-32569	2652
NAS 5-25733	1099	NAS 8-30619	2016	NAS 8-32577	1422
NAS 5-25751	3118	NAS 8-30752	2508	NAS 8-32584	3720
NAS 5-25753	2703	NAS 8-30753	2923	NAS 8-32605	1317
NAS 5-25756	3642	NAS 8-31145	1580	NAS 8-32609	3338
NAS 5-25760	1714	NAS 8-31150	2756	NAS 8-32611	3499
NAS 5-25764	2345	NAS 8-31170	1043	NAS 8-32614	2841
NAS 5-25807	2229	NAS 8-31171	1044	NAS 8-32633	1020
NAS 5-25817	1984	NAS 8-31192	1100	NAS 8-32634	1021
NAS 5-25839	3872	NAS 8-31233	2264	NAS 8-32635	3500
NAS 5-25844	4022	NAS 8-31293	1045	NAS 8-32636	3737
NAS 5-25846	3573	NAS 8-31294	3264	NAS 8-32639	3029
NAS 5-25851	2346	NAS 8-31350	2509	NAS 8-32661	2653
NAS 5-25862	1799	NAS 8-31373	2734	NAS 8-32689	3699
NAS 5-25876	1419	NAS 8-31374	2447	NAS 8-32690	3030
NAS 5-25887	1747	NAS 8-31377	3309	NAS 8-32691	2448
NAS 5-25888	3212	NAS 8-31441	2809	NAS 8-32692	3501
NAS 5-25892	1420	NAS 8-31459	3643	NAS 8-32694	3319
NAS 5-25916	2648	NAS 8-31470	2802	NAS 8-32695	3520
NAS 6-1667	3544	NAS 8-31550	1162	NAS 8-32807	2210
NAS 6-2388	3873	NAS 8-31552	2510	NAS 8-32810	2735
NAS 6-2456	3263	NAS 8-31564	3490	NAS 8-32817	3339
NAS 6-2498	3726	NAS 8-31572	1018	NAS 8-32818	1048
NAS 6-2519	2922	NAS 8-31673	1715	NAS 8-32828	2078
NAS 6-2627	3727	NAS 8-31718	3496	NAS 8-32831	3700
NAS 6-2695	2148	NAS 8-31729	1046	NAS 8-32834	1016
NAS 6-2706	2306	NAS 8-31773	3575	NAS 8-32835	1922
NAS 6-2726	3380	NAS 8-31775	3698	NAS 8-32838	2754
NAS 6-2794	2649	NAS 8-31849	2757	NAS 8-32844	2429
NAS 6-2818	3381	NAS 8-31895	1047	NAS 8-32852	1318
NAS 6-2820	1829	NAS 8-31907	3146	NAS 8-32893	3049
NAS 6-2826	3382	NAS 8-31948	1101	NAS 8-32897	1986
NAS 6-2855	2417	NAS 8-31951	3847	NAS 8-32898	1954
NAS 6-2884	3574	NAS 8-31958	1748	NAS 8-32901	3965
NAS 6-2885	2887	NAS 8-31984	3120	NAS 8-32903	2309
NAS 6-2888	2307	NAS 8-31987	2650	NAS 8-32904	3066
NAS 6-2964	3772	NAS 8-31990	1985	NAS 8-32905	3644
NAS 6-2970	3298	NAS 8-32031	3497	NAS 8-32906	3645
NAS 6-2993	2308	NAS 8-32034	3498	NAS 8-32912	2736
NAS 6-2996	3925	NAS 8-32067	4016	NAS 8-32920	1017

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AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.
NAS 8-32923	1037	NAS 8-33330	3310	NAS 9-11162	3607
NAS 8-32925	2511	NAS 8-33331	1182	NAS 9-11676	3611
NAS 8-32936	3031	NAS 8-33333	1750	NAS 9-12434	3577
NAS 8-32937	1074	NAS 8-33334	2183	NAS 9-12560	2705
NAS 8-32944	2915	NAS 8-33335	3751	NAS 9-13642	2906
NAS 8-32945	1000	NAS 8-33336	3426	NAS 9-13669	3466
NAS 8-32947	3050	NAS 8-33337	3927	NAS 9-13680	3646
NAS 8-32950	1102	NAS 8-33338	1751	NAS 9-13737	3527
NAS 8-32951	3362	NAS 8-33340	3986	NAS 9-13844	1029
NAS 8-32975	2803	NAS 8-33341	2882	NAS 9-13894	3578
NAS 8-32976	2764	NAS 8-33342	1752	NAS 9-13904	3579
NAS 8-32977	2804	NAS 8-33343	2439	NAS 9-13940	2907
NAS 8-32984	1581	NAS 8-33344	3928	NAS 9-14052	2230
NAS 8-32993	2108	NAS 8-33345	2843	NAS 9-14251	1164
NAS 8-32994	2512	NAS 8-33346	2350	NAS 9-14407	3528
NAS 8-33010	2064	NAS 8-33347	1659	NAS 9-14491	3647
NAS 8-33011	1423	NAS 8-33348	3849	NAS 9-14538	3202
NAS 8-33012	1319	NAS 8-33349	1424	NAS 9-14546	3529
NAS 8-33013	2182	NAS 8-33350	2079	NAS 9-14565	1427
NAS 8-33014	1038	NAS 8-33351	1103	NAS 9-14641	3714
NAS 8-33015	3147	NAS 8-33352	1183	NAS 9-14662	3530
NAS 8-33023	3545	NAS 8-33353	1509	NAS 9-14689	3580
NAS 8-33065	3502	NAS 8-33354	2065	NAS 9-14692	1104
NAS 8-33071	1923	NAS 8-33355	3966	NAS 9-14770	1001
NAS 8-33074	3032	NAS 8-33356	1425	NAS 9-14828	3581
NAS 8-33084	1749	NAS 8-33357	1426	NAS 9-14848	2765
NAS 8-33087	2137	NAS 8-33358	2351	NAS 9-14860	3320
NAS 8-33088	3425	NAS 8-33359	3874	NAS 9-14871	3740
NAS 8-33092	1022	NAS 8-33360	3929	NAS 9-14875	3582
NAS 8-33093	1987	NAS 8-33361	3547	NAS 9-14899	2222
NAS 8-33096	1049	NAS 8-33369	3266	NAS 9-14979	3422
NAS 8-33099	2998	NAS 8-33370	2755	NAS 9-15081	2149
NAS 8-33102	2842	NAS 8-33372	3348	NAS 9-15093	3648
NAS 8-33105	2348	NAS 8-33377	1052	NAS 9-15114	1929
NAS 8-33106	2310	NAS 8-33378	2925	NAS 9-15147	2440
NAS 8-33108	1180	NAS 8-33380	3051	NAS 9-15152	1667
NAS 8-33110	1320	NAS 8-33381	3738	NAS 9-15164	3508
NAS 8-33113	3750	NAS 8-33383	3739	NAS 9-15193	3612
NAS 8-33115	1508	NAS 8-33384	1053	NAS 9-15203	1484
NAS 8-33132	1050	NAS 8-33386	3505	NAS 9-15217	3649
NAS 8-33137	2513	NAS 8-33387	2269	NAS 9-15244	2654
NAS 8-33138	2514	NAS 8-33430	1059	NAS 9-15274	3548
NAS 8-33148	3926	NAS 8-33438	1988	NAS 9-15276	1740
NAS 8-33150	4018	NAS 8-33443	1054	NAS 9-15287	3876
NAS 8-33199	3546	NAS 8-33447	3506	NAS 9-15311	3583
NAS 8-33215	1181	NAS 8-33448	2737	NAS 9-15325	2150
NAS 8-33216	1051	NAS 8-33449	3875	NAS 9-15326	2449
NAS 8-33218	3503	NAS 8-33450	2738	NAS 9-15328	2115
NAS 8-33219	2030	NAS 8-33479	2289	NAS 9-15337	1668
NAS 8-33222	3985	NAS 8-33507	1060	NAS 9-15343	2515
NAS 8-33224	1163	NAS 8-33542	1055	NAS 9-15345	3479
NAS 8-33225	3504	NAS 8-33548	1056	NAS 9-15375	2655
NAS 8-33234	1321	NAS 8-33557	2352	NAS 9-15388	3719
NAS 8-33273	2805	NAS 8-33558	1955	NAS 9-15401	3650
NAS 8-33295	2806	NAS 8-33570	2739	NAS 9-15417	1967
NAS 8-33326	2438	NAS 8-33572	1821	NAS 9-15421	2231
NAS 8-33327	3848	NAS 8-33604	3507	NAS 9-15451	3584
NAS 8-33328	3096	NAS 8-33605	1989	NAS 9-15452	2259
NAS 8-33329	2349	NAS 9-9317	2272	NAS 9-15457	3531

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AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.
NAS 9-15465	3585	NASW 3060	1921	NCA 2-108901	2080
NAS 9-15466	2151	NASW 3103	1753	NCA 2-108902	2081
NAS 9-15468	3586	NASW 3113	1801	NCA 2-130801	3246
NAS 9-15469	1800	NASW 3149	3213	NCA 2-130901	3247
NAS 9-15473	1956	NASW 3152	1874	NCA 2-165901	1716
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NGT 05-003-790	1203	NSG 1177	3800	NSG 1383	3204
NGT 05-017-998	1685	NSG 1185	3248	NSG 1385	3765
NGT 05-020-409	1367	NSG 1190	2544	NSG 1387	3396
NGT 05-020-412	1368	NSG 1203	3764	NSG 1390	3112
NGT 05-020-777	1369	NSG 1205	3128	NSG 1393	3811
NGT 09-011-060	1885	NSG 1216	1861	NSG 1394	3812
NGT 11-008-004	2012	NSG 1224	3512	NSG 1395	3813
NGT 11-013-001	2019	NSG 1235	3522	NSG 1396	3205
NGT 14-007-780	2067	NSG 1243	2664	NSG 1397	2237
NGT 15-005-790	2157	NSG 1248	3018	NSG 1399	3854
NGT 21-002-254	2379	NSG 1249	2744	NSG 1401	1698
NGT 21-025-006	2332	NSG 1250	3888	NSG 1402	2745
NGT 21-027-012	2298	NSG 1251	1862	NSG 1405	1803
NGT 32-004-770	2901	NSG 1253	2849	NSG 1407	3595
NGT 32-010-001	2881	NSG 1254	3889	NSG 1409	1831
NGT 36-008-007	3219	NSG 1255	3890	NSG 1411	3468
NGT 36-008-780	3220	NSG 1262	3891	NSG 1413	2548
NGT 36-024-790	3293	NSG 1266	2060	NSG 1414	1887
NGT 36-025-780	3191	NSG 1271	3801	NSG 1417	3294
NGT 36-027-011	3152	NSG 1279	3802	NSG 1419	2176
NGT 36-027-790	3153	NSG 1281	2236	NSG 1425	1941
NGT 37-003-760	3313	NSG 1283	1960	NSG 1427	3855
NGT 39-087-790	3342	NSG 1289	1863	NSG 1428	3894
NGT 43-014-750	3488	NSG 1294	3784	NSG 1430	1262
NGT 43-014-790	3489	NSG 1295	2611	NSG 1431	2711
NGT 44-005-114	3621	NSG 1296	3111	NSG 1432	1804
NGT 44-005-115	3622	NSG 1297	3467	NSG 1433	1832
NGT 47-003-028	3794	NSG 1304	1830	NSG 1434	2120
NGT 47-003-029	3795	NSG 1306	2665	NSG 1435	3766
NSG 735	1974	NSG 1308	3395	NSG 1436	1961
NSG 736	2731	NSG 1312	2545	NSG 1439	1805
NSG 737	1089	NSG 1313	3729	NSG 1440	3659
NSG 801	2258	NSG 1315	3803	NSG 1442	2316
NSG 803	2017	NSG 1316	3711	NSG 1443	1370
NSG 806	1810	NSG 1320	1886	NSG 1444	3001
NSG 901	1909	NSG 1321	3804	NSG 1445	3192
NSG 1010	3852	NSG 1323	2546	NSG 1446	3660
NSG 1020	3884	NSG 1324	3805	NSG 1448	2668
NSG 1026	1857	NSG 1326	2666	NSG 1449	1864
NSG 1046	2235	NSG 1330	2694	NSG 1450	2932
NSG 1048	2543	NSG 1331	3806	NSG 1452	2768
NSG 1058	3126	NSG 1335	3853	NSG 1453	2549

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AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.
NSG 1454	2746	NSG 1526	3898	NSG 1595	3788
NSG 1455	3519	NSG 1527	3899	NSG 1596	3430
NSG 1458	3856	NSG 1531	3900	NSG 1597	3904
NSG 1459	3814	NSG 1534	3730	NSG 1598	3905
NSG 1460	2290	NSG 1535	2192	NSG 1599	3859
NSG 1463	3132	NSG 1536	1699	NSG 1600	1943
NSG 1464	3815	NSG 1537	2238	NSG 1601	2783
NSG 1466	3816	NSG 1538	2193	NSG 1602	3092
NSG 1467	3300	NSG 1539	2750	NSG 1603	3624
NSG 1468	2380	NSG 1540	2761	NSG 1604	1870
NSG 1469	3004	NSG 1541	2933	NSG 1605	2195
NSG 1470	3895	NSG 1544	3662	NSG 1606	3352
NSG 1471	2121	NSG 1545	3351	NSG 1607	2671
NSG 1473	3817	NSG 1547	2122	NSG 1608	3906
NSG 1474	1865	NSG 1548	3566	NSG 1609	2123
NSG 1475	3623	NSG 1549	3133	NSG 1610	3007
NSG 1477	3818	NSG 1550	2934	NSG 1611	3093
NSG 1478	3785	NSG 1551	2552	NSG 1612	1824
NSG 1479	3661	NSG 1552	3787	NSG 1613	3222
NSG 1480	3819	NSG 1553	2553	NSG 1614	3755
NSG 1481	3314	NSG 1554	2239	NSG 1615	3535
NSG 1482	2669	NSG 1555	1867	NSG 1616	2935
NSG 1483	1204	NSG 1556	1868	NSG 1617	3457
NSG 1485	2910	NSG 1557	1806	NSG 1618	3833
NSG 1486	3249	NSG 1558	2381	NSG 1619	2879
NSG 1487	1966	NSG 1559	3019	NSG 1620	3223
NSG 1488	1633	NSG 1560	3828	NSG 1621	3907
NSG 1489	1760	NSG 1561	3829	NSG 1622	3224
NSG 1490	1528	NSG 1562	3134	NSG 1623	2749
NSG 1491	3820	NSG 1563	3830	NSG 1624	3038
NSG 1493	1993	NSG 1564	3767	NSG 1625	3768
NSG 1494	2670	NSG 1565	3831	NSG 1626	3769
NSG 1495	3464	NSG 1566	2873	NSG 1627	3908
NSG 1496	3350	NSG 1567	3858	NSG 1628	3039
NSG 1498	3221	NSG 1568	3832	NSG 1629	2241
NSG 1499	2213	NSG 1570	2382	NSG 1630	2851
NSG 1500	3821	NSG 1571	3901	NSG 1631	3114
NSG 1501	2261	NSG 1572	2916	NSG 1632	3663
NSG 1502	2550	NSG 1573	3902	NSG 1633	2242
NSG 1503	3822	NSG 1574	2240	NSG 1634	3834
NSG 1504	2551	NSG 1575	2255	NSG 1635	2158
NSG 1505	3786	NSG 1576	3005	NSG 1636	3040
NSG 1506	2799	NSG 1577	2748	NSG 1637	1456
NSG 1507	3823	NSG 1578	1529	NSG 1638	1761
NSG 1508	1866	NSG 1579	3006	NSG 1639	3596
NSG 1509	3857	NSG 1580	3397	NSG 1640	2784
NSG 1510	3037	NSG 1582	2194	NSG 1641	1600
NSG 1511	2747	NSG 1583	2554	NSG 1642	2968
NSG 1513	1834	NSG 1584	3135	NSG 1643	1995
NSG 1514	3754	NSG 1585	1869	NSG 1644	2433
NSG 1515	2753	NSG 1586	1942	NSG 1645	3835
NSG 1516	3113	NSG 1587	2850	NSG 1646	3922
NSG 1517	3824	NSG 1588	3136	NSG 1647	3106
NSG 1518	4019	NSG 1589	3903	NSG 1648	2291
NSG 1519	3825	NSG 1590	1599	NSG 1649	3836
NSG 1520	3896	NSG 1591	2061	NSG 1650	3837
NSG 1521	3826	NSG 1592	1994	NSG 1651	2969
NSG 1522	3827	NSG 1593	3485	NSG 1652	3860
NSG 1524	3897	NSG 1594	1722	NSG 1653	3770



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AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.
NSG 1654	3094	NSG 2205	1126	NSG 2318	2262
NSG 1655	3838	NSG 2207	1459	NSG 2321	1531
NSG 2007	1371	NSG 2209	1291	NSG 2323	1997
NSG 2008	2695	NSG 2210	1266	NSG 2325	2266
NSG 2010	2555	NSG 2213	1292	NSG 2327	2215
NSG 2013	3200	NSG 2215	1378	NSG 2328	2069
NSG 2014	2712	NSG 2217	1028	NSG 2331	2970
NSG 2018	2672	NSG 2220	3778	NSG 2332	1299
NSG 2029	1910	NSG 2222	1649	NSG 2333	2674
NSG 2031	2160	NSG 2225	3861	NSG 2334	2565
NSG 2032	556	NSG 2226	3597	NSG 2335	2566
NSG 2038	3909	NSG 2228	3936	NSG 2337	3625
NSG 2041	2281	NSG 2230	2562	NSG 2338	3665
NSG 2048	1811	NSG 2232	1723	NSG 2339	1300
NSG 2062	2852	NSG 2233	1379	NSG 2341	1258
NSG 2063	1670	NSG 2239	1293	NSG 2342	2567
NSG 2065	3664	NSG 2246	1380	NSG 2343	3098
NSG 2085	1372	NSG 2248	1762	NSG 2344	1461
NSG 2088	2903	NSG 2249	1381	NSG 2345	3666
NSG 2091	2196	NSG 2251	1382	NSG 2346	1391
NSG 2092	1373	NSG 2254	1383	NSG 2347	2971
NSG 2100	1374	NSG 2256	1491	NSG 2348	2911
NSG 2104	3995	NSG 2257	2197	NSG 2349	1127
NSG 2112	1125	NSG 2258	1384	NSG 2350	3731
NSG 2113	2673	NSG 2259	2996	NSG 2351	1700
NSG 2117	3441	NSG 2260	3937	NSG 2353	1301
NSG 2118	2557	NSG 2263	2563	NSG 2354	3567
NSG 2119	2124	NSG 2265	2461	NSG 2355	1302
NSG 2120	1944	NSG 2266	2564	NSG 2356	1998
NSG 2121	1375	NSG 2269	1294	NSG 2357	3353
NSG 2122	3374	NSG 2271	1460	NSG 2358	1650
NSG 2127	1457	NSG 2274	1295	NSG 2359	1392
NSG 2130	1289	NSG 2275	1686	NSG 2360	2972
NSG 2137	3608	NSG 2281	1267	NSG 2361	3021
NSG 2139	2287	NSG 2282	3307	NSG 2362	3938
NSG 2140	2808	NSG 2283	1205	NSG 2363	1999
NSG 2142	2558	NSG 2284	1079	NSG 2364	2398
NSG 2143	1969	NSG 2285	1385	NSG 2365	3939
NSG 2147	3020	NSG 2286	1687	NSG 2366	2855
NSG 2149	2068	NSG 2287	1724	NSG 2367	2058
NSG 2151	1458	NSG 2288	1945	NSG 2368	3022
NSG 2156	2610	NSG 2289	1386	NSG 2370	1393
NSG 2162	3225	NSG 2290	1530	NSG 2371	1303
NSG 2172	2559	NSG 2291	2811	NSG 2372	1394
NSG 2175	3226	NSG 2292	1387	NSG 2373	3267
NSG 2176	3935	NSG 2294	1388	NSG 2374	3268
NSG 2179	3227	NSG 2297	1389	NSG 2375	2769
NSG 2180	2560	NSG 2298	3229	NSG 2376	1601
NSG 2183	1911	NSG 2299	2854	NSG 2377	1651
NSG 2185	1825	NSG 2300	2214	NSG 2378	2383
NSG 2186	1290	NSG 2301	3910	NSG 2379	3513
NSG 2190	1376	NSG 2303	2317	NSG 2380	3047
NSG 2192	2159	NSG 2304	1671	NSG 2381	1128
NSG 2193	2762	NSG 2305	1296	NSG 2382	2973
NSG 2194	2853	NSG 2306	1996	NSG 2383	1492
NSG 2196	2561	NSG 2307	1297	NSG 2384	3154
NSG 2198	3097	NSG 2308	1390	NSG 2385	3940
NSG 2199	1246	NSG 2311	1912	NSG 2386	3053
NSG 2203	1377	NSG 2315	1298	NSG 2387	3316

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AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.
NSG 2388	2177	NSG 3086	1727	NSG 3165	2677
NSG 2389	2974	NSG 3089	3667	NSG 3166	3402
NSG 2390	3138	NSG 3090	3354	NSG 3167	1730
NSG 2391	1235	NSG 3091	3253	NSG 3168	3444
NSG 2392	1395	NSG 3092	2893	NSG 3169	1827
NSG 2393	1396	NSG 3094	2714	NSG 3170	3041
NSG 2395	2812	NSG 3095	3054	NSG 3171	3277
NSG 2396	3301	NSG 3098	2126	NSG 3172	3343
NSG 2397	2813	NSG 3099	3273	NSG 3173	3514
NSG 2398	1304	NSG 3103	1605	NSG 3174	2912
NSG 2399	2975	NSG 3105	2163	NSG 3175	2575
NSG 2400	1397	NSG 3106	2002	NSG 3176	2856
NSG 2401	2160	NSG 3107	1826	NSG 3177	3862
NSG 2403	2568	NSG 3108	3023	NSG 3178	2857
NSG 2404	2161	NSG 3113	2770	NSG 3179	3370
NSG 2405	3996	NSG 3114	2263	NSG 3180	2880
NSG 2406	1493	NSG 3115	3160	NSG 3181	1763
NSG 2407	3442	NSG 3116	1533	NSG 3182	2180
NSG 2408	2976	NSG 3117	2216	NSG 3183	2143
NSG 3009	3155	NSG 3118	3458	NSG 3184	1835
NSG 3011	1725	NSG 3119	2164	NSG 3185	2166
NSG 3012	3399	NSG 3121	3274	NSG 3186	2256
NSG 3016	3400	NSG 3122	1708	NSG 3187	2576
NSG 3017	2569	NSG 3123	3102	NSG 3188	3255
NSG 3018	1946	NSG 3124	1398	NSG 3189	1836
NSG 3019	2977	NSG 3126	3161	NSG 3190	3668
NSG 3022	3250	NSG 3127	1728	NSG 3191	2917
NSG 3024	3251	NSG 3128	3355	NSG 3192	2678
NSG 3028	1462	NSG 3129	2574	NSG 3193	3371
NSG 3030	2059	NSG 3130	1871	NSG 3194	3942
NSG 3032	3401	NSG 3131	3162	NSG 3195	2181
NSG 3034	1602	NSG 3133	2179	NSG 3196	1731
NSG 3036	2000	NSG 3135	2165	NSG 3197	3166
NSG 3039	2070	NSG 3136	3340	NSG 3198	3669
NSG 3040	3156	NSG 3137	2622	NSG 3199	2771
NSG 3041	2713	NSG 3138	3055	NSG 3200	2267
NSG 3043	2125	NSG 3139	3275	NSG 3201	3598
NSG 3044	2570	NSG 3140	3163	NSG 3202	3344
NSG 3046	2571	NSG 3142	3164	NSG 3203	3167
NSG 3047	1603	NSG 3143	2071	NSG 3204	3912
NSG 3048	2178	NSG 3145	1729	NSG 3206	3168
NSG 3050	2936	NSG 3146	3712	NSG 3207	3169
NSG 3051	3077	NSG 3147	3254	NSG 3208	2577
NSG 3052	2001	NSG 3148	2675	NSG 3209	2288
NSG 3055	1604	NSG 3149	2072	NSG 3210	2578
NSG 3059	3008	NSG 3150	1606	NSG 3211	3170
NSG 3060	1726	NSG 3151	3165	NSG 3212	2403
NSG 3062	3157	NSG 3152	3941	NSG 3213	2167
NSG 3065	1250	NSG 3153	1534	NSG 3214	3445
NSG 3066	3252	NSG 3154	1033	NSG 3215	2628
NSG 3071	2162	NSG 3155	3193	NSG 3217	4020
NSG 3073	3911	NSG 3156	3276	NSG 3218	3256
NSG 3074	3158	NSG 3157	3107	NSG 3219	1607
NSG 3075	1080	NSG 3159	3201	NSG 3220	2062
NSG 3076	2572	NSG 3160	3108	NSG 3221	3171
NSG 3079	2573	NSG 3161	2676	NSG 3222	3194
NSG 3082	1532	NSG 3162	3369	NSG 3223	3195
NSG 3084	3272	NSG 3163	3443	NSG 3224	3515
NSG 3085	3159	NSG 3164	3230	NSG 3225	3469

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AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.
NSG 3227	1463	NSG 3290	2243	NSG 5087	3706
NSG 3228	2003	NSG 3291	3185	NSG 5088	2715
NSG 3230	3172	NSG 3292	2858	NSG 5090	2318
NSG 3231	2772	NSG 3293	2127	NSG 5092	1494
NSG 3233	1026	NSG 3294	2144	NSG 5093	1464
NSG 3234	2579	NSG 3295	1034	NSG 5094	2386
NSG 3235	3231	NSG 3296	1608	NSG 5100	3997
NSG 3236	1535	NSG 3297	2005	NSG 5102	3079
NSG 3237	2168	NSG 3298	3078	NSG 5103	1764
NSG 3238	1816	NSG 3299	2626	NSG 5106	165
NSG 3239	3913	NSG 3301	3407	NSG 5108	03
NSG 3240	3295	NSG 3302	3234	NSG 5109	1872
NSG 3241	3173	NSG 3303	2582	NSG 5111	1841
NSG 3242	3863	NSG 3304	3408	NSG 5113	2584
NSG 3243	1701	NSG 3305	2217	NSG 5120	3117
NSG 3245	2580	NSG 3306	3409	NSG 5122	1902
NSG 3246	3174	NSG 3307	2006	NSG 5123	2387
NSG 3247	3232	NSG 3308	3198	NSG 5125	3080
NSG 3248	1702	NSG 4001	1536	NSG 5127	1889
NSG 3249	1161	NSG 4002	1399	NSG 5128	2462
NSG 3250	3278	NSG 4003	2171	NSG 5129	2388
NSG 3251	3175	NSG 4008	2244	NSG 5130	3010
NSG 3252	3176	NSG 4013	3325	NSG 5131	1400
NSG 3253	2814	NSG 4014	1236	NSG 5133	3011
NSG 3254	1947	NSG 4015	1537	NSG 5134	3599
NSG 3255	3638	NSG 4017	2245	NSG 5135	1807
NSG 3256	1652	NSG 4018	3302	NSG 5137	2389
NSG 3257	3196	NSG 4019	2246	NSG 5141	3235
NSG 3258	2169	NSG 4020	1237	NSG 5142	3944
NSG 3259	3197	NSG 4021	2247	NSG 5143	2463
NSG 3260	2004	NSG 4022	1238	NSG 5144	1838
NSG 3261	3943	NSG 4023	2248	NSG 5145	2816
NSG 3262	3042	NSG 4024	1538	NSG 5151	2774
NSG 3263	3257	NSG 4025	3137	NSG 5152	3998
NSG 3264	3404	NSG 4026	2249	NSG 5153	1765
NSG 3265	3405	NSG 5009	2299	NSG 5154	3670
NSG 3266	3406	NSG 5012	2007	NSG 5155	1654
NSG 3267	3258	NSG 5013	2913	NSG 5156	3600
NSG 3268	3177	NSG 5014	2815	NSG 5157	2585
NSG 3269	3233	NSG 5017	2384	NSG 5158	1890
NSG 3270	1837	NSG 5023	1129	NSG 5159	2040
NSG 3271	3178	NSG 5034	3009	NSG 5160	2464
NSG 3272	3179	NSG 5042	2385	NSG 5162	3356
NSG 3273	1943	NSG 5049	2128	NSG 5163	2939
NSG 3274	3914	NSG 5051	2301	NSG 5165	1540
NSG 3275	3915	NSG 5053	3839	NSG 5166	2586
NSG 3276	3180	NSG 5056	1539	NSG 5167	3671
NSG 3277	2257	NSG 5060	2978	NSG 5168	2940
NSG 3278	3206	NSG 5066	1840	NSG 5169	1541
NSG 3279	3181	NSG 5071	1888	NSG 5170	1655
NSG 3280	2874	NSG 5072	2937	NSG 5171	2679
NSG 3281	3279	NSG 5073	1732	NSG 5172	2390
NSG 3282	3182	NSG 5074	2333	NSG 5173	1842
NSG 3283	3244	NSG 5075	1817	NSG 5174	2391
NSG 3285	2170	NSG 5076	2583	NSG 5176	2465
NSG 3286	2581	NSG 5077	3091	NSG 5177	2392
NSG 3287	3516	NSG 5080	2938	NSG 5178	1766
NSG 3288	3183	NSG 5082	2008	NSG 5180	3999
NSG 3289	3184	NSG 5085	3705	NSG 5181	4000

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AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.
NSG 5183	3280	NSG 5253	2587	NSG 5316	2828
NSG 5184	2319	NSG 5254	1401	NSG 5317	2043
NSG 5185	3410	NSG 5255	2321	NSG 5318	1771
NSG 5186	1891	NSG 5256	1466	NSG 5319	2132
NSG 5187	2785	NSG 5257	3315	NSG 5320	2398
NSG 5189	2680	NSG 5258	1733	NSG 5321	1609
NSG 5190	1542	NSG 5259	1734	NSG 5322	1610
NSG 5191	2466	NSG 5260	2588	NSG 5323	2399
NSG 5192	1903	NSG 5262	1656	NSG 5324	1251
NSG 5193	3601	NSG 5263	1543	NSG 5325	2997
NSG 5195	2875	NSG 5265	3237	NSG 5326	2044
NSG 5197	1206	NSG 5266	3602	NSG 5327	1214
NSG 5198	3752	NSG 5267	1211	NSG 5328	3674
NSG 5199	2198	NSG 5268	1892	NSG 5329	3099
NSG 5200	2941	NSG 5269	2322	NSG 5330	1252
NSG 5202	2097	NSG 5270	3446	NSG 5331	1611
NSG 5203	2041	NSG 5271	3082	NSG 5332	2800
NSG 5205	3411	NSG 5272	1544	NSG 5333	1253
NSG 5206	2681	NSG 5273	2943	NSG 5334	2914
NSG 5207	3281	NSG 5274	3056	NSG 5335	2250
NSG 5208	1207	NSG 5275	3238	NSG 5336	1894
NSG 5209	2393	NSG 5276	3413	NSG 5337	3675
NSG 5211	1767	NSG 5277	2860	NSG 5338	2763
NSG 5212	3412	NSG 5278	2130	NSG 5339	2199
NSG 5213	2129	NSG 5279	1132	NSG 5340	1735
NSG 5215	3741	NSG 5280	3707	NSG 5341	1736
NSG 5216	3742	NSG 5281	2683	NSG 5342	1962
NSG 5218	2621	NSG 5282	2684	NSG 5343	3327
NSG 5219	1064	NSG 5283	3946	NSG 5344	1963
NSG 5220	2009	NSG 5284	3024	NSG 5346	1818
NSG 5221	3916	NSG 5285	2696	NSG 5347	3414
NSG 5222	2942	NSG 5286	3556	NSG 5348	2817
NSG 5223	4001	NSG 5287	2395	NSG 5349	3470
NSG 5224	1208	NSG 5288	1873	NSG 5350	3471
NSG 5226	2467	NSG 5289	3840	NSG 5351	1545
NSG 5227	1465	NSG 5290	1905	NSG 5352	1737
NSG 5228	2468	NSG 5291	2098	NSG 5353	3328
NSG 5229	2469	NSG 5292	1467	NSG 5354	3100
NSG 5230	2320	NSG 5293	2471	NSG 5355	1772
NSG 5231	2042	NSG 5294	2131	NSG 5356	1704
NSG 5232	2682	NSG 5295	1893	NSG 5357	1738
NSG 5233	3672	NSG 5296	3431	NSG 5358	1546
NSG 5234	2394	NSG 5297	3482	NSG 5359	3282
NSG 5235	1130	NSG 5298	2396	NSG 5360	1468
NSG 5237	2716	NSG 5299	3239	NSG 5361	1661
NSG 5238	2270	NSG 5300	1769	NSG 5362	3447
NSG 5239	2470	NSG 5301	1212	NSG 5363	4006
NSG 5240	3945	NSG 5302	1133	NSG 5364	3557
NSG 5241	4002	NSG 5303	1770	NSG 5365	1773
NSG 5242	4003	NSG 5305	3774	NSG 5366	2685
NSG 5243	1209	NSG 5306	2589	NSG 5367	1808
NSG 5244	1210	NSG 5307	1913	NSG 5368	3240
NSG 5246	1768	NSG 5308	3326	NSG 5369	1215
NSG 5247	3236	NSG 5309	3673	NSG 5370	2473
NSG 5248	2859	NSG 5310	2323	NSG 5371	3775
NSG 5249	1131	NSG 5311	2099	NSG 5372	1774
NSG 5250	3081	NSG 5312	2472	NSG 5373	2717
NSG 5251	4004	NSG 5313	2397	NSG 5374	3947
NSG 5252	4005	NSG 5314	1213	NSG 5375	3452

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AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.
NSG 5376	2620	NSG 6028	1067	NSG 7146	1141
NSG 5377	1547	NSG 6029	3917	NSG 7147	3449
NSG 5378	1895	NSG 6030	3918	NSG 7151	1639
NSG 5379	3676	NSG 6031	3919	NSG 7152	1470
NSG 5380	2474	NSG 6033	2423	NSG 7154	2623
NSG 5381	1216	NSG 6034	2424	NSG 7156	2981
NSG 5382	2861	NSG 6035	3359	NSG 7157	3560
NSG 5383	3963	NSG 7003	3083	NSG 7158	1549
NSG 5384	1217	NSG 7005	2722	NSG 7159	3678
NSG 5385	1218	NSG 7010	2590	NSG 7161	1615
NSG 5386	3372	NSG 7011	1134	NSG 7162	3679
NSG 5387	3677	NSG 7016	2786	NSG 7164	1550
NSG 5388	3283	NSG 7020	1135	NSG 7165	1777
NSG 5389	2434	NSG 7022	3139	NSG 7167	2173
NSG 5390	2400	NSG 7024	1136	NSG 7168	1142
NSG 5391	2801	NSG 7027	1612	NSG 7172	4030
NSG 5392	3186	NSG 7032	3558	NSG 7173	3952
NSG 5393	2324	NSG 7034	3709	NSG 7174	3953
NSG 5394	1795	NSG 7035	3187	NSG 7176	2476
NSG 5395	3948	NSG 7037	3603	NSG 7178	3329
NSG 5396	3481	NSG 7038	3744	NSG 7179	2045
NSG 5397	2718	NSG 7040	1081	NSG 7180	1551
NSG 5398	3949	NSG 7041	3284	NSG 7184	3044
NSG 5399	2401	NSG 7043	3559	NSG 7186	2593
NSG 5400	2775	NSG 7044	2133	NSG 7189	3604
NSG 5401	2334	NSG 7045	1137	NSG 7193	3417
NSG 5402	2100	NSG 7046	2404	NSG 7194	2945
NSG 5403	3776	NSG 7050	4007	NSG 7196	2405
NSG 5404	2402	NSG 7052	1548	NSG 7200	2946
NSG 5405	2101	NSG 7055	2325	NSG 7202	1220
NSG 5406	3115	NSG 7065	3043	NSG 7204	1403
NSG 5407	2435	NSG 7069	2010	NSG 7205	1471
NSG 5408	2403	NSG 7070	1138	NSG 7206	3745
NSG 5410	3950	NSG 7071	3063	NSG 7208	1498
NSG 5411	3012	NSG 7076	3474	NSG 7209	2686
NSG 5414	2172	NSG 7077	2591	NSG 7210	3746
NSG 5415	2862	NSG 7080	2863	NSG 7212	2102
NSG 5416	2300	NSG 7081	2592	NSG 7214	3964
NSG 5418	3721	NSG 7085	3951	NSG 7215	4008
NSG 6004	3415	NSG 7087	2787	NSG 7220	1472
NSG 6005	2719	NSG 7092	1402	NSG 7221	2724
NSG 6006	2419	NSG 7093	3057	NSG 7222	3058
NSG 6007	3357	NSG 7095	2475	NSG 7223	4026
NSG 6008	3626	NSG 7096	3475	NSG 7226	3732
NSG 6009	2720	NSG 7101	1139	NSG 7228	3627
NSG 6011	3448	NSG 7102	1613	NSG 7229	1247
NSG 6014	1065	NSG 7105	2944	NSG 7231	1778
NSG 6016	2420	NSG 7106	1166	NSG 7232	3680
NSG 6017	2421	NSG 7108	2723	NSG 7235	2982
NSG 6018	3303	NSG 7114	1140	NSG 7236	1950
NSG 6019	3358	NSG 7120	3416	NSG 7237	2725
NSG 6020	2979	NSG 7121	1614	NSG 7239	1552
NSG 6021	2721	NSG 7126	2980	NSG 7241	3059
NSG 6022	2829	NSG 7127	1469	NSG 7246	1143
NSG 6023	3708	NSG 7128	1775	NSG 7247	2111
NSG 6024	1066	NSG 7129	1219	NSG 7248	2947
NSG 6025	2422	NSG 7130	1776	NSG 7249	1144
NSG 6026	3269	NSG 7138	3285	NSG 7252	2406
NSG 6027	3743	NSG 7143	1949	NSG 7253	2407

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AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.
NSG 7254	2436	NSG 7334	2788	NSG 7406	1618
NSG 7255	1082	NSG 7335	1556	NSG 7407	1558
NSG 7256	2864	NSG 7336	1475	NSG 7408	3686
NSG 7262	1473	NSG 7337	1918	NSG 7409	4024
NSG 7263	1248	NSG 7338	2598	NSG 7410	3629
NSG 7266	3864	NSG 7339	2599	NSG 7411	2830
NSG 7267	1970	NSG 7340	2410	NSG 7412	2218
NSG 7268	2983	NSG 7341	1557	NSG 7413	3517
NSG 7270	3084	NSG 7342	1223	NSG 7414	3465
NSG 7271	1809	NSG 7343	3523	NSG 7415	1083
NSG 7272	4023	NSG 7344	1782	NSG 7416	3771
NSG 7275	1221	NSG 7345	3045	NSG 7417	3606
NSG 7277	1474	NSG 7346	2891	NSG 7418	3716
NSG 7278	2174	NSG 7347	3682	NSG 7419	1149
NSG 7280	2865	NSG 7348	2985	NSG 7420	2276
NSG 7282	1553	NSG 7349	4021	NSG 7422	1843
NSG 7283	2866	NSG 7350	3418	NSG 7423	2050
NSG 7284	2408	NSG 7351	2251	NSG 7424	3287
NSG 7286	3085	NSG 7352	3243	NSG 7425	3733
NSG 7287	1779	NSG 7355	3868	NSG 7427	2412
NSG 7289	3747	NSG 7356	2104	NSG 7428	2601
NSG 7290	1828	NSG 7357	2275	NSG 7429	1084
NSG 7291	1780	NSG 7358	1146	NSG 7430	1783
NSG 7292	2818	NSG 7360	3333	NSG 7431	3288
NSG 7293	2627	NSG 7361	3561	NSG 7432	2602
NSG 7294	1616	NSG 7362	3562	NSG 7433	2025
NSG 7295	1554	NSG 7363	3683	NSG 7434	2948
NSG 7296	2726	NSG 7364	3865	NSG 7435	3609
NSG 7297	2594	NSG 7365	2411	NSG 7436	1150
NSG 7299	1951	NSG 7367	1705	NSG 7438	2603
NSG 7300	3628	NSG 7368	1147	NSG 7440	3630
NSG 7301	3286	NSG 7369	3046	NSG 7441	2268
NSG 7302	2867	NSG 7370	3605	NSG 7442	1226
NSG 7303	2103	NSG 7371	3684	NSG 7443	2051
NSG 7304	2477	NSG 7372	2789	NSG 7444	3270
NSG 7308	2687	NSG 7373	4033	NSG 7445	2986
NSG 7309	1964	NSG 7374	1148	NSG 7447	1068
NSG 7310	2046	NSG 7375	1499	NSG 7448	3956
NSG 7312	2047	NSG 7376	1224	NSG 7449	2327
NSG 7313	3954	NSG 7377	1617	NSG 7450	1819
NSG 7314	1242	NSG 7378	1896	NSG 7452	2689
NSG 7315	1555	NSG 7379	2868	NSG 7453	3753
NSG 7316	1222	NSG 7381	3685	NSG 7454	3103
NSG 7317	4032	NSG 7382	2326	NSG 7455	1477
NSG 7318	3955	NSG 7385	2426	NSG 7456	1254
NSG 7319	1781	NSG 7386	3563	NSG 7457	3317
NSG 7320	3086	NSG 7387	1225	NSG 7458	1227
NSG 7321	3025	NSG 7388	3748	NSG 7459	1784
NSG 7322	2409	NSG 7389	2139	NSG 7460	1785
NSG 7323	2048	NSG 7392	2624	NSG 7461	2480
NSG 7324	2984	NSG 7394	2073	NSG 7462	2052
NSG 7326	3681	NSG 7395	1404	NSG 7463	3524
NSG 7327	2876	NSG 7396	2600	NSG 7464	2105
NSG 7328	2595	NSG 7397	2616	NSG 7465	3419
NSG 7329	2596	NSG 7398	2479	NSG 7466	2949
NSG 7330	1688	NSG 7401	1476	NSG 7467	2604
NSG 7331	2597	NSG 7403	2049	NSG 7468	2427
NSG 7332	2478	NSG 7404	2688	NSG 7469	2413
NSG 7333	1145	NSG 7405	2617	NSG 7470	2425

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AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.	AGREEMENT NUMBER	ACC NO.
NSG 7471	2219	NSG 7542	2274	NSG 7607	1159
NSG 7472	1500	NSG 7543	3525	NSG 7608	2692
NSG 7473	1919	NSG 7544	1153	NSG 7609	3632
NSG 7474	1619	NSG 7545	2790	NSG 7610	1231
NSG 7475	3289	NSG 7546	2991	NSG 7611	3957
NSG 7476	1405	NSG 7547	2992	NSG 7612	2995
NSG 7477	1786	NSG 7548	1085	NSG 7613	2226
NSG 7478	2224	NSG 7550	2107	NSG 7614	1243
NSG 7479	3241	NSG 7551	3631	NSG 7616	1565
NSG 7480	3687	NSG 7552	1407	NSG 7617	3633
NSG 7481	2831	NSG 7553	3087	NSG 7618	2872
NSG 7482	2414	NSG 7555	2416	NSG 7619	1409
NSG 7484	1559	NSG 7556	2606	NSG 7620	3290
NSG 7485	1151	NSG 7557	3689	NSG 7621	1566
NSG 7487	2987	NSG 7558	1154	NSG 7622	2892
NSG 7488	2988	NSG 7559	1789	NSG 7623	1621
NSG 7489	1560	NSG 7561	1408	NSG 7624	1897
NSG 7490	3564	NSG 7562	3101	NSG 7625	1069
NSG 7491	3360	NSG 7563	2776	NSG 7626	1791
NSG 7492	2690	NSG 7565	1230	NSG 7628	2278
NSG 7493	1495	NSG 7566	1261	NSG 7629	1920
NSG 7494	3361	NSG 7567	3749	NSG 7630	1086
NSG 7495	1228	NSG 7568	2869	NSG 7631	3450
NSG 7496	2415	NSG 7569	3459	NSG 7632	2220
NSG 7497	2481	NSG 7570	3460	NSG 7633	2056
NSG 7498	2989	NSG 7571	2618	NSG 7634	1160
NSG 7501	3060	NSG 7572	3866	NSG 7635	1481
NSG 7502	1152	NSG 7573	1155	NSG 7636	3014
NSG 7503	1662	NSG 7574	1156	NSG 7637	1792
NSG 7504	3476	NSG 7575	2727	NSG 7638	2608
NSG 7505	3688	NSG 7576	1157	NSG 7639	3335
NSG 7506	2134	NSG 7577	1158	NSG 7640	3304
NSG 7507	1787	NSG 7578	2791	NSG 7642	1087
NSG 7508	1229	NSG 7579	2902	NSG 7652	2013
NSG 7510	1965	NSG 7580	2225	NSG 8019	1968
NSG 7511	1788	NSG 7581	1561	NSG 8025	2282
NSG 7512	1268	NSG 7582	1562	NSG 8026	2732
NSG 7513	2482	NSG 7583	1563	NSG 8027	2015
NSG 7515	3420	NSG 7584	1790	NSG 8033	1003
NSG 7516	3734	NSG 7585	3345	NSG 8035	3483
NSG 7517	4029	NSG 7586	1657	NSG 8036	2730
NSG 7520	2140	NSG 7587	2691	NSG 8037	1004
NSG 7521	4009	NSG 7588	2437	NSG 8038	1035
NSG 7522	1478	NSG 7589	3461	NSG 8040	3061
NSG 7523	4031	NSG 7590	2054	NSG 8041	1005
NSG 7525	1259	NSG 7591	3013	NSG 8042	1006
NSG 7526	2605	NSG 7592	1480	NSG 8043	2014
NSG 7527	1479	NSG 7593	2993	NSG 8045	3116
NSG 7529	2990	NSG 7594	1564	NSG 8047	1027
NSG 7531	3334	NSG 7595	1707	NSG 8048	2018
NSG 7532	2106	NSG 7597	2055	NSG 8050	2294
NSG 7534	2277	NSG 7598	2135	NSG 8051	1007
NSG 7535	1706	NSG 7599	3710	NSG 8053	2283
NSG 7536	2053	NSG 7600	2870	NSG 8054	1036
NSG 7537	2483	NSG 7601	2877	NSG 8055	2773
NSG 7538	1406	NSG 7602	2871	NSG 8056	2284
NSG 7539	2026	NSG 7604	2607	NSG 8057	1008
NSG 7540	3109	NSG 7605	3462	NSG 8060	3484
NSG 7541	1620	NSG 7606	2994	NSG 8061	2795

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AGREEMENT NUMBER	ACC NO.
NSG 8062 .....	1009
NSG 8064 .....	1010
NSG 8065 .....	1011
NSG 8066 .....	1012
NSG 8067 .....	1013
NSG 8068 .....	1014
NSG 9006 .....	3541
NSG 9010 .....	1898
NSG 9013 .....	3088
NSG 9019 .....	1232
NSG 9020 .....	1658
NSG 9021 .....	3690
NSG 9026 .....	3717
NSG 9030 .....	2285
NSG 9032 .....	3958
NSG 9033 .....	3539
NSG 9036 .....	1793
NSG 9038 .....	3537
NSG 9039 .....	3565
NSG 9042 .....	3634
NSG 9043 .....	3637
NSG 9044 .....	3089
NSG 9045 .....	1739
NSG 9047 .....	2693
NSG 9048 .....	1622
NSG 9049 .....	2718
NSG 9050 .....	2728
NSG 9051 .....	1812
NSG 9052 .....	3959
NSG 9054 .....	2484
NSG 9055 .....	2792
NSG 9056 .....	3451
NSG 9059 .....	2918
NSG 9060 .....	2221
NSG 9062 .....	3713
NSG 9063 .....	3867
NSG 9065 .....	2878
NSG 9068 .....	1088
NSG 9069 .....	2619
NSG 9070 .....	3540
NSG 9071 .....	2057
NSG 9072 .....	2141
NSG 9073 .....	2793
NSG 9075 .....	1623
NSG 9076 .....	3538
NSG 9077 .....	2142
W-14168 .....	3291



**NASA'S UNIVERSITY PROGRAM  
APPENDIX B  
CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING**

The Fields used here are specified by Amendment J, "Standard Classification of Fields of Science and Engineering," to Office of Management and Budget (OMB) Circular A-46, "Standards for Statistical Surveys." Field codes are interpreted as follows:

<p><i>PHYSICAL SCIENCES</i></p> <p>11 ASTRONOMY 12 CHEMISTRY 13 PHYSICS 19 PHYSICAL SCIENCES, NEC*</p>	<p><i>ENVIRONMENTAL SCIENCES</i> (Terrestrial and extraterrestrial)</p> <p>31 ATMOSPHERIC SCIENCES 32 GEOLOGICAL SCIENCES 33 OCEANOGRAPHY 39 ENVIRONMENTAL SCIENCES, NEC*</p>	<p><i>LIFE SCIENCES</i></p> <p>51 BIOLOGICAL SCIENCES 52 CLINICAL MEDICAL 53 OTHER MEDICAL 54 ENVIRONMENTAL BIOLOGY 55 AGRICULTURAL SCIENCES 56 MEDICAL SCIENCES 59 LIFE SCIENCES, NEC*</p>	<p><i>SOCIAL SCIENCES</i></p> <p>71 ANTHROPOLOGY 72 ECONOMICS 73 HISTORY 74 LINGUISTICS 75 POLITICAL SCIENCE 76 SOCIOLOGY 79 SOCIAL SCIENCE, NEC*</p>
<p><i>MATHEMATICAL/COMP SCI</i></p> <p>21 MATHEMATICS 22 COMPUTER SCIENCES 29 MATHEMATICAL COMPUTER SCIENCES, NEC*</p>	<p><i>ENGINEERING</i></p> <p>41 AERONAUTICAL 42 ASTRONAUTICAL 43 CHEMICAL 44 CIVIL 45 ELECTRICAL 46 MECHANICAL 47 METALLURGY AND MATERIALS 49 ENGINEERING, NEC*</p>	<p><i>PSYCHOLOGY</i></p> <p>61 BIOLOGICAL 62 SOCIAL ASPECTS 69 PSYCHOLOGY, NEC*</p>	<p><i>OTHER SCIENCES**</i></p> <p>99 ALL DISCIPLINE(S)</p>

\*Not Elsewhere Classified (For interdisciplinary projects and others not listed by discipline name)  
\*\*For interdisciplinary projects which cannot be classified within any of the preceding main fields

Abbreviations used in the "Technical Officer Locations" column are discussed in the prefatory pages.

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	BELOIT COLLEGE	O'Dell, C. R.	MSFC	Schroeder, D. J.	NAS 8-32901	3965
11	BELOIT COLLEGE	Jones, J. B., Jr.	MSFC	Winkler, P. F., Jr.	NAS 8-33355	3966
11	BOSTON UNIVERSITY	Bogges, A.	GSFC	Kamp, L. W.	NAS 5-25445	2428
11	BOSTON UNIVERSITY	Leckronz, D. S.	GSFC	Kamp, L. W.	NSG 5389	2434
11	BOSTON UNIVERSITY	Corrigan, J. P.	GSFC	Hughes, W. J.	NSG 5407	2435
11	BOWIE STATE COLLEGE	Kniffen, D. A.	GSFC	Walker, R. P.	NGR 21-027-001	2295
11	BOWLING GRN STATE U	Roman, N. G.	HQ-SC	Ptak, R. L.	NSG 7022	3139
11	BRANDEIS UNIVERSITY	Jones, J. B., Jr.	MSFC	Willis, A. G.	NAS 8-33326	2438
11	BRANDEIS UNIVERSITY	Jones, J. B., Jr.	MSFC	Ghigo, F. D.	NAS 8-33343	2439
11	CALIF INST OF TECH	Hall, C. F.	ARC	Ingersoll, A. P.	NAS 2-6556	1169
11	CALIF INST OF TECH	Haughney, L. C.	ARC	Werner, M. W.	NGR 05-002-281	1199
11	CALIF INST OF TECH	Neupert, W. M.	GSFC	Zirin, H.	NAS 5-22939	1172
11	CALIF INST OF TECH	Wende, C. D.	GSFC	Garmire, G. P.	NAS 5-23315	1174
11	CALIF INST OF TECH	White, R. A.	GSFC	Westphal, J.	NAS 5-25451	1177
11	CALIF INST OF TECH	Bissell, E. E.	GSFC	Garmire, G. P.	NGR 05-002-284	1200
11	CALIF INST OF TECH	Kupperian, J. E., Jr.	GSFC	Garmire, G. P.	NSG 5197	1206
11	CALIF INST OF TECH	Kupperian, J. E., Jr.	GSFC	Neugebauer, G.	NSG 5208	1207
11	CALIF INST OF TECH	Bogges, A.	GSFC	Greenstein, J. L.	NSG 5243	1209
11	CALIF INST OF TECH	Bogges, A.	GSFC	Schmidt, M.	NSG 5244	1210
11	CALIF INST OF TECH	Bogges, A.	GSFC	Sargent, W. L.	NSG 5369	1215
11	CALIF INST OF TECH	Bogges, A.	GSFC	Greenstein, J. L.	NSG 5381	1216
11	CALIF INST OF TECH	Bogges, A.	GSFC	Meier, D. L.	NSG 5384	1217
11	CALIF INST OF TECH	Bogges, A.	GSFC	Green, R. F.	NSG 5385	1218
11	CALIF INST OF TECH	Talley, D.	MSFC	Stone, E. C.	NAS 8-27978	1178
11	CALIF INST OF TECH	Jones, J. B., Jr.	MSFC	Garmire, G. P.	NAS 8-33331	1182
11	CALIF INST OF TECH	Jones, J. B., Jr.	MSFC	Garmire, G. P.	NAS 8-33352	1183
11	CALIF INST OF TECH	Roman, N. G.	HQ-SC	Oke, J. B.	NGL 05-002-134	1189
11	CALIF INST OF TECH	Bogges, N. W.	HQ-SC	Neugebauer, G.	NGL 05-002-207	1193
11	CALIF INST OF TECH	Kaluzienski, L. J.	HQ-SC	Vogt, R. E.	NGR 05-002-160	1197
11	CALIF INST OF TECH	Roman, N. G.	HQ-SC	Thorne, K. S.	NGR 05-002-256	1198

APPENDIX B

**NASA'S UNIVERSITY PROGRAM**  
**APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING**

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	CALIF INST OF TECH	Roman, N. G.	HQ-SC	Mashhoon, B.	NSG 7495	1228
11	CALIF INST OF TECH	Brunk, W. E.	HQ-SL	Muhleman, D. O.	NGL 05-002-003	1185
11	CALIF INST OF TECH	Brunk, W. E.	HQ-SL	Goldreich, P.	NGL 05-002-140	1190
11	CALIF INST OF TECH	Brunk, W. E.	HQ-SL	Muhleman, D. O.	NGL 05-002-114	1195
11	CALIF INST OF TECH	Bohlin, J. D.	HQ-ST	Zirin, H.	NGL 05-002-034	1186
11	CITY COLLEGE OF N Y	Black, D. C.	ARC	Yuan, C.	NSG 2348	2911
11	CITY COLLEGE OF N Y	Canuto, V.	GSFC	Erlbach, E.	NGL 33-013-040	2908
11	COLUMBIA UNIVERSITY	Gemmell, J. D.	GSFC	Novick, R.	NAS 5-24152	2919
11	COLUMBIA UNIVERSITY	Eiband, A. M.	GSFC	Novick, R.	NAS 5-24457	2920
11	COLUMBIA UNIVERSITY	Bissell, E. E.	GSFC	Novick, R.	NGR 33-008-102	2929
11	COLUMBIA UNIVERSITY	Thaddeus, P.	GSFC	Happner, W.	NSG 5163	2939
11	COLUMBIA UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Hayes, D. P.	NSG 5168	2940
11	COLUMBIA UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Novick, R.	NSG 5200	2941
11	COLUMBIA UNIVERSITY	Manning, H. S.	MSFC	Novick, R.	NAS 8-30753	2923
11	COLUMBIA UNIVERSITY	Boggess, N. W.	HQ-SC	Flynn, G. W.	NSG 7105	2944
11	COLUMBIA UNIVERSITY	Sofia, S.	HQ-SC	Weisskopf, M. C.	NSG 7248	2947
11	CORNELL UNIVERSITY	Pollack, J. B.	ARC	Burns, J. A.	NCA 2-175801	2953
11	CORNELL UNIVERSITY	Haughney, L. C.	ARC	Houck, J. R.	NGR 33-010-081	2959
11	CORNELL UNIVERSITY	Cameron, R. M.	ARC	Harwit, M. O.	NGR 33-010-146	2962
11	CORNELL UNIVERSITY	Cameron, R. M.	ARC	Houck, J. R.	NGR 33-010-182	2964
11	CORNELL UNIVERSITY	Haughney, L. C.	ARC	Harwit, M. O.	NSG 2347	2971
11	CORNELL UNIVERSITY	Cohen, S. C.	GSFC	Turcotte, D. L.	NCC 5 2	2954
11	CORNELL UNIVERSITY	Boggess, N. W.	HQ-SC	Houck, J. R.	NSG 7324	2984
11	CORNELL UNIVERSITY	Brunk, W. E.	HQ-SL	Veverka, J.	NSG 7126	2980
11	FAIRLEIGH-DICKNSON U	Heaney, J. B.	GSFC	Moeller, K. D.	NAS 5-25483	2832
11	FLORIDA STATE UNIV	Brunk, W. E.	HQ-SL	Hunt, R. H.	NGR 10-004-056	1917
11	GEORGE MASON UNIV	Hobbs, R. W.	GSFC	Kafotos, M.	NCA 5-92	3773
11	GEORGE MASON UNIV	Hobbs, R. W.	GSFC	Kafotos, M.	NSG 5305	3774
11	GEORGE MASON UNIV	Boggess, A.	GSFC	Kafotos, M.	NSG 5371	3775
11	GEORGE MASON UNIV	Gull, T. R.	GSFC	Kafotos, M.	NSG 5403	3776
11	HARVARD UNIVERSITY	Hall, C. F.	ARC	Goody, R. M.	NAS 2-9127	2442
11	HARVARD UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Flannery, B. P.	NSG 5143	2463
11	HARVARD UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Dupree, A. K.	NSG 5191	2466
11	HARVARD UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Dupree, A. K.	NSG 5226	2467
11	HARVARD UNIVERSITY	Boggess, A.	GSFC	Dupree, A. K.	NSG 5229	2469
11	HARVARD UNIVERSITY	Boggess, A.	GSFC	Dupree, A. K.	NSG 5239	2470
11	HARVARD UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Dupree, A. K.	NSG 5293	2471
11	HARVARD UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Dupree, A. K.	NSG 5312	2472
11	HARVARD UNIVERSITY	Boggess, A.	GSFC	Dupree, A. K.	NSG 5370	2473
11	HARVARD UNIVERSITY	Boggess, A.	GSFC	Dupree, A. K.	NSG 5380	2474
11	HARVARD UNIVERSITY	Snoddy, W. C.	MSFC	Hughes, B. M.	NAS 5-3949	2444
11	HARVARD UNIVERSITY	Boggess, N. W.	HQ-SC	Fazio, G. G.	NGR 22-007-270	2458
11	HARVARD UNIVERSITY	Kaluzienski, L. J.	HQ-SC	Cameron, A. G.	NGR 22-007-272	245
11	HARVARD UNIVERSITY	Brunk, W. E.	HQ-SL	Goody, R. M.	NSG 7332	2478
11	HARVARD UNIVERSITY	Bohlin, J. D.	HQ-ST	Parkinson, W. H.	NGR 22-007-202	2456
11	HARVARD UNIVERSITY	Bohlin, J. D.	HQ-ST	Parkinson, W. H.	NSG 7461	2480
11	HOUSTON BAPTIST UNIV	Potter, A. E.	JSC	Morgan, T. H.	NSG 9038	3537
11	INDIANA U-BLOOMINGTN	Hobbs, R. W.	GSFC	Burkhead, M. S.	NAS 5-22987	2136
11	INDIANA U-BLOOMINGTN	Dailey, C. C.	MSFC	Mufson, S. L.	NAS 8-33087	2137
11	IOWA STATE UNIV	Kupperian, J. E., Jr.	GSFC	Lamb, R. C.	NSG 5199	2198
11	IOWA STATE UNIV	Dailey, C. C.	MSFC	Lamb, R. C.	NAS 8-33013	2182
11	IOWA STATE UNIV	Jones, J. B., Jr.	MSFC	Lamb, R. C.	NAS 8-33334	2183
11	JOHNS HOPKINS UNIV	Bissell, E. E.	GSFC	Fastie, W. G.	NGR 21-001-001	2314
11	JOHNS HOPKINS UNIV	Kupperian, J. E., Jr.	GSFC	Moos, H. W.	NSG 5184	2319
11	JOHNS HOPKINS UNIV	Kupperian, J. E., Jr.	GSFC	Moos, H. W.	NSG 5230	2320
11	JOHNS HOPKINS UNIV	Boggess, A.	GSFC	Moos, H. W.	NSG 5255	2321
11	JOHNS HOPKINS UNIV	Kupperian, J. E., Jr.	GSFC	Moos, H. W.	NSG 5310	2323
11	JOHNS HOPKINS UNIV	Boggess, A.	GSFC	Moos, H. W.	NSG 5393	2324

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11	JOHNS HOPKINS UNIV	O'Dell, C. R.	MSFC	Fastie, W. G.	NAS 8-32903	2309
11	JOHNS HOPKINS UNIV	Kaluziński, L. J.	HQ-SC	Davidson, A. F.	NSG 7449	2327
11	JOHNS HOPKINS UNIV	Murphy, R. E.	HQ-SL	Feldman, P. D.	NSG 7382	2326
11	LEHIGH UNIVERSITY	Boggess, A.	GSFC	McCluskey, G. E., Jr	NSG 5386	3372
11	LEHIGH UNIVERSITY	Potter, A. E.	JSC	McCluskey, G. E., Jr.	NGR 39-007-061	3367
11	LA STATE U-SHREVEPT	Giuli, R. T.	JSC	Bankston, J. D., Jr.	NAS 9-9317	2272
11	MASS INST OF TECH	Hall, C. F.	ARC	Pettingill, G. H.	NAS 2-9473	2489
11	MASS INST OF TECH	Hall, C. F.	ARC	Counselman, C. C., III	NAS 2-9476	2490
11	MASS INST OF TECH	Hall, C. F.	ARC	Shapiro, I. I.	NAS 2-9483	2491
11	MASS INST OF TECH	Haughney, L. C.	ARC	Kleinman, S. G.	NSG 2172	2559
11	MASS INST OF TECH	Haughney, L. C.	ARC	Wright, E. L.	NSG 2263	2563
11	MASS INST OF TECH	Haughney, L. C.	ARC	Elliot, J. L.	NSG 2342	2567
11	MASS INST OF TECH	Rice, C. F.	GSFC	Clark, G. W.	NAS 5-11450	2494
11	MASS INST OF TECH	Shiue, J. C.	GSFC	Staelin, D. H.	NAS 5-23677	2498
11	MASS INST OF TECH	Corrigan, J. P.	GSFC	Clark, G. W.	NAS 5-24441	2500
11	MASS INST OF TECH	Nace, D. A.	GSFC	Weiss, R.	NAS 5-24493	2501
11	MASS INST OF TECH	Clark, T. C.	GSFC	Burke, B. F.	NAS 5-25543	2503
11	MASS INST OF TECH	Bissell, E. E.	GSFC	Rappaport, S. A.	NGR 22-009-730	2539
11	MASS INST OF TECH	Hansen, J. E.	GSFC	Rivas, F. K.	NSG 5076	2583
11	MASS INST OF TECH	Manning, H. S.	MSFC	Bradt, H. V.	NAS 8-27972	2505
11	MASS INST OF TECH	Manning, H. S.	MSFC	Lewin, W. H.	NAS 8-27975	2506
11	MASS INST OF TECH	Manning, H. S.	MSFC	Clark, G. W.	NAS 8-30752	2508
11	MASS INST OF TECH	Boggess, N. W.	HQ-SC	Weiss, R.	NGR 22-009-526	2531
11	MASS INST OF TECH	Boggess, N. W.	HQ-SC	Kleinman, S. G.	NSG 7186	2593
11	MASS INST OF TECH	Boggess, N. W.	HQ-SC	Weiss, R.	NSG 7328	2595
11	MASS INST OF TECH	Opp, A. G.	HQ-SC	Lewin, W. H.	NSG 7339	2599
11	MASS INST OF TECH	Brunk, W. E.	HQ-SL	Pettengill, G. H.	NGR 22-009-672	2536
11	MASS INST OF TECH	Brunk, W. E.	HQ-SL	Elliot, J. L.	NSG 7526	2605
11	MASS INST OF TECH	Brunk, W. E.	HQ-SL	Shapiro, I. I.	NSG 7556	2606
11	MIDDLEBURY COLLEGE	Kupperian, J. E., Jr.	GSFC	Winkler, P. F., Jr.	NSG 5198	3752
11	MIDDLEBURY COLLEGE	Jones, J. B., Jr.	MSFC	Winkler, P. F., Jr.	NAS 8-33335	3751
11	MISSISSIPPI STATE U	Atherton, J. R.	MSFC	Ingels, F. M.	NAS 8-33570	2739
11	MONTANA STATE UNIV	Roman, N. G.	HQ-SC	Nordtvedt, K., Jr.	NGR 27-001-040	2794
11	MONTGOMERY COLLEGE	Fischel, D.	GSFC	Fahey, P. P.	NAS 5-25120	2328
11	MORGAN STATE UNIV	Baker, G. R.	GSFC	Hammond, E. C., Jr.	NSG 5074	2333
11	NEW MEX INST MINING	Hobbs, R. W.	GSFC	Moore, E. P.	NCA 5-64	2883
11	NEW MEX INST MINING	Hobbs, R. W.	GSFC	Moore, E. P.	NCA 5-69	2884
11	NEW MEX INST MINING	Hobbs, R. W.	GSFC	Moore, E. P.	NCA 5-71	2885
11	NEW MEX INST MINING	Jones, J. B., Jr.	MSFC	Gibson, D. M.	NAS 8-33341	2882
11	NEW MEX ST U-LAS CR	Brunk, W. E.	HQ-SL	Beebe, R. F.	NGL 32-003-001	2890
11	NEW MEX ST U-LAS CR	Donn, B. D.	HQ-SL	Beebe, H. A.	NSG 7346	2891
11	NEW YORK UNIVERSITY	Boggess, A.	GSFC	Huggins, P. J.	NSG 5411	3012
11	NORTHWESTERN UNIV	Jones, J. B., Jr.	MSFC	Ulmer, M. P.	NAS 8-33010	2064
11	NORTHWESTERN UNIV	Jones, J. B., Jr.	MSFC	Ulmer, M. P.	NAS 8-33354	2065
11	NORTHWESTERN UNIV	Roman, N. G.	HQ-SC	Huang, S. S.	NGL 14-007-041	2066
11	OHIO STATE UNIV	Kupperian, J. E., Jr.	GSFC	Slettebak, A. E.	NSG 5141	3235
11	OHIO STATE UNIV	Boggess, A.	GSFC	Wing, R. F.	NSG 5247	3236
11	OHIO STATE UNIV	Kupperian, J. E., Jr.	GSFC	Slettebak, A. E.	NSG 5299	3239
11	OHIO STATE UNIV	Boggess, A.	GSFC	Wing, R. F.	NSG 5368	3240
11	PEN AMERICAN UNIV	Mendell, W.	JSC	Glaser, F. M.	NSG 9070	3540
11	PRINCETON UNIVERSITY	Corrigan, J. P.	GSFC	Spitzer, L., Jr.	NAS 5-23576	2838
11	PRINCETON UNIVERSITY	Nace, D. A.	GSFC	Wilkinson, D. T.	NAS 5-24486	2839
11	PRINCETON UNIVERSITY	Hobbs, R. W.	GSFC	Groth, E. J.	NAS 5-25084	2840
11	PRINCETON UNIVERSITY	Boggess, A.	GSFC	Jenkins, E. B.	NSG 5248	2859
11	PRINCETON UNIVERSITY	Boggess, A.	GSFC	York, D. G.	NSG 5382	2861
11	PRINCETON UNIVERSITY	Corrigan, J. P.	GSFC	Turners, E. L.	NSG 5415	2862
11	PRINCETON UNIVERSITY	Jones, J. B., Jr.	MSFC	Cowie, L. L.	NAS 8-33345	2843
11	PRINCETON UNIVERSITY	Roman, N. G.	HQ-SC	Spitzer, L., Jr.	NGL 31-001-007	2845

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11	PRINCETON UNIVERSITY	Roman, N. G.	HQ-SC	Bahcall, N. A.	NSG 7256	2864
11	PRINCETON UNIVERSITY	Boggess, N. W.	HQ-SC	Wilkinson, D. T.	NSG 7302	2867
11	PRINCETON UNIVERSITY	Rosendhal, J. D.	HQ-SC	Schwarzschild, M.	NSG 7379	2868
11	PRINCETON UNIVERSITY	Roman, N. G.	HQ-SC	Spitzer, L., Jr.	NSG 7600	2870
11	PRINCETON UNIVERSITY	Roman, N. G.	HQ-SC	Jenkins, E. B.	NSG 7618	2872
11	PURDUE UNIVERSITY	Rosendhal, J. D.	HQ-SC	Moffett, T. J.	NSG 7167	2173
11	RICE UNIVERSITY	Boggess, A.	GSFC	DuFour, R. J.	NSG 5364	3557
11	RICE UNIVERSITY	Parker, R. A.	JSC	DuFour, R. J.	NAS 9-15940	3550
11	RICE UNIVERSITY	Jones, J. B., Jr.	MSFC	Haymes, R. C.	NAS 8-33361	3547
11	RICE UNIVERSITY	Gray, J. W.	WFC	Anderson, H. R., Jr.	NAS 6-1667	3544
11	RUTGERS U-N BRUNSWK	Kupperian, J. E., Jr.	GSFC	Matitsky, T. A.	NSG 5195	2875
11	SO UNIV-BATON ROUGE	Estabrook, F. B.	JPL	Yang, C. H.	NGR 19-005-006	2280
11	STANFORD UNIVERSITY	Fichtel, C.	GSFC	Hofstadter, R.	NAS 5-25544	1314
11	STANFORD UNIVERSITY	Snoddy, W. C.	MSFC	Underwood, J. H.	NAS 8-32263	1315
11	STANFORD UNIVERSITY	Dailey, C. C.	MSFC	Walker, A. B., Jr.	NAS 8-33012	1319
11	STANFORD UNIVERSITY	Dailey, C. C.	MSFC	Wagoner, R. V.	NAS 8-33234	1321
11	STANFORD UNIVERSITY	Kaluziński, L. J.	HQ-SC	Hofstadter, R.	NGR 05-020-452	1357
11	STANFORD UNIVERSITY	Kaluziński, L. J.	HQ-SC	Sturrock, P. A.	NGR 05-020-668	1364
11	STANFORD UNIVERSITY	Roman, N. G.	HQ-SC	Will, C. M.	NSG 7204	1403
11	STANFORD UNIVERSITY	Kaluziński, L. J.	HQ-SC	Walker, A. B., Jr.	NSG 7476	1405
11	STANFORD UNIVERSITY	Brunk, W. E.	HQ-SL	Tyler, G. L.	NSG 7395	1404
11	STANFORD UNIVERSITY	Brunk, W. E.	HQ-SL	Tyler, G. L.	NSG 7561	1408
11	STANFORD UNIVERSITY	Bohlin, J. D.	HQ-ST	Wilcox, J. M.	NGR 05-020-559	1359
11	STANFORD UNIVERSITY	Bohlin, J. D.	HQ-ST	Petrosian, V.	NSG 7092	1402
11	STATE UNIV NY-ALBANY	Gary, G. A.	MSFC	Weinberg, J. L.	NSG 8040	3061
11	STATE UNIV NY-ALBANY	Weiler, E. J.	HQ-SC	Weinberg, J. L.	NSG 7241	3059
11	STATE U NY-STONY BRK	Kerr, A. R.	GSFC	Kao, Y. H.	NSG 5125	3080
11	STATE U NY-STONY BRK	Boggess, A.	GSFC	Caldwell, J. J.	NSG 5250	3081
11	STATE U NY-STONY BRK	O'Dell, C. R.	MSFC	Caldwell, J. J.	NAS 8-32904	3066
11	STATE U NY-STONY BRK	Fishman, G. J.	HQ-SC	Forman, M. A.	NGR 33-015-140	3076
11	STATE U NY-STONY BRK	Brunk, W. E.	HQ-SL	Owen, T.	NGR 33-015-141	3074
11	STATE U NY-STONY BRK	Brunk, W. E.	HQ-SL	Knacke, R. F.	NSG 7286	3085
11	STATE U NY-STONY BRK	Brunk, W. E.	HQ-SL	Caldwell, J. J.	NSG 7320	3086
11	STATE U NY-STONY BRK	Timothy, A. F.	HQ-ST	Stroke, G. W.	NSG 7003	3083
11	UNIV OF ARIZONA	Hall, C. F.	ARC	Gehrels, A. M.	NAS 7-6265	1092
11	UNIV OF ARIZONA	Hall, C. F.	ARC	Tomasko, M. G.	NAS 2-9486	1093
11	UNIV OF ARIZONA	McCreight, C. R.	ARC	Rieke, G. H.	NAS 2-10227	1096
11	UNIV OF ARIZONA	Haughney, L. C.	ARC	Larson, H. P.	NGR 03-002-332	1120
11	UNIV OF ARIZONA	Haughney, L. C.	ARC	Harvey, P. M.	NGR 03-002-390	1124
11	UNIV OF ARIZONA	Black, D. C.	ARC	Serkowski, K. M.	NSG 2205	1126
11	UNIV OF ARIZONA	Wainscott, F. H.	GSFC	Smith, B. A.	NAS 5-24308	1097
11	UNIV OF ARIZONA	Liberatore, F. J.	GSFC	Weymann, R. J.	NAS 5-25733	1099
11	UNIV OF ARIZONA	Boggess, A.	GSFC	Imhoff, C. L.	NSG 5235	1130
11	UNIV OF ARIZONA	Roggess, A.	GSFC	Tomasko, M. G.	NSG 5249	1131
11	UNIV OF ARIZONA	Parnell, T. A.	MSFC	Benton, E. V.	NAS 8-31192	1100
11	UNIV OF ARIZONA	Jones, J. B., Jr.	MSFC	Strittmatter, P. A.	NAS 8-33351	1103
11	UNIV OF ARIZONA	Boggess, N. W.	HQ-SC	Low, F. J.	NGR 03-002-269	1119
11	UNIV OF ARIZONA	Boggess, N. W.	HQ-SC	Hoffman, W. F.	NGR 03-002-371	1122
11	UNIV OF ARIZONA	Opp, A. G.	HQ-SC	Jokipii, J. R.	NSG 7101	1139
11	UNIV OF ARIZONA	Roman, N. G.	HQ-SC	Gehrels, A. M.	NSG 7358	1146
11	UNIV OF ARIZONA	Boggess, N. W.	HQ-SC	Craine, E. R.	NSG 7368	1147
11	UNIV OF ARIZONA	Weiler, E. J.	HQ-SC	Tapia, S. F.	NSG 7574	1156
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Unavailable	NASW 3262	1105
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Smith, B. A.	NGL 03-002-002	1110
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Gehrels, A.	NGL 03-002-081	1112
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Cox, E. L.	NGL 03-002-122	1113
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Gehrels, A. M.	NGR 03-002-219	1118
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Hubbard, W. B.	NSG 7045	1137

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11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Fink, U. W.	NSG 7070	1138
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Rieke, G. H.	NSG 7114	1140
11	UNIV OF ARIZONA	Murphy, R. E.	HQ-SL	Hsieh, K. C.	NSG 7374	1148
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Zellner, B. H.	NSG 7502	1152
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Brown, R. A.	NSG 7634	1160
11	UNIV ARKANSAS-FAYETV	Roman, N. G.	HQ-SC	Hughes, R. H.	NSG 7106	1166
11	UNIV CALIF-BERKELEY	Erickson, E. F.	ARC	Silk, J. I.	NCA 2-50904	1436
11	UNIV CALIF-BERKELEY	Haughney, L. C.	ARC	Townes, C. H.	NGR 05-003-511	1452
11	UNIV CALIF-BERKELEY	Haughney, L. C.	ARC	Smoot, G. F.	NSG 2344	1461
11	UNIV CALIF-BERKELEY	Willis, S. E.	GSFC	Bowyer, C. S.	NAS 5-24189	1414
11	UNIV CALIF-BERKELEY	Willis, S. E.	GSFC	Bowyer, C. S.	NAS 5-24445	1415
11	UNIV CALIF-BERKELEY	Nice, D. A.	GSFC	Smoot, G.	NAS 5-25007	1416
11	UNIV CALIF-BERKELEY	Hobbs, R. W.	GSFC	King, I.	NAS 5-25070	1417
11	UNIV CALIF-BERKELEY	Porreca, G.	GSFC	Anderson, D. A.	NAS 5-25876	1419
11	UNIV CALIF-BERKELEY	Porreca, G.	GSFC	Anderson, D. A.	NAS 5-25892	1420
11	UNIV CALIF-BERKELEY	Bissell, E. E.	GSFC	Bowyer, C. S.	NGR 05-003-450	1447
11	UNIV CALIF-BERKELEY	Kupperian, J. E., Jr.	GSFC	Bowyer, C. S.	NSG 5227	1465
11	UNIV CALIF-BERKELEY	Kupperian, J. E., Jr.	GSFC	Bowyer, C. S.	NSG 5292	1467
11	UNIV CALIF-BERKELEY	Boggess, A.	GSFC	Spinrad, H.	NSG 5360	1468
11	UNIV CALIF-BERKELEY	Marmann, R.	MSFC	Bowyer, C. S.	NAS 8-32577	1422
11	UNIV CALIF-BERKELEY	Dailey, C. C.	MSFC	Anderson, K. A.	NAS 8-33011	1423
11	UNIV CALIF-BERKELEY	Jones, J. B., Jr.	MSFC	Bowyer, C. S.	NAS 8-33349	1424
11	UNIV CALIF-BERKELEY	Jones, J. B., Jr.	MSFC	McKee, C.	NAS 8-33356	1425
11	UNIV CALIF-BERKELEY	Barnes, J. B.	MSFC	Anderson, K. A.	NAS 8-33357	1426
11	UNIV CALIF-BERKELEY	Boggess, N. W.	HQ-SC	Townes, C. H.	NGL 05-003-272	1440
11	UNIV CALIF-BERKELEY	Kaluziński, L. J.	HQ-SC	Price, P. B.	NGR 05-003-376	1446
11	UNIV CALIF-BERKELEY	Opp, A. G.	HQ-SC	Heckman, H. H.	NGR 05-003-513	1453
11	UNIV CALIF-BERKELEY	Kaluziński, L. J.	HQ-SC	Buffington, A.	NGR 05-003-553	1454
11	UNIV CALIF-BERKELEY	Weiler, E. J.	HQ-SC	Silk, J. I.	NGR 05-003-578	1455
11	UNIV CALIF-BERKELEY	Boggess, N. W.	HQ-SC	Richards, P. L.	NSG 7205	1471
11	UNIV CALIF-BERKELEY	Boggess, N. W.	HQ-SC	Smoot, G.	NSG 7455	1477
11	UNIV CALIF-BERKELEY	Kaluziński, L. J.	HQ-SC	Anderson, K. A.	NSG 7592	1480
11	UNIV CALIF-BERKELEY	Brunk, W. E.	HQ-SL	Townes, C. H.	NGR 05-003-452	1449
11	UNIV CALIF-BERKELEY	Brunk, W. E.	HQ-SL	Welch, W. J.	NSG 7152	1470
11	UNIV CALIF-BERKELEY	Brunk, W. L.	HQ-SL	Townes, C. H.	NSG 7635	1481
11	UNIV CALIF-L ANGELES	Hall, C. F.	ARC	Kaula, W. H.	NAS 2-9128	1501
11	UNIV CALIF-L ANGELES	Hall, C. F.	ARC	Schubert, G.	NAS 2-9131	1502
11	UNIV CALIF-L ANGELES	Liberatore, F. J.	GSFC	Jura, M. A.	NAS 5-25657	1507
11	UNIV CALIF-L ANGELES	Kupperian, J. E., Jr.	GSFC	Peters, C. J.	NSG 5056	1539
11	UNIV CALIF-L ANGELES	Kupperian, J. E., Jr.	GSFC	Margon, B. H.	NSG 5165	1540
11	UNIV CALIF-L ANGELES	Kupperian, J. E., Jr.	GSFC	Jura, M. A.	NSG 5169	1541
11	UNIV CALIF-L ANGELES	Boggess, A.	GSFC	Plavec, M.	NSG 5272	1544
11	UNIV CALIF-L ANGELES	Boggess, A.	GSFC	Aller, L. H.	NSG 5358	1546
11	UNIV CALIF-L ANGELES	Boggess, A.	GSFC	Jura, M. A.	NSG 5377	1547
11	UNIV CALIF-L ANGELES	Jones, J. B., Jr.	MSFC	Margon, B. H.	NAS 8-33353	1509
11	UNIV CALIF-L ANGELES	Kaluziński, L. J.	HQ-SC	Kennel, C. F.	NSG 7341	1557
11	UNIV CALIF-L ANGELES	Weiler, E. J.	HQ-SC	Jura, M. A.	NSG 7621	1566
11	UNIV CALIF-RIVERSIDE	Kaluziński, L. J.	HQ-SC	White, R. S.	NGR 05-008-022	1567
11	UNIV CALIF-SAN DIEGO	Hall, C. F.	ARC	Fillius, R. W.	NAS 2-6552	1568
11	UNIV CALIF-SAN DIEGO	Haughney, L. C.	ARC	Willner, S. P.	NGR 05-005-055	1593
11	UNIV CALIF-SAN DIEGO	Stouffer, C. G.	GSFC	Tabakoff, W.	NAS 5-22375	1571
11	UNIV CALIF-SAN DIEGO	Bartlett, R. O.	GSFC	McIlwain, C. E.	NAS 5-23481	1572
11	UNIV CALIF-SAN DIEGO	White, R. A.	GSFC	Harms, R. J.	NAS 5-24463	1574
11	UNIV CALIF-SAN DIEGO	Shannon, J. L.	GSFC	Beaver, E. A.	NAS 5-24466	1575
11	UNIV CALIF-SAN DIEGO	Shannon, J. L.	GSFC	Beaver, E. A.	NAS 5-25054	1576
11	UNIV CALIF-SAN DIEGO	Manning, H. S.	MSFC	Peterson, L. E.	NAS 8-27974	1579
11	UNIV CALIF-SAN DIEGO	Opp, A. G.	HQ-SC	Gould, R. J.	NGL 05-005-004	1584
11	UNIV CALIF-SAN DIEGO	Rosendhal, J. D.	HQ-SC	McIlwain, C. E.	NGR 05-009-188	1595

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11	UNIV CALIF-SAN DIEGO	Kaluzienski, L. J.	HQ-SC	Rothschild, R. E.	NSG 7294	1616
11	UNIV CALIF-SAN DIEGO	Burbidge, E.	HQ-SC	Burbidge, M.	NSG 7377	1617
11	UNIV CALIF-SAN DIEGO	Kaluzienski, L. J.	HQ-SC	Lingenfelter, R. E.	NSG 7541	1620
11	UNIV CALIF-SAN DIEGO	Murphy, R. E.	HQ-SL	Alfven, H.	NGR 05-009-110	1594
11	UNIV CALIF-S CRUZ	Bogges, A.	GSFC	Herbig, G. H.	NSG 5361	1661
11	UNIV CALIF-S CRUZ	Jones, J. B., Jr.	MSFC	Davies, R. L.	NAS 8-33347	1659
11	UNIV CALIF-S CRUZ	Bogges, M. W.	HQ-SC	Rank, D. M.	NGR 05-061-015	1660
11	UNIV CALIF-S CRUZ	Roman, N. G.	HQ-SC	Miller, J. S.	NSG 7503	1662
11	UNIV OF CHICAGO	Hall, C. F.	ARC	Simpson, J. A.	NAS 2-6551	2074
11	UNIV OF CHICAGO	Erickson, E. F.	ARC	Harper, D. A., Jr.	NCA 2-108901	2080
11	UNIV OF CHICAGO	Smith, B. F.	ARC	Miller, R. H.	NCA 2-108902	2081
11	UNIV OF CHICAGO	Haughney, L. C.	ARC	Harper, D. A., Jr.	NGR 14-001-227	2095
11	UNIV OF CHICAGO	Kupperian, J. E., Jr.	GSFC	Simpson, J. A.	NSG 5202	2097
11	UNIV OF CHICAGO	Kupperian, J. E., Jr.	GSFC	Simpson, J. A.	NSG 5291	2098
11	UNIV OF CHICAGO	Kupperian, J. E., Jr.	GSFC	Simpson, J. A.	NSG 5311	2099
11	UNIV OF CHICAGO	Bogges, A.	GSFC	Frisch, P. C.	NSG 5405	2101
11	UNIV OF CHICAGO	Jones, J. B., Jr.	MSFC	Meyer, P.	NAS 8-33350	2079
11	UNIV OF CHICAGO	Kaluzienski, L. J.	HQ-SC	Parker, E. N.	NGL 14-001-001	2082
11	UNIV OF CHICAGO	Opp, A. G.	HQ-SC	Meyer, P.	NGL 14-001-005	2083
11	UNIV OF CHICAGO	Rosendhal, J. D.	HQ-SC	Hobbs, L. M.	NGR 14-001-147	2092
11	UNIV OF CHICAGO	Kaluzienski, L. J.	HQ-SL	Simpson, J. A.	NGL 14-001-006	2084
11	UNIV COLORADO-BOLDR	Bogges, A.	GSFC	Conti, P. S.	NAS 5-22833	1744
11	UNIV COLORADO-BOLDR	Bogges, A.	GSFC	Linsky, J. L.	NAS 5-23274	1745
11	UNIV COLORADO-BOLDR	Bissell, E. E.	GSFC	Lillie, C. F.	NGR 06-003-176	1741
11	UNIV COLORADO-BOLDR	Kupperian, J. E., Jr.	GSFC	Linsky, J. L.	NSG 5211	1747
11	UNIV COLORADO-BOLDR	Kupperian, J. E., Jr.	GSFC	Snow, T. P., Jr.	NSG 5246	1750
11	UNIV COLORADO-BOLDR	Bogges, A.	GSFC	Snow, T. P., Jr.	NSG 5300	1769
11	UNIV COLORADO-BOLDR	Bissell, E. E.	GSFC	Snow, T. P., Jr.	NSG 5303	1770
11	UNIV COLORADO-BOLDR	Kupperian, J. E., Jr.	GSFC	Snow, T. P., Jr.	NSG 5355	1772
11	UNIV COLORADO-BOLDR	Bogges, A.	GSFC	Shull, J. M.	NSG 5365	1773
11	UNIV COLORADO-BOLDR	Dailey, C. C.	MSFC	Linsky, J. L.	NAS 8-33084	1749
11	UNIV COLORADO-BOLDR	Jones, J. B., Jr.	MSFC	Haisch, B. M.	NAS 8-33333	1750
11	UNIV COLORADO-BOLDR	Jones, J. B., Jr.	MSFC	McCray, R.	NAS 8-33338	1751
11	UNIV COLORADO-BOLDR	Jones, J. B., Jr.	MSFC	Ayres, T. R.	NAS 8-33342	1752
11	UNIV COLORADO-BOLDR	Roman, N. G.	HQ-SC	Lillie, C. F.	NGR 06-003-179	1759
11	UNIV COLORADO-BOLDR	Kaluzienski, L. J.	HQ-SC	McCray, R.	NSG 7128	1775
11	UNIV COLORADO-BOLDR	Roman, N. G.	HQ-SC	Conti, P. S.	NSG 7430	1783
11	UNIV COLORADO-BOLDR	Roman, N. G.	HQ-SC	Snow, T. P., Jr.	NSG 7477	1786
11	UNIV COLORADO-BOLDR	Weiler, E. J.	HQ-SC	Snow, T. P., Jr.	NSG 7626	1791
11	UNIV COLORADO-BOLDR	Roman, N. G.	HQ-SC	Ashby, N.	NSG 7637	1792
11	UNIV COLORADO-DENVER	Bogges, A.	GSFC	Lane, A. L.	NSG 5394	1795
11	UNIV DC-MT VERNON SQ	Webster, W. H., Jr.	GSFC	Nottingham, W. C.	NGR 09-050-003	1900
11	UNIV DC-VAN NESS	Hobbs, R. W.	GSFC	Kasten, R.	NCA 5-95	1904
11	UNIV OF DELAWARE	Kupperian, J. E., Jr.	GSFC	Shipman, H. L.	NSG 5144	1838
11	UNIV OF DENVER	Kupperian, J. E., Jr.	GSFC	Everhart, E.	NSG 5135	1807
11	UNIV OF DENVER	Bogges, A.	GSFC	Lesh, J. R.	NSG 5367	1808
11	UNIV OF FLORIDA	Roman, N. G.	HQ-SC	Carr, T. D.	NSG 7143	1949
11	UNIV OF HAWAII-MANOA	White, W. W.	GSFC	Cushman, S. F.	NAS 5-25181	2027
11	UNIV OF HAWAII-MANOA	Bissell, E. E.	GSFC	Jefferies, J. T.	NGR 12-001-075	2037
11	UNIV OF HAWAII-MANOA	Kupperian, J. E., Jr.	GSFC	Boesgard, A. M.	NSG 5231	2042
11	UNIV OF HAWAII-MANOA	Weir, J. F.	HQ-BX	Jefferies, J. T.	NASW 2801	2032
11	UNIV OF HAWAII-MANOA	Strickland, A. T.	HQ-SL	Jefferies, J. T.	NASW 2326	2031
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HQ-SL	Jefferies, J. T.	NASW 3159	2033
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HQ-SL	Jefferies, J. T.	NGL 12-001-057	2036
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HQ-SL	McCord, T. B.	NSG 7310	2046
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HQ-SL	McCord, T. B.	NSG 7323	2048
11	UNIV OF HAWAII-MANOA	Bohlin, J. D.	HQ-ST	Jefferies, J. T.	NGL 12-001-011	2034
11	UNIV ILLINOIS-URBANA	Donn, B. D.	GSFC	Snyder, L. E.	NSG 5278	2130

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11	UNIV ILLINOIS-URBANA	Kupperian, J. E., Jr.	GSFC	Crutcher, R. M.	NSG 5294	2131
11	UNIV ILLINOIS-URBANA	Opp, A. G.	HQ-SC	Pines, D.	NSG 7598	2135
11	UNIV ILLINOIS-URBANA	Brunk, W. E.	HQ-SL	Dickel, J. R.	NGR 14-005-176	2117
11	UNIV OF IOWA	Hall, C. F.	ARC	VanAllen, J. A.	NAS 2-6553	2200
11	UNIV OF IOWA	Gemmell, J. D.	GSFC	Tabakoff, W.	NAS 5-11279	2202
11	UNIV OF IOWA	Brunk, W. E.	HQ-SL	Neff, J. S.	NSG 7412	2218
11	UNIV MARYLAND-BALT	Roman, N. G.	HQ-SC	Misner, C. W.	NGR 21-002-010	2335
11	UNIV MARYLAND-COL PK	Ogilvie, K. W.	GSFC	Coplan, M. A.	NAS 5-25472	2343
11	UNIV MARYLAND-COL PK	Fischel, D.	GSFC	Rosenfeld, A.	NCA 5-20	2355
11	UNIV MARYLAND-COL PK	Hobbs, R. W.	GSFC	Currie, D. G.	NCA 5-24	2356
11	UNIV MARYLAND-COL PK	Klingsmith, D. A.	GSFC	Rosenfeld, A.	NCA 5-26	2357
11	UNIV MARYLAND-COL PK	Klingsmith, D. A.	GSFC	Rosenfeld, A.	NCA 5-27	2358
11	UNIV MARYLAND-COL PK	Hobbs, R. W.	GSFC	Tole, J. R.	NCC 5 9	2363
11	UNIV MARYLAND-COL PK	Ramaty, R.	GSFC	Wall, N. S.	NSG 5298	2396
11	UNIV MARYLAND-COL PK	Boggess, A.	GSFC	Harrington, J. P.	NSG 5390	2400
11	UNIV MARYLAND-COL PK	Boggess, A.	GSFC	Bell, R. A.	NSG 5399	2401
11	UNIV MARYLAND-COL PK	Corrigan, J. P.	GSFC	Wu, C. S.	NSG 5408	2403
11	UNIV MARYLAND-COL PK	Jones, J. B., Jr	MSFC	Scott, J. S.	NAS 8-33329	2349
11	UNIV MARYLAND-COL PK	Jones, J. B., Jr	MSFC	Erickson, W. C.	NAS 8-33346	2350
11	UNIV MARYLAND-COL PK	Jones, J. B., Jr.	MSFC	Wilson, A. S.	NAS 8-33358	2351
11	UNIV MARYLAND-COL PK	Kaluzienski, L. J.	HQ-SC	Earl, J. A.	NGR 21-002-066	2366
11	UNIV MARYLAND-COL PK	Roman, N. G.	HQ-SC	Griem, H. R.	NGR 21-002-073	2367
11	UNIV MARYLAND-COL PK	Kaluzienski, L. J.	HQ-SC	Gloeckler, G.	NGR 21-002-224	2370
11	UNIV MARYLAND-COL PK	Opp, A. G.	HQ-SC	Rose, W. K.	NSG 7252	2406
11	UNIV MARYLAND-COL PK	Rosendhal, J. D.	HQ-SC	Currie, D. G.	NSG 7284	2408
11	UNIV MARYLAND-COL PK	Kaluzienski, L. J.	HQ-SC	Scott, J. S.	NSG 7555	2416
11	UNIV MARYLAND-COL PK	Brunk, W. E.	HQ-SL	A'Hearn, M. F.	NSG 7322	2409
11	UNIV OF MASS-AMHERST	Hall, C. F.	ARC	McGill, G. E.	NAS 2-9129	2612
11	UNIV OF MASS-AMHERST	Brunk, W. E.	HQ-SL	Irvine, W. M.	NGL 22-010-023	2613
11	UNIV MICH-ANN ARBOR	Hall, C. F.	ARC	Donahue, T. M.	NAS 2-9126	2631
11	UNIV MICH-ANN ARBOR	Hall, C. F.	ARC	Nagy, A. F.	NAS 2-9130	2632
11	UNIV MICH-ANN ARBOR	Niemann, H. B.	GSFC	Cargnan, G. R.	NAS 5-24454	2640
11	UNIV MICH-ANN ARBOR	Kupperian, J. E., Jr	GSFC	Donahue, T. M.	NSG 5206	2681
11	UNIV MICH-ANN ARBOR	Kupperian, J. E., Jr.	GSFC	Atreya, S. K.	NSG 5232	2682
11	UNIV MICH-ANN ARBOR	Boggess, A.	GSFC	Kirshner, R.	NSG 5366	2685
11	UNIV MICH-ANN ARBOR	Rosendhal, J. D.	HQ-SC	Hiltner, W. A.	NGR 23-005-464	2662
11	UNIV MICH-ANN ARBOR	Weiler, E. J.	HQ-SC	Hegy, D. J.	NSG 7608	2692
11	UNIV MICH-ANN ARBOR	Bonlin, J. D.	HQ-ST	Mohler, O. C.	NGL 23-005-275	2657
11	U MINN-MNPLS-ST PAUL	Gemmell, J. D.	GSFC	Jee, W. S.	NAS 5-11310	2698
11	U MINN-MNPLS-ST PAUL	Stone, R. G.	GSFC	Kellogg, P. J.	NAS 5-25151	2701
11	U MINN-MNPLS-ST PAUL	Stone, R. G.	GSFC	Kellogg, P. J.	NAS 5-25753	2703
11	U MINN-MNPLS-ST PAUL	Boggess, A.	GSFC	Black, J. H.	NSG 5237	2716
11	U MINN-MNPLS-ST PAUL	Boggess, A.	GSFC	Davidson, K.	NSG 5397	2718
11	U MINN-MNPLS-ST PAUL	Talley, D.	MSFC	Waddington, C. J.	NAS 8-27977	2704
11	U MINN-MNPLS-ST PAUL	Kaluzienski, L. J.	HQ-SC	Waddington, C. J.	NGR 24-005-050	2709
11	U MINN-MNPLS-ST PAUL	Boggess, N. W.	HQ-SC	Ney, E.	NSG 2014	2712
11	UNIV MO-ST LOUIS	Kupperian, J. E., Jr.	GSFC	Schwartz, R. D.	NSG 5151	2774
11	UNIV MO-ST LOUIS	Boggess, A.	GSFC	Lamb, S. A.	NSG 5400	2775
11	UNIV NEBRASKA-LINCLN	Kupperian, J. E., Jr.	GSFC	Schmidt, E. G.	NSG 5332	2800
11	UNIV NEBRASKA-LINCLN	Boggess, A.	GSFC	Schmidt, E. G.	NSG 5391	2801
11	UNIV NEW HAMP-DURHAM	Davis, M. A.	GSFC	Lockwood, J. A.	NAS 5-25420	2822
11	UNIV NEW HAMP-DURHAM	Kaluzienski, L. J.	HQ-SC	Chupp, E. L.	NGL 30-002-021	2826
11	UNIV NEW HAMP-DURHAM	Fishman, G. J.	HQ-SC	Webber, W. R.	NGR 30-002-052	2827
11	UNIV NEW HAMP-DURHAM	Kaluzienski, L. J.	HQ-SC	Lockwood, J. A.	NSG 7481	2831
11	UNIV OF NOTRE D. ME	Haggard, J. B.	LERC	Kanury, M.	NAS 3-21018	2175
11	UNIV OKLAHOMA-NORMAN	Kupperian, J. E., Jr.	GSFC	Herczeg, T. J.	NSG 5257	3315
11	UNIV OKLAHOMA-NORMAN	Jones, J. B., Jr.	MSFC	Chincarini, G. L.	NAS 8-33330	3310
11	UNIV OREGON-EUGENE	Roman, N. G.	HQ-SC	Zimmerman, R. L.	NSG 7639	3335

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11	UNIV OREGON-EUGENE	Brunk, W. E.	HQ-SL	Kemp, J. C.	NSG 7531	3334
11	UNIV OF PENNSYLVANIA	Bogges, A.	GSFC	Koch, R. H.	NSG 5296	3471
11	UNIV OF PENNSYLVANIA	Dailey, C. C.	MSFC	Shen, B. S.	NAS 8-33088	3425
11	UNIV OF PENNSYLVANIA	Jones, J. B., Jr.	MSFC	Shen, B. S.	NAS 8-33336	3426
11	UNIV OF PITTSBURGH	Black, D. C.	ARC	Goglia, G. L.	NSG 2117	3431
11	UNIV OF PITTSBURGH	Bogges, A.	GSFC	Hapke, B. W.	NSG 5362	3447
11	UNIV OF PITTSBURGH	Dwornik, S. E.	HQ-SL	Hapke, B. W.	NSG 7147	3449
11	UNIV OF ROCHESTER	Haughney, L. C.	ARC	Pipher, J. L.	NSG 2343	3098
11	UNIV OF ROCHESTER	Kupperian, J. E., Jr	GSFC	Savedoff, M. P.	NSG 5329	3099
11	UNIV OF ROCHESTER	Kupperian, J. E., Jr.	GSFC	Savedoff, M. P.	NSG 5354	3100
11	UNIV OF ROCHESTER	Jones, J. B., Jr.	MSFC	Duthie, J. G.	NAS 8-33328	3096
11	UNIV OF SANTA CLARA	Erickson, E. F.	ARC	Fraser, G.	NCA 2-685908	1682
11	UNIV OF SANTA CLARA	Dyal, P.	ARC	Barker, W. A.	NCA 2-685909	1683
11	UNIV OF SOUTHERN CAL	Hall, C. F.	ARC	Judge, D. L.	NAS 2-6558	1689
11	UNIV OF SOUTHERN CAL	Hall, C. F.	ARC	Intriligator, D. S.	NAS 2-7969	1690
11	UNIV OF SOUTHERN CAL	Hall, C. F.	ARC	Intriligator, D. S.	NAS 2-9478	1691
11	UNIV OF SOUTHERN CAL	Kupperian, J. E., Jr.	GSFC	Peters, G. J.	NSG 5356	1704
11	UNIV TENNESSEE-KNOXV	Harris, J. W.	JSC	Taylor, L. A.	NGL 43-001-140	3511
11	UNIV TEXAS-AUSTIN	Haughney, L. C.	ARC	Evans, N. J., II	NSG 2345	3666
11	UNIV TEXAS-AUSTIN	Liberatore, F. J.	GSFC	Trafton, L. M.	NAS 5-25656	3641
11	UNIV TEXAS-AUSTIN	Kupperian, J. E., Jr	GSFC	Smith, M. A.	NSG 5167	3671
11	UNIV TEXAS-AUSTIN	Bogges, A.	GSFC	VandenBout, P. A.	NSG 5233	3672
11	UNIV TEXAS-AUSTIN	Kupperian, J. E., Jr.	GSFC	Smith, M. A.	NSG 5309	3673
11	UNIV TEXAS-AUSTIN	Bogges, A.	GSFC	Parsons, S. B.	NSG 5328	3674
11	UNIV TEXAS-AUSTIN	Bogges, A.	GSFC	Wray, J. D.	NSG 5337	3675
11	UNIV TEXAS-AUSTIN	Bogges, A.	GSFC	Lam'ert, D. L.	NSG 5379	3676
11	UNIV TEXAS-AUSTIN	Bogges, A.	GSFC	Wills, B. J.	NSG 5387	3677
11	UNIV TEXAS-AUSTIN	Potter, A. E.	JSC	Barnes, T.	NAS 9-15093	3648
11	UNIV TEXAS-AUSTIN	Snoddy, W. C.	MSFC	Henize, K. G.	NAS 8-31459	3643
11	UNIV TEXAS-AUSTIN	O'Dell, C. R.	MSFC	Lambert, D. L.	NAS 8-32905	3644
11	UNIV TEXAS-AUSTIN	O'Dell, C. R.	MSFC	Jefferys, W. H.	NAS 8-32906	3645
11	UNIV TEXAS-AUSTIN	Roman, N. G.	HQ-SC	Shield, G. A.	NSG 7232	3680
11	UNIV TEXAS-AUSTIN	Rosendhal, J. D.	HQ-SC	Bengtson, R. D.	NSG 7347	3682
11	UNIV TEXAS-AUSTIN	Roman, N. G.	HQ-SC	Henize, K. G.	NSG 7371	3684
11	UNIV TEXAS-AUSTIN	Bogges, N. W.	HQ-SC	Evans, N. J., II	NSG 7381	3685
11	UNIV TEXAS-AUSTIN	Brunk, W. E.	HQ-SL	Wilson, W. J.	NGL 44-012-006	3653
11	UNIV TEXAS-AUSTIN	Brunk, W. E.	HQ-SL	Douglas, J. N.	NGL 44-012-055	3654
11	UNIV TEXAS-AUSTIN	Brunk, W. E.	HQ-SL	Smith, H. J.	NGR 44-012-152	3655
11	UNIV TEXAS-AUSTIN	Brunk, W. E.	HQ-SL	Mulholland, J. D.	NGR 44-012-282	3657
11	UNIV TEXAS-AUSTIN	Brunk, W. E.	HQ-SL	Jefferys, W. H.	NSG 7408	3686
11	UNIV OF TOLEDO	Kupperian, J. E., Jr.	GSFC	Molnar, M. R.	NSG 5183	3280
11	UNIV OF TOLEDO	Kupperian, J. E., Jr.	GSFC	Bopp, B. W.	NSG 5207	3281
11	UNIV OF TOLEDO	Bogges, A.	GSFC	Morrison, N. D.	NSG 5359	3282
11	UNIV OF TOLEDO	Bogges, A.	GSFC	Witt, A. N.	NSG 5388	3283
11	UNIV OF TOLEDO	Rosendhal, J. D.	HQ-SC	Witt, A. N.	NSG 7041	3284
11	UNIV OF TOLEDO	Roman, N. G.	HQ-SC	Molnar, M. R.	NSG 7138	3285
11	UNIV OF TOLEDO	Rosendhal, J. D.	HQ-SC	Witt, A. N.	NSG 7431	3288
11	UNIV OF TOLEDO	Roman, N. G.	HQ-SC	Molnar, M. R.	NSG 7475	3289
11	UNIV OF TOLEDO	Weiler, E. J.	HQ-SC	Witt, A. N.	NSG 7620	3290
11	UNIV OF TOLEDO	Murphy, R. E.	HQ-SL	Delsemme, A. H.	NSG 7301	3286
11	UNIV OF VIRGINIA	Wilson, L.	GSFC	O'connell, R. W.	NAS 5-22346	3844
11	UNIV OF VIRGINIA	Humes, D. H.	LARC	Singer, S. F.	NSG 1427	3855
11	UNIV OF VIRGINIA	Jones, J. B., Jr.	MSFC	Thuan, T. X.	NAS 8-33327	3848
11	UNIV OF VIRGINIA	Jones, J. B., Jr.	MSFC	Sarazin, C. L.	NAS 8-33348	3849
11	UNIV OF VIRGINIA	Roman, N. G.	HQ-SC	Frederick, L. W.	NGL 47-005-066	3850
11	UNIV OF VIRGINIA	Brunk, W. E.	HQ-SL	Ianna, P. A.	NSG 7364	3865
11	UNIV OF WASHINGTON	Kupperian, J. E., Jr.	GSFC	Wallerstein, G.	NSG 5142	3944
11	UNIV OF WASHINGTON	Bogges, A.	GSFC	Bohm-Vitense, E.	NSG 5240	3945



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11	UNIV OF WASHINGTON	Bogges, A.	GSFC	Wallerstein, G.	NSG 5374	3947
11	UNIV OF WASHINGTON	Bogges, A.	GSFC	Szkody, P.	NSG 5395	3948
11	UNIV OF WASHINGTON	Bogges, A.	GSFC	Bohm-Vitense, E.	NSG 5398	3949
11	UNIV OF WASHINGTON	Corrigan, J. P.	GSFC	Lin, C. S.	NSG 5410	3950
11	UNIV OF WASHINGTON	Jones, J. B., Jr.	MSFC	Szkody, P.	NAS 8-33337	3927
11	UNIV OF WASHINGTON	Jones, J. B., Jr.	MSFC	Boynton, P. E.	NAS 8-33344	3928
11	UNIV OF WASHINGTON	Jones, J. B., Jr.	MSFC	Boynton, P. E.	NAS 8-33360	3929
11	UNIV OF WASHINGTON	Kaluzienski, L. J.	HQ-SC	Lord, J. J.	NSG 7318	3955
11	UNIV OF WASHINGTON	Brunk, W. E.	HQ-SL	Greene, T. F.	NGR 48-002-142	3934
11	UNIV WISC-MADISON	Wainscott, F. H.	GSFC	Anderson, C. M.	NAS 5-22349	3972
11	UNIV WISC-MADISON	White, R. A.	GSFC	Bless, R. C.	NAS 5-24487	3978
11	UNIV WISC-MADISON	Sours, W. T.	GSFC	Code, A. D.	NAS 5-25487	3982
11	UNIV WISC-MADISON	Vitagliano, H. D.	GSFC	Savage, B. D.	NAS 5-25714	3984
11	UNIV WISC-MADISON	Bissell, E. E.	GSFC	Code, A. D.	NGL 50-002-013	3989
11	UNIV WISC-MADISON	Bissell, E. E.	GSFC	Kraushaar, W. L.	NGL 50-002-044	3990
11	UNIV WISC-MADISON	Kupperian, J. E., Jr.	GSFC	Savage, B. D.	NSG 5100	3997
11	UNIV WISC-MADISON	Kupperian, J. E., Jr.	GSFC	Cassinelli, J. P.	NSG 5180	3999
11	UNIV WISC-MADISON	Kupperian, J. E., Jr.	GSFC	Savage, B. D.	NSG 5181	4000
11	UNIV WISC-MADISON	Bogges, A.	GSFC	Savage, B. D.	NSG 5241	4002
11	UNIV WISC-MADISON	Bogges, A.	GSFC	Doherty, L. R.	NSG 5242	4003
11	UNIV WISC-MADISON	Bogges, A.	GSFC	Cassinelli, J. P.	NSG 5363	4006
11	UNIV WISC-MADISON	Jones, J. B., Jr.	MSFC	Cassinelli, J. P.	NAS 8-33340	3986
11	UNIV WISC-MADISON	Weiler, E. J.	HQ-SC	Williamson, P. R.	NSG 7050	4007
11	VANDERBILT UNIVERSITY	Roman, N. G.	HQ-SC	Weidman, D. W.	NSG 7343	3523
11	VANDERBILT UNIVERSITY	Roman, N. G.	HQ-SC	Hall, D.	NSG 7463	3524
11	VANDERBILT UNIVERSITY	Roman, N. G.	HQ-SC	Hall, D.	NSG 7543	3525
11	VILLANOVA UNIVERSITY	Bogges, A.	GSFC	Sion, E. M.	NSG 5375	3452
11	VIRGINIA POLY INST	Kupperian, J. E., Jr.	GSFC	Dennison, B. K.	NSG 5221	3916
11	VIRGINIA POLY INST	Jones, J. B., Jr.	MSFC	Dennison, B. K.	NAS 8-33359	3874
11	VIRGINIA POLY INST	Brunk, W. E.	HQ-SL	McGee, H. A.	NGL 47-004-080	3882
11	WASHINGTON ST UNIV	Bogges, A.	GSFC	Lutz, J. H.	NSG 5383	3963
11	WASHINGTON UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Smith, W. H.	NSG 5187	2785
11	WASHINGTON UNIVERSITY	Talley, D.	MSFC	Barcus, J.	NAS 8-27976	2779
11	WASHINGTON UNIVERSITY	Kaluzienski, L. J.	HQ-SC	Israel, M. H.	NGR 26-008-001	2782
11	WASHINGTON UNIVERSITY	Weiler, E. J.	HQ-SC	Smith, W. H.	NSG 7372	2789
11	WASHINGTON UNIVERSITY	Brunk, W. E.	HQ-SL	Smith, W. H.	NSG 7334	2788
11	WESTRN KENTUCKY UNIV	Bogges, A.	GSFC	Hackney, R. L.	NSG 5238	2270
11	WHEATON COLLEGE	Bogges, A.	GSFC	Barker, T.	NSG 5376	2620
11	YALE UNIVERSITY	Eby, P. B.	MSFC	Parker, P. D.	NAS 8-33572	1821
12	ADELPHI UNIVERSITY	Buell, D. A.	ARC	Steinmetz, W. J.	NSG 2088	2903
12	ARKANSAS STATE UNIV	Burkhart, J. A.	LERC	Bennett, J. E.	NSG 3249	1161
12	ATLANTA UNIVERSITY	Kent, M. I.	MSFC	Reed, J. L.	NSG 8019	1968
12	BOWIE STATE COLLEGE	Gross, F. C.	GSFC	Rock, M.	NSG 5009	2299
12	CALIF INST OF TECH	Harris, J. W.	JSC	Wasserburg, G. J.	NGL 05-002-188	1191
12	CASE WESTERN RESERVE	Quattrone, P. D.	ARC	Yeager, E.	NGR 36-027-050	3150
12	CASE WESTERN RESERVE	Donn, B. D.	GSFC	Anderson, A. B.	NSG 5392	3186
12	CASE WESTERN RESERVE	Riley, T. J.	LERC	Angus, J. C.	NAS 3-21965	3143
12	CASE WESTERN RESERVE	Kohl, F. J.	LERC	Mateescu, G. D.	NSG 3009	3155
12	CASE WESTERN RESERVE	Serafini, T. T.	LERC	Koenig, J. L.	NSG 3140	3163
12	CASE WESTERN RESERVE	Lauver, R. W.	LERC	Ritchey, W. M.	NSG 3142	3164
12	CASE WESTERN RESERVE	Lauver, R. W.	LERC	Ritchey, W. M.	NSG 3241	3173
12	CASE WESTERN RESERVE	Lauver, R. W.	LERC	Ishida, H.	NSG 3272	3179
12	CASE WESTERN RESERVE	Hsu, L. C.	LERC	Koenig, J. L.	NSG 3276	3180
12	CASE WESTERN RESERVE	Jones, W. R., Jr.	LERC	Cahan, B. D.	NSG 3288	3183
12	CASE WESTERN RESERVE	Schafer, C. F.	MSFC	Ostrach, S.	NAS 8-31907	3146
12	CATHOLIC UNIVERSITY	Payne, W. A.	GSFC	Hunt, J. B.	NSG 5173	1842
12	CLARK COLLEGE	Whitten, R. C.	ARC	Veluri, V. R.	NSG 2143	1969
12	CLEVELAND STATE UNIV	Gordon, W. A.	LERC	Megargle, R.	NSG 3308	3198

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12	COLLEGE OF WM & MARY	Burks, H. D.	LARC	Kranbuehl, D. E.	NSG 1095	3763
12	COLORADO SCH OF MINE	Antoine, A. C.	LERC	Daniel, S. R.	NSG 3122	1708
12	COPPIN STATE COLLEGE	Ford, F. E.	GSFC	McDermott, P. P.	NSG 5051	2301
12	CORNELL UNIVERSITY	Young, R. S.	HQ-SB	Sagan, C. E.	NGR 33-010-101	2960
12	DREXEL UNIVERSITY	Torres, A. L.	WFC	Thornton, D. C.	NSG 6035	3359
12	FISK UNIVERSITY	Kent, M. I.	MSFC	Mickens, R. E.	NSG 8035	3483
12	HARVARD UNIVERSITY	Harris, J. W.	JSC	Hays, J. F.	NGL 22-007-247	2455
12	HOWARD UNIVERSITY	Murphy, R. E.	HQ-SL	Jackson, W. M.	NSG 5071	1888
12	HOWARD UNIVERSITY	Donn, B.	HQ-SL	Jackson, W. M.	NSG 7378	1896
12	KENT STATE UNIV-KENT	Quattrone, P. D.	ARC	Madey, R.	NSG 2013	3200
12	LEHIGH UNIVERSITY	Boese, R. W.	ARC	Lovejoy, R. W.	NCA 2-380901	3363
12	LEHIGH UNIVERSITY	Harris, J. W.	JSC	Goldstein, J. I.	NGR 39-007-056	3366
12	MASS INST OF TECH	Quattrone, P. D.	ARC	Reid, R. C.	NGR 22-009-723	2537
12	MASS INST OF TECH	Harris, J. W.	JSC	Burns, R. G.	NGR 22-009-551	2533
12	MASS INST OF TECH	Antoine, A. C.	LERC	Uhlmann, D. R.	NSG 3286	2581
12	MASS INST OF TECH	Young, R. S.	HQ-SB	Rich, A.	NGR 22-009-277	2529
12	MISS UNIV FOR WOMEN	StClair, T. L.	LARC	Pratt, J. R.	NSG 1539	2750
12	MOREHOUSE COLLEGE	Pohly, J. G.	HQ-LU	Hall, J. H.	NSG 7652	2013
12	MORRIS BROWN COLLEGE	Patterson, W. J.	MSFC	Maxwell, A.	NSG 8027	2015
12	MUSKINGUM COLLEGE	Reid, M. A.	LERC	Wallace, W. J.	NSG 3278	3206
12	OLD DOMINION UNIV	Phillips, D. H.	LARC	Ake, R. L.	NSG 1393	3811
12	PENN STATE U-UNIV PK	Fewell, L. L.	ARC	Allcock, H. R.	NSG 2364	3398
12	PENN STATE U-UNIV PK	Young, R. S.	HQ-SB	Wedler, F. C.	NSG 7515	3420
12	POLY INST OF NY	Fohlen, G. M.	ARC	Pearce, E. M.	NSG 2147	3020
12	POLY INST OF NY	Fohlen, G. M.	ARC	Pearce, E. M.	NSG 2361	3021
12	POLY INST OF NY	Young, R. S.	HQ-SB	Eirich, F. R.	NGR 33-006-070	3017
12	POMONA COLLEGE	Williams, T. S., Jr.	LARC	Baird, A. K.	NAS 1-11854	1260
12	RENSSELAER POLY-NY	Reeves, F. A.	MSFC	Glicksman, M. E.	NAS 8-32690	3030
12	RENSSELAER POLY-NY	Young, R. S.	HQ-SB	Ferris, J. P.	NGR 33-018-148	3036
12	SAN FRAN STATE UNIV	Lawless, J. G.	ARC	Orenberg, J. B.	NCA 2-660902	1265
12	SAN JOSE STATE UNIV	Oyama, V. I.	ARC	Ling, A. C.	NCA 2-675810	1272
12	SAN JOSE STATE UNIV	Polaski, L. J.	ARC	Goodman, J. K.	NCA 2-675908	1279
12	SAN JOSE STATE UNIV	Cagliostro, D. E.	ARC	Ballard, R. C.	NCC 2 4	1283
12	SAN JOSE STATE UNIV	Wydeven, T. J.	ARC	Spitze, L. A.	NCC 2 8	1285
12	SAN JOSE STATE UNIV	Wydeven, T. J.	ARC	Spitze, L. A.	NGR 05-046-011	1288
12	SAN JOSE STATE UNIV	Rosser, R. W.	ARC	Hyer, M. W.	NSG 2186	1290
12	SAN JOSE STATE UNIV	Fohlen, G. M.	ARC	Ling, A. C.	NSG 2209	1291
12	SAN JOSE STATE UNIV	Heimbuch, A. H.	ARC	Hsu, M. T.	NSG 2274	1295
12	SAN JOSE STATE UNIV	Golub, M. A.	ARC	Ling, A. C.	NSG 2353	1301
12	SAN JOSE STATE UNIV	Wydeven, T. J.	ARC	Sree Horsha, K. S.	NSG 2355	1302
12	SAN JOSE STATE UNIV	Fish, R. H.	ARC	Mayer, L. A.	NSG 2371	1303
12	STATE U NY-STONY BRK	Chang, S.	ARC	Owen, T.	NCA 2-760901	3068
12	STATE U NY-STONY BRK	Harris, J. W.	JSC	Schaeffer, O. A.	NGL 33-015-174	3072
12	STATE U NY-STONY BRK	Brabbs, T. A.	LERC	Yang, C. H.	NCC 3 2	3069
12	TEXAS A&M UNIVERSITY	Young, R. S.	HQ-SB	Fendler, J. H.	NSG 7037	3603
12	UNIV OF ALBUQUERQUE	Fordyce, J. S.	LERC	Urzendowski, R. M.	NSG 3092	2893
12	UNIV ALA-BIRMINGHAM	Young, R. S.	HQ-SB	Lacey, J. C., Jr.	NGR 01-010-001	1039
12	UNIV ALA-HUNTSVILLE	Urban, E. W.	MSFC	Hendricks, J. B.	NAS 8-33384	1053
12	UNIV OF ARIZONA	Harris, J. W.	JSC	Drake, M. J.	NGR 03-002-388	1123
12	UNIV CALIF-BERKELEY	Altman, R. L.	ARC	Goren, S. L.	NCA 2-50001	1428
12	UNIV CALIF-BERKELEY	Altman, R. L.	ARC	Williams, M. C.	NCA 2-50905	1437
12	UNIV CALIF-BERKELEY	Young, R. S.	HQ-SB	Jukes, J. H.	NGR 05-003-460	1450
12	UNIV CALIF-DAVIS	Cagliostro, D. E.	ARC	Needles, H. L.	NCC 2 20	1490
12	UNIV CALIF-L ANGELES	Altman, R. L.	ARC	Knuth, E. L.	NCA 2-390903	1513
12	UNIV CALIF-L ANGELES	Harris, J. W.	JSC	Molnar, P.	NGL 05-007-367	1518
12	UNIV CALIF-SAN DIEGO	Harris, J. W.	JSC	Arnold, J. R.	NGL 05-009-148	1590
12	UNIV CALIF-SAN DIEGO	Harris, J. W.	JSC	Marti, K.	NGL 05-009-150	1591
12	UNIV CALIF-S BARBARA	Kohl, F. J.	LERC	Steinberg, M.	NSG 3256	1652

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12	UNIV OF CHICAGO	Harris, J. W.	JSC	Clayton, R. N.	NGL 14-001-169	2087
12	UNIV COLORADO-BOLDR	Whitten, R. C.	ARC	Castleman, A. W.	NSG 2248	1762
12	UNIV OF DAYTON	Kourtides, D. A.	ARC	Salyer, I. O.	NSG 2373	3267
12	UNIV OF DAYTON	Kourtides, D. A.	ARC	Salyer, I. O.	NSG 2374	3268
12	UNIV OF DENVER	Valero, F. P.	ARC	Bonomo, F.	NCA 2-205901	1802
12	UNIV OF FLORIDA	Schell, J. T.	MSFC	Patterson, E. P.	NAS 8-20247	1928
12	UNIV OF HAWAII-MANOA	Young, R. S.	HQ-SB	Folsome, C. E.	NGR 12-001-109	2038
12	UNIV HOUSTON-HOUSTON	Young, R. S.	HQ-SB	Becker, R. S.	NGR 44-005-091	3620
12	UNIV OF IDAHO	Rosser, R. W.	ARC	Korus, R. A.	NSG 2367	2058
12	UNIV ILLINOIS-URBANA	Young, R. S.	HQ-SB	Woese, C. R.	NSG 7044	2133
12	UNIV MARYLAND-COL PK	Mandel, A. D.	ARC	Goldsby, R. A.	NCA 2-420901	2353
12	UNIV MARYLAND-COL PK	Giver, L. P.	ARC	Khanna, R. K.	NCA 2-420902	2354
12	UNIV MARYLAND-COL PK	Donn, B. D.	GSFC	Khanna, R. K.	NSG 5172	2390
12	UNIV MARYLAND-COL PK	Young, R. S.	HQ-SB	Ponnamperuma, C. A.	NGR 21-002-317	2374
12	UNIV MARYLAND-COL PK	Young, R. S.	HQ-SB	Ponnamperuma, C. A.	NSG 7469	2413
12	UNIV OF MASS-AMHERST	Young, R. S.	HQ-SB	Huguenin, R. L.	NSG 7397	2616
12	UNIV OF MIAMI	Young, R. S.	HQ-SB	Fox, S. W.	NGR 10-007-008	1959
12	UNIV MO-ROLLA	Graves, R. A., Jr.	LARC	Biolsi, L.	NSG 1369	2767
12	UNIV OF NEW MEXICO	Harris, J. W.	JSC	Keil, K.	NGL 32-004-063	2898
12	UNIV OF PITTSBURGH	Kakar, R. K.	HQ-ST	Kaufman, F.	NGR 39-011-161	3440
12	UNIV OF SANTA CLARA	Chang, S.	ARC	White, D. H.	NCA 2-685806	1674
12	UNIV OF SANTA CLARA	Lawless, J. G.	ARC	Sweeney, M. A.	NCA 2-685903	1678
12	UNIV STHN COLORADO	Bryan, C. J.	KSC	Mahan, K. I.	NSG 806	1810
12	UNIV TEXAS-AUSTIN	Bond, V.	JSC	Szebekely, V. G.	NAS 9-15567	3651
12	UNIV TEXAS-EL PASO	Duke, M.	JSC	Hoffer, J. M.	NSG 9062	3713
12	UNIV OF TOLEDO	Stearns, C. A.	LERC	Edwards, J. G.	NSG 3250	3278
12	UNIV OF UTAH	Pohly, J. G.	HQ-LU	Guillory, W. A.	NSG 7516	3734
12	UNIV OF WASHINGTON	Langhoff, S. R.	ARC	Davidson, E. R.	NSG 2365	3939
12	UTAH STATE UNIV	Kakar, R. K.	HQ-ST	Megill, L. R.	NSG 7206	3745
12	VIRGINIA POLY INST	Johnston, N. J.	LARC	Wolfe, J. F.	NSG 1064	3885
12	VIRGINIA POLY INST	Young, P. R.	LARC	Mason, J. G.	NSG 1085	3886
12	VIRGINIA POLY INST	Progar, D. J.	LARC	Wightman, J. P.	NSG 1124	3887
12	VIRGINIA POLY INST	StClair, A. K.	LARC	Taylor, L. T.	NSG 1428	3894
12	VIRGINIA POLY INST	StClair, T. L.	LARC	Wolfe, J. F.	NSG 1524	3897
12	VIRGINIA POLY INST	StClair, A. K.	LARC	McGrath, J. E.	NSG 1597	3904
12	WORCESTER POLY INST	Young, R. S.	HQ-SB	Plumb, R. C.	NSG 7392	2624
12	YALE UNIVERSITY	Fryburg, G. C.	LERC	Rosner, D. E.	NSG 3169	1827
13	ALABAMA A&M UNIV	Schafer, C. F.	MSFC	Lal, R. B.	NSG 8033	1003
13	ALABAMA A&M UNIV	Burns, R. E.	MSFC	Williams, A. C.	NSG 8068	1014
13	ATHENS STATE COLLEGE	Finnell, S. E.	MSFC	Martin, A. M.	NAS 8-32220	1015
13	BOWIE STATE COLLEGE	Caruso, A. J.	GSFC	Bhatia, M. S.	NGR 21-027-010	2297
13	BRIGHAM YOUNG UNIV	Hall, C. F.	ARC	Jones, D. E.	NAS 2-7358	3722
13	BROOKLYN COLLEGE	Meador, W. E., Jr.	LARC	Franco, V.	NSG 1378	2904
13	CALIF INST OF TECH	Gemmell, J. D.	GSFC	Stone, E. C.	NAS 5-11066	1170
13	CALIF INST OF TECH	Davis, M. A.	GSFC	Stone, E. C.	NAS 5-20721	1171
13	CALIF INST OF TECH	Stouffer, C. G.	GSFC	Garmire, G. P.	NAS 5-24339	1175
13	CALIF INST OF TECH	Wende, C. D.	GSFC	Garmire, G. P.	NAS 5-25049	1176
13	CALIF INST OF TECH	Harris, J. W.	JSC	Epstein, S.	NGL 05-002-190	1192
13	CALIF INST OF TECH	Harris, J. W.	JSC	Albee, A. L.	NGL 05-002-338	1194
13	CALIF INST OF TECH	Harris, J. W.	JSC	Tombrello, T. A.	NGR 05-002-333	1202
13	CALIF INST OF TECH	DeLoach, A. C.	MSFC	Moore, R. L.	NAS 8-33215	1181
13	CALIF INST OF TECH	Henry, W.	HQ-RP	Ahrens, T. J.	NSG 7458	1227
13	CALIF INST OF TECH	Schwenk, F. C.	HQ-RT	Vaughan, R.	NSG 7275	1221
13	CALIF INST OF TECH	Schwenk, F. C.	HQ-RT	Liepmann, H. W.	NSG 7508	1229
13	CALIF INST OF TECH	Bohlin, J. D.	HQ-ST	Goldreich, P.	NSG 7342	1223
13	CAL STATE U-FULLERTN	Boese, R. W.	ARC	Nanes, R.	NCA 2-253901	1241
13	CAL STATE U-NRTHRDRG	Bohlin, J. D.	HQ-ST	Chapman, G. A.	NSG 7456	1254
13	CASE WESTERN RESERVE	Purvis, C. K.	LERC	Chapman, W. L.	NSG 3197	3166

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13	CASE WESTERN RESERVE	Labus, T. L.	LERC	Ostrach, S.	NSG 3221	3171
13	CASE WESTERN RESERVE	Reeves, F. A.	MSFC	Ostrach, S.	NAS 8-33015	3147
13	CATHOLIC UNIVERSITY	Dennis, B. R.	GSFC	Werntz, C.	NSG 5066	1840
13	CATHOLIC UNIVERSITY	McAvoy, N.	GSFC	Kelley, G. L.	NSG 5111	1841
13	CATHOLIC UNIVERSITY	Wiskerchen, M. J.	HQ-ST	Whang, Y. C.	NGR 09-005-063	1839
13	CATHOLIC UNIVERSITY	Bohlin, J. D.	HQ-ST	Whang, Y. C.	NSG 7422	1843
13	CHRISTPHR NEWPRT COL	Byvik, C. E.	LARC	Buoncristiani, A. M.	NSG 1514	3754
13	CITY COLLEGE OF N Y	Byrns, Z. H.	JSC	Pierson, W. J.	NAS 9-13642	2906
13	CITY U N Y-GRAD SCHL	Temkin, A.	GSFC	Mittleman, M. H.	NSG 5334	2914
13	CLARK COLLEGE	Pohly, J. G.	HQ-LU	Sinha, O. P.	NSG 7267	1970
13	CLARKSON COL OF TECH	Barnes, C. M	JSC	McNulty, P.	NSG 9059	2918
13	CLARKSON COL OF TECH	Crouch, R. K.	LARC	Carlson, F.	NSG 1572	2916
13	CLARKSON COL OF TECH	Williams, J. R.	MSFC	Subramanian, R. S.	NAS 8-32944	2915
13	COLLEGE OF WM & MARY	Miller, W. E.	LARC	Sher, A.	NSG 1385	3765
13	COLLEGE OF WM & MARY	Hohl, F.	LARC	Zang, T. A.	NSG 1564	3767
13	COLLEGE OF WM & MARY	Fripp, A. L.	LARC	Sher, A.	NSG 1653	3770
13	COLORADO STATE UNIV	McKenzie, R. L.	ARC	She, C. Y.	NSG 2287	1724
13	COLORADO STATE UNIV	Exton, R. J.	LARC	She, C. Y.	NSG 1594	1722
13	COLORADO STATE UNIV	Chubb, D. L.	LERC	Collins, G. J.	NSG 3060	1726
13	COLORADO STATE UNIV	Mirtich, M. J.	LERC	Kaufman, H. R.	NSG 3086	1727
13	COLORADO STATE UNIV	Aron, P. R.	LERC	Yadlowsky, E. J.	NSG 3145	1729
13	COLORADO STATE UNIV	Sater, B. L.	LERC	Sites, J. R.	NSG 3167	1730
13	COLORADO STATE UNIV	Grier, N. T.	LERC	Kaufman, H. R.	NSG 3196	1731
13	COLOPADO STATE UNIV	Schwenk, F. C.	HQ-RT	Etters, R. D	NGR 06-002-159	1720
13	COLUMBIA UNIVERSITY	Harris, J. W.	JSC	Horai, K.	NGR 33-008-177	2931
13	CORNELL UNIVERSITY	Conrath, B. J.	GSFC	Gierasch, P. J	NSG 5-23236	2951
13	CORNELL UNIVERSITY	Flood, D. J.	LERC	Ashcroft, N. W.	NGR 33-010-188	2965
13	CORNELL UNIVERSITY	Lundholm, J. G., Jr.	HQ-RS	Ashcroft, N. W.	NSG 7487	2987
13	CORNELL UNIVERSITY	Kaiser, M. L.	HQ-ST	Farley, D. T.	NGR 33-010-161	2963
13	DARTMOUTH COLLEGE	Cooper, D. M.	ARC	Christy, R. W.	NSG 2397	2813
13	DREXEL UNIVERSITY	Brooks, W. F.	ARC	Acquista, C. A.	NSG 2357	3353
13	DREXEL UNIVERSITY	Nelsen, E. D.	GSFC	House, F. B.	NAS 5-22946	3347
13	DREXEL UNIVERSITY	Holland, A. C.	WFC	Acquista, C. R.	NSG 6019	3358
13	DREXEL UNIVERSITY	Lundholm, J. G., Jr.	HQ-RR	Rosen, G. H.	NSG 7491	3360
13	FISK UNIVERSITY	Stecker, F. W.	GSFC	Mickens, R. E.	NSG 5297	3482
13	FISK UNIVERSITY	Kroes, R. L.	MSFC	Silberman, E.	NSG 8060	3484
13	FLORIDA A&M UNIV	Temkin, A.	GSFC	Jones, H. W.	NSG 5307	1913
13	FLORIDA A&M UNIV	Pohly, J. G.	HQ-LU	Jones, H. J.	NSG 901	1909
13	FORT LEWIS COLLEGE	Browne, I. D.	JSC	Baker, J. R.	NAS 9-15276	1740
13	GEORGE WASHINGTON U	Greene, G. C.	LARC	Liebowitz, H.	NSG 1474	1865
13	GEORGIA INST OF TECH	Feiler, C. E.	LERC	Cassanova, R. A.	NSG 3228	2003
13	HAMPTON INSTITUTE	Hohl, F.	LARC	Han, K. S.	NSG 1595	3788
13	HARVARD UNIVERSITY	Reed, E. I.	GSFC	Parkinson, W. H.	NSG 5176	2465
13	HARVARD UNIVERSITY	Snoddy, W. C.	MSFC	Vaiana, G. S.	NAS 8-31374	2447
13	HARVARD UNIVERSITY	Lacy, L. L.	MSFC	Turnbull, D.	NAS 8-32691	2448
13	HARVARD UNIVERSITY	Bohlin, J. D.	HQ-ST	Parkinson, W. H	NGL 22-007-006	2452
13	HARVARD UNIVERSITY	Bohlin, J. D.	HQ-ST	Parkinson, W. H.	NSG 5128	2462
13	HARVARD UNIVERSITY	Bohlin, J. D.	HQ-ST	Vaiana, G. S.	NSG 7497	2481
13	HARVARD UNIVERSITY	Bohlin, J. D.	HQ-ST	Vaiana, G. S.	NSG 7537	2483
13	HOWARD UNIVERSITY	Nava, D. F.	GSFC	Tsang, T.	NGR 09-011-057	1884
13	HOWARD UNIVERSITY	Alcorn, G. E.	GSFC	Cooper, A. R.	NSG 5158	1890
13	HOWARD UNIVERSITY	O'Keefe, J. A.	GSFC	Wallace, W. J.	NSG 5186	1891
13	IOWA STATE UNIV	Pollack, J. B.	ARC	Grossman, A. S.	NCA 2-340902	2186
13	JOHNS HOPKINS UN V	Fowler, W. S.	GSFC	Fastie, W. G.	NAS 5-25358	2305
13	JOHNS HOPKINS UNIV	DeLoach, A. C.	MSFC	Roelof, E. C.	NAS 8-33106	2310
13	JOHNS HOPKINS UNIV	Hedin, A. E.	HQ-ST	Krimigis, S. M.	NSG 7055	2325
13	LEHIGH UNIVERSITY	Harris, J. W.	JSC	Sclar, C. B.	NGR 39-007-064	3368
13	LEHIGH UNIVERSITY	Williams, J. R.	MSFC	VanDerHoff, J. W.	NAS 8-32951	3362

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13	MASS INST OF TECH	Davis, M. A.	GSFC	Bridge, H. S.	NAS 5-11062	2493
13	MASS INST OF TECH	Harris, J. W.	JSC	Simmons, M. G.	NGR 22-009-540	2532
13	MASS INST OF TECH	Byvik, C. E.	LARC	Wrighton, M. S.	NSG 1048	2543
13	MASS INST OF TECH	Akey, N. D.	LARC	Fonstad, C. G.	NSG 1413	2548
13	MASS INST OF TECH	Singh, J. J.	LARC	Greytak, T. J.	NSG 1551	2552
13	MASS INST OF TECH	Greene, G. C.	LARC	Ingard, K. V.	NSG 1583	2554
13	MASS INST OF TECH	Davidson, M. C.	MSFC	Hitt, A. F.	NAS 8-32994	2512
13	MASS INST OF TECH	DeLoach, A. C.	MSFC	Sullivan, J. D.	NAS 8-33137	2513
13	MASS INST OF TECH	DeLoach, A. C.	MSFC	Frankenthal, S.	NAS 8-33138	2514
13	MASS INST OF TECH	Cauffman, D. P.	HQ-ST	Bridge, H. S.	NGL 22-009-015	2521
13	MIAMI UNIVERSITY	Hohl, F.	LARC	Wells, W. E.	NCC 1 12	3203
13	MIAMI UNIVERSITY	Hohl, F.	LARC	Wells, W. E.	NSG 1383	3204
13	MIAMI UNIVERSITY	Hohl, F.	LARC	Wells, W. E.	NSG 1396	3205
13	MICHIGAN STATE UNIV	Bohlin, J. D.	HQ-ST	Stein, R. F.	NSG 7293	2627
13	MISSISSIPPI STATE U	Hollis, B. R., Jr.	MSFC	Trotter, D.	NAS 8-26749	2733
13	MONTANA STATE UNIV	Eby, P. B.	MSFC	Nordtvedt, K.	NSG 8061	2795
13	MOREHOUSE COLLEGE	Burch, J. L.	MSFC	Turner, J. M.	NSG 8043	2014
13	NEW YORK UNIVERSITY	Darden, C. M.	LARC	Ting, L.	NSG 1576	3005
13	NEW YORK UNIVERSITY	Roman, N. G.	HQ-SC	Glassgold, A. E.	NGR 33-016-196	3001
13	N CAR CENTRAL UNIV	McAvoy, N.	GSFC	Dutta, J. M.	NSG 5120	3117
13	NO CAROLINA STATE U	Meador, W. E., Jr.	LARC	Hassan, H. A.	NSG 1058	3126
13	NO CAROLINA STATE U	Mayes, W. H.	LARC	Hart, F. D.	NSG 1205	3128
13	NO CAROLINA STATE U	Long, E. R., Jr.	LARC	Fornes, R. E.	NSG 1562	3134
13	OHIO STATE UNIV	Boese, R. W.	ARC	Rao, K. N.	NSG 2175	3226
13	OLD DOMINION UNIV	Fowler, W. B.	GSFC	Becher, J.	NSG 5289	3840
13	OLD DOMINION UNIV	Melfi, L. T., Jr.	LARC	Brock, F. J.	NSG 1271	3801
13	OLD DOMINION UNIV	Holmes, H. K.	LARC	Zuckerwar, A. J.	NSG 1324	3805
13	OLD DOMINION UNIV	Hohl, F.	LARC	Harries, W. L.	NSG 1362	3809
13	OLD DOMINION UNIV	Hohl, F.	LARC	Harries, W. L.	NSG 1568	3832
13	OREGON STATE UNIV	Harris, J. W.	JSC	Schmitt, R. A.	NGL 38-002-039	3323
13	PENN STATE U-UNIV PK	Spencer, N. W.	GSFC	Nisbet, J. S.	NSG 5212	3412
13	PENN STATE U-UNIV PK	Aron, P. R.	LERC	Robinson, J. W.	NSG 3166	3402
13	PENN STATE U-UNIV PK	Aron, P. R.	LERC	Kendall, B. R.	NSG 3301	3407
13	PENN STATE U-UNIV PK	Ballance, C. W., Jr.	WFC	Kendall, B. R.	NGL 39-009-032	3392
13	PENN STATE U-UNIV PK	Kaiser, M. L.	HQ-ST	Nisbet, J. S.	NGL 39-009-003	3380
13	POLY INST OF NY	Will, H. A.	LERC	Lederman, S.	NSG 3108	3023
13	PRINCETON UNIVERSITY	McKenzie, R. L.	ARC	Miles, R. B.	NSG 2366	2855
13	PRINCETON UNIVERSITY	Williams, J. T.	GSFC	Lowrance, J. L.	NSG 5277	2860
13	PRINCETON UNIVERSITY	Honaker, W. C.	LARC	Miles, R. B.	NSG 1070	2848
13	PRINCETON UNIVERSITY	Neuschaefer, R.	MSFC	Saville, D. A.	NAS 8-32614	2841
13	PRINCETON UNIVERSITY	Bogges, N. W.	HQ-SC	Dicke, R. H.	NGR 31-001-202	2847
13	RENSSELAER POLY-NY	Meador, W. E., Jr.	LARC	Schwarz, H. J.	NSG 1628	3039
13	RENSSELAER POLY-NY	Jones, W. R., Jr.	LERC	Lauer, J. L.	NSG 3170	3041
13	RENSSELAER POLY-NY	Lacy, L. L.	MSFC	Ross, S.	NAS 8-33074	3032
13	RICE UNIVERSITY	Taylor, H. A., Jr.	GSFC	Cloutier, P. A.	NAS 5-23338	3542
13	RICE UNIVERSITY	Lad, R. A.	LERC	Rorschach, H. E.	NGL 44-006-001	3552
13	RICE UNIVERSITY	McKenzie, R. L.	HQ-RT	Swain, P. H.	NSG 7490	3564
13	RICE UNIVERSITY	Cauffman, D. P.	HQ-ST	Michel, F. C.	NGL 44-006-012	3553
13	RICE UNIVERSITY	Cauffman, D. P.	HQ-ST	Dessler, A. J.	NGR 44-006-137	3555
13	SAN FRAN STATE UNIV	Barnes, A.	ARC	Kilpatrick, T.	NCA 2-660806	1263
13	STANFORD UNIVERSITY	Whiting, E. E.	ARC	Heinemann, K. H.	NSG 2249	1381
13	STANFORD UNIVERSITY	Whiting, E. E.	ARC	Heinemann, K. H.	NSG 2285	1385
13	STANFORD UNIVERSITY	McKenzie, R. L.	ARC	Byer, R. L.	NSG 2289	1386
13	STANFORD UNIVERSITY	Billman, K. W.	ARC	Pantell, R. H.	NSG 2292	1387
13	STANFORD UNIVERSITY	Chackerian, C., Jr.	ARC	Byer, R. L.	NSG 2372	1394
13	STANFORD UNIVERSITY	Davis, M. A.	GSFC	Helliwell, R. A.	NAS 5-20871	1307
13	STANFORD UNIVERSITY	Fellerman, K. D.	GSFC	Helliwell, R. A.	NAS 5-24409	1310
13	STANFORD UNIVERSITY	Davis, M. A.	GSFC	Wilcox, J. M.	NAS 5-24420	1311

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13	STANFORD UNIVERSITY	Bissell, E. E.	GSFC	Walker, A. B., Jr.	NSG 5131	1400
13	STANFORD UNIVERSITY	Potter, R. A.	MSFC	Everitt, C. W.	NAS 8-32355	1316
13	STANFORD UNIVERSITY	Urban, E. W.	MSFC	Everitt, C. W.	NAS 8-32605	1317
13	STANFORD UNIVERSITY	Schwenk, F. C.	HQ-RT	Harris, S. E.	NSG 7619	1409
13	STANFORD UNIVERSITY	Wiskerchen, M. J.	HQ-ST	Helliwell, R. A.	NGL 05-020-008	1346
13	STANFORD UNIVERSITY	Bohlin, J. D.	HQ-ST	Sturrock, P. A.	NGL 05-020-272	1351
13	STANFORD UNIVERSITY	Bohlin, J. D.	HQ-ST	Tyler, G. L.	NSG 7552	1407
13	STATE UNIV NY-BUFFAL	Morris, J. F.	LERC	Shaw, D. T.	NSG 7071	3063
13	STATE U NY-STONY BRK	Harris, J. W.	JSC	Bence, A. E.	NGL 33-015-130	3071
13	STATE U NY-STONY BRK	Harris, J. W.	JSC	Papike, J. J.	NSG 9044	3089
13	STATE U NY-STONY BRK	Cochran, T. H.	LERC	Berlad, A. L.	NSG 3298	3078
13	TALLADEGA COLLEGE	Whitten, R. C.	ARC	Morrison, R. A.	NSG 2217	1028
13	TEXAS A&M UNIVERSITY	Matthews, R. E.	JSC	Rouse, J. W., Jr.	NAS 9-15451	3584
13	TEXAS A&M UNIVERSITY	Brown, G. V.	LERC	Ford, A. L.	NSG 3201	3598
13	TEXAS A&M UNIVERSITY	Nowakowski, M.	MSFC	Parker, D. L.	NAS 8-32527	3576
13	UNION COLLEGE	McAvoy, N.	GSFC	Galantowicz, A.	NGR 33-032-004	3095
13	UNIV ALA-HUNTSVILLE	Tandberghanssen, E.	MSFC	Wu, S. T.	NAS 8-28097	1040
13	UNIV ALA-HUNTSVILLE	Chappell, C. R.	MSFC	Comfort, R. H.	NAS 8-30563	1042
13	UNIV ALA-HUNTSVILLE	Parnell, T. A.	MSFC	Gregory, J. C.	NAS 8-31170	1043
13	UNIV ALA-HUNTSVILLE	Price, J. M.	MSFC	Christiensen, D.	NAS 8-31293	1045
13	UNIV ALA-HUNTSVILLE	Vaughan, O. H.	MSFC	Hung, R. J.	NAS 8-31729	1046
13	UNIV ALA-HUNTSVILLE	Parnell, T. A.	MSFC	Gregory, J. C.	NAS 8-31895	1047
13	UNIV ALA-HUNTSVILLE	Urban, E. W.	MSFC	Karr, G. R.	NAS 8-32818	1048
13	UNIV ALA-HUNTSVILLE	DeLoach, A. C.	MSFC	Steinolfson, R. S.	NAS 8-33216	1051
13	UNIV ALA-UNIVERSITY	Owen, R. B.	MSFC	Lin, H. K.	NAS 8-32386	1058
13	UNIV ALASKA-FAIRBNKS	Spencer, N. W.	GSFC	Rees, M. H.	NSG 5219	1064
13	UNIV OF ARIZONA	Pearl, J. C.	GSFC	Fink, U. W.	NCA 5-94	1109
13	UNIV OF ARIZONA	McAvoy, N.	GSFC	Lamb, W. E., Jr.	NSG 5302	1133
13	UNIV OF ARIZONA	Kaiser, M. L.	HQ-ST	Hsieh, K. C.	NGR 03-002-107	1116
13	UNIV OF ARIZONA	Hedin, A. E.	HQ-ST	Sonett, C. P.	NSG 7024	1136
13	UNIV OF ARIZONA	Bohlin, J. D.	HQ-ST	Levy, E. H.	NSG 7168	1142
13	UNIV CALIF-BERKELEY	Poppa, H. R.	ARC	Angelakos, D. J.	NCA 2-50705	1430
13	UNIV CALIF-BERKELEY	Billman, K. W.	ARC	Gustafson, K. T.	NSG 2151	1458
13	UNIV CALIF-BERKELEY	Kowalski, G. E.	GSFC	Anderson, K. A.	NAS 5-20079	1410
13	UNIV CALIF-BERKELEY	Davis, M. A.	GSFC	Mozer, F. S.	NAS 5-20080	1411
13	UNIV CALIF-BERKELEY	Gallagher, W. F.	GSFC	Heckman, H. K.	NAS 5-20995	1412
13	UNIV CALIF-BERKELEY	Bissell, E. E.	GSFC	Mozer, F. S.	NGR 05-003-239	1445
13	UNIV CALIF-BERKELEY	Harris, J. W.	JSC	Reynolds, J. H.	NGL 05-003-409	1443
13	UNIV CALIF-BERKELEY	Sachse, G. W.	LARC	Chiao, R. Y.	NSG 1637	1456
13	UNIV CALIF-BERKELEY	Ondrak, B. T.	MSFC	Price, P. B.	NAS 8-29603	1421
13	UNIV CALIF-BERKELEY	Bohlin, J. D.	HQ-ST	Anderson, K. A.	NSG 7527	1479
13	UNIV CALIF-DAVIS	Hansen, C. F.	ARC	Fong, C. Y.	NAS 2-10258	1482
13	UNIV CALIF-DAVIS	Arnold, J. O.	ARC	Fong, C. Y.	NSG 2383	1492
13	UNIV CALIF-DAVIS	Nelsen, E. D.	GSFC	Coulson, K. I.	NAS 5-22964	1483
13	UNIV CALIF-IRVINE	Whiting, E. E.	HQ-RT	Wallis, R. F.	NSG 7472	1500
13	UNIV CALIF-IRVINE	Bohlin, J. D.	HQ-ST	VanHoven, G.	NSG 7375	1499
13	UNIV CALIF-L ANGELES	Davis, M. A.	GSFC	Russell, C. T.	NAS 5-20064	1504
13	UNIV CALIF-L ANGELES	Hoffman, R. A.	GSFC	Coroniti, F. V.	NAS 5-25039	1506
13	UNIV CALIF-L ANGELES	Harris, J. W.	JSC	Kaplan, I. R.	NGR 05-007-289	1521
13	UNIV CALIF-L ANGELES	Rice, E. J.	LERC	Charwat, A. F.	NSG 3236	1535
13	UNIV CALIF-L ANGELES	Taylor, W. W.	HQ-ST	Holzer, R. E.	NGR 05-007-276	1520
13	UNIV CALIF-L ANGELES	Timothy, A. F.	HQ-ST	Ulrich, R. K.	NSG 7158	1549
13	UNIV CALIF-L ANGELES	Bohlin, J. D.	HQ-ST	Ulrich, R. K.	NSG 7407	1558
13	UNIV CALIF-SAN DIEGO	Davis, M. A.	GSFC	Peterson, L. E.	NAS 5-25448	1577
13	UNIV CALIF-SAN DIEGO	Wooliam, J. A.	LERC	Luo, H. L.	NSG 3103	1605
13	UNIV CALIF-SAN DIEGO	Cochran, T. H.	LERC	Williams, F. A.	NSG 3296	1608
13	UNIV CALIF-SAN DIEGO	Chappell, C. R.	MSFC	McIlwain, C. E.	NAS 8-31145	1580
13	UNIV CALIF-SAN DIEGO	DeLoach, A. C.	MSFC	Svestka Z.	NAS 8-32984	1581

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13	UNIV CALIF-SAN DIEGO	Kaluzienski, L. J.	HQ-SC	Peterson, L. E.	NGL 05-005-003	1583
13	UNIV CALIF-SAN DIEGO	Hedin, A. E.	HQ-ST	McIlwain, C. E.	NGL 05-005-007	1585
13	UNIV CALIF-SAN DIEGO	Bohlin, J. D.	HQ-ST	Peterson, L. E.	NSG 7161	1615
13	UNIV CALIF-SAN DIEGO	Bohlin, J. D.	HQ-ST	Canfield, R. C.	NSG 7406	1618
13	UNIV CALIF-S BARBARA	Cassen, P.	ARC	Glantz, S. A.	NCA 2-680805	1641
13	UNIV CALIF-S BARBARA	Brooks, W. F.	ARC	Vanyo, J. P.	NCC 2 11	1645
13	UNIV OF CHICAGO	Davis, M. A.	GSFC	Simpson, J. A.	NAS 5-11067	2075
13	UNIV OF CHICAGO	Gallagher, W. F.	GSFC	Meyer, P.	NAS 5-20674	2076
13	UNIV OF CHICAGO	Davis, M. A.	GSFC	Simpson, J. A.	NAS 5-24430	2077
13	UNIV OF CHICAGO	Harris, J. W.	JSC	Anders, E.	NGL 14-001-167	2086
13	UNIV OF CHICAGO	Harris, J. W.	JSC	Smith, J. V.	NGL 14-001-171	2088
13	UNIV OF CINCINNATI	Blue, J. W.	LERC	Selberg, B. P.	NSG 3091	3253
13	UNIV COLORADO-BOLDR	Bissell, E. E.	GSFC	Rottman, G. T.	NSG 5178	1766
13	UNIV COLORADO-BOLDR	Roman, N. G.	HQ-SC	Timothy, J. G.	NSG 7459	1784
13	UNIV COLORADO-BOLDR	Rosendhal, J. D.	HQ-SC	Thomas, R.	NSG 7460	1785
13	UNIV COLORADO-BOLDR	Strickland, A. T.	HQ-SL	Levine, J.	NSG 7344	1782
13	UNIV COLORADO-BOLDR	Bohlin, J. D.	HQ-ST	Linsky, J. L.	NGI 06-003-057	1755
13	UNIV COLORADO-BOLDR	Bohlin, J. D.	HQ-ST	Hansen, E. R.	NSG 7130	1776
13	UNIV COLORADO-BOLDR	Bohlin, J. D.	HQ-ST	Chipman, E. G.	NSG 7165	1777
13	UNIV COLORADO-BOLDR	Bohlin, J. D.	HQ-ST	Dulk, G. A.	NSG 7287	1779
13	UNIV COLORADO-BOLDR	Bohlin, J. D.	HQ-ST	Thomas, R. N.	NSG 7291	1780
13	UNIV COLORADO-BOLDR	Bohlin, J. D.	HQ-ST	Smith, D. F.	NSG 7507	1787
13	UNIV COLORADO-BOLDR	Bohlin, J. D.	HQ-ST	Gebbie, K. B.	NSG 7511	1788
13	UNIV DC-MT VERNON SQ	Mentall, J. E.	GSFC	Morgan, H. D.	NSG 5192	1903
13	UNIV OF DENVER	Goldberg, R.	GSFC	Barcus, J.	NAS 5-25862	1799
13	UNIV OF FLORIDA	Hohl, F.	LARC	Schneider, R. T.	NSG 1586	1942
13	UNIV OF FLORIDA	Thom, K.	HQ-RR	Schneider, R. T.	NGL 10-005-089	1938
13	UNIV OF FLORIDA	Thom, K.	HQ-RR	Schneider, R. T.	NSG 7299	1951
13	UNIV OF HAWAII-MANOA	DeLoach, A. C.	MSFC	Heasley, J. N.	NAS 8-33219	2030
13	UNIV OF HAWAII-MANOA	Dwornik, S. E.	HQ-SL	Morrison, D.	NSG 7633	2056
13	UNIV OF HAWAII-MANOA	Bohlin, J. D.	HQ-ST	Jefferies, J. T.	NSG 7536	2053
13	UNIV HOUSTON-CL LAKE	Harris, J. W.	JSC	Blanford, G. E.	NSG 9043	3637
13	UNIV ILLINOIS-URBANA	Spencer, N. W.	GSFC	Sechrist, C. F., Jr.	NSG 5213	2129
13	UNIV ILLINOIS-URBANA	Hohl, F.	LARC	Miley, G. H.	NSG 1547	2122
13	UNIV ILLINOIS-URBANA	Hohl, F.	LARC	Verdeyen, J. T.	NSG 1609	2123
13	UNIV ILLINOIS-URBANA	Dunning, J. W., Jr.	LERC	Verdeyen, J. T.	NGR 14-005-200	2119
13	UNIV ILLINOIS-URBANA	Cochran, T. H.	LERC	Strehlow, R. A.	NSG 3293	2127
13	UNIV OF IOWA	Stallcop, J. R.	ARC	Stwalley, W. C.	NSG 2327	2215
13	UNIV OF IOWA	Gemmell, J. D.	GSFC	Frank, L. A.	NAS 5-11064	2201
13	UNIV OF IOWA	Davis, M. A.	GSFC	Gurnett, D. A.	NAS 5-20093	2204
13	UNIV OF IOWA	Davis, M. A.	GSFC	Frank, L. A.	NAS 5-20094	2205
13	UNIV OF IOWA	Fellerman, K. D.	GSFC	Frank, L. A.	NAS 5-24293	2206
13	UNIV OF IOWA	Fellerman, K. D.	GSFC	Shawhan, S. D.	NAS 5-24294	2207
13	UNIV OF IOWA	Heppner, J. P.	GSFC	Gurnett, D. A.	NAS 5-24336	2208
13	UNIV OF IOWA	Gemmell, J. D.	GSFC	Frank, L. A.	NAS 5-25530	2209
13	UNIV OF IOWA	Schwenk, F. C.	HQ-RT	Stwalley, W. C.	NSG 7471	2219
13	UNIV OF IOWA	Wiske:chen, M. J.	HQ-ST	VanAllen, J. A.	NGL 16-001-002	2211
13	UNIV OF IOWA	Kaiser, M. L.	HQ-ST	Gurnett, D. A.	NGL 16-001-043	2212
13	UNIV OF KANSAS	Hallenback, C. A.	LERC	Armstrong, T. P.	NSG 3290	2243
13	UNIV MARYLAND-COL PK	Davis, M. A.	GSFC	Gloeckler, G.	NAS 5-11063	2336
13	UNIV MARYLAND-COL PK	Gallagher, W. F.	GSFC	Gloeckler, G.	NAS 5-20062	2337
13	UNIV MARYLAND-COL PK	Conrath, B. J.	GSFC	Ponnamperuma, C. A.	NAS 5-23237	2338
13	UNIV MARYLAND-COL PK	Sing, M. L.	GSFC	Papadopoulos, K.	NAS 5-25388	2341
13	UNIV MARYLAND-COL PK	Kastner, S. O.	GSFC	Martin, F. W.	NCA 5-65	2360
13	UNIV MARYLAND-COL PK	Ogilvie, K. W.	GSFC	Coplan, M. A.	NGR 21-002-291	2372
13	UNIV MARYLAND-COL PK	Teegarden, B. J.	GSFC	Gloeckler, G.	NGR 21-002-316	2373
13	UNIV MARYLAND-COL PK	Johnson, T. S.	GSFC	Alley, C. O.	NSG 5129	2388
13	UNIV MARYLAND-COL PK	Bissell, E. E.	GSFC	Moore, J. H.	NSG 5177	2392

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13	UNIV MARYLAND-COL PK	Hudson, R. D.	GSFC	Mellrath, T. J.	NSG 5313	2397
13	UNIV MARYLAND-COL PK	Simoneau, R. J.	LERC	Sengers, J. V.	NGR 21-002-344	2375
13	UNIV MARYLAND-COL PK	Coles, W. D.	LERC	Spain, I. L.	NGR 21-002-400	2378
13	UNIV MARYLAND-COL PK	DeLoach, A. C.	MSFC	Rundu, M. R.	NAS 8-33105	2348
13	UNIV MARYLAND-COL PK	Urban, E. W.	MSFC	Paik, H. J.	NAS 8-33557	2352
13	UNIV MARYLAND-COL PK	Kakar, R. K.	HQ-EB	Ginter, M. L.	NSG 7340	2410
13	UNIV MARYLAND-COL PK	Lundholm, J. G., Jr.	HQ-RS	Spain, I. L.	NSG 7496	2415
13	UNIV MARYLAND-COL PK	Whiting, E. E.	HQ-RT	Weber, J.	NSG 7196	2405
13	UNIV MARYLAND-COL PK	Bohlin, J. D.	HQ-ST	Kundu, M. R.	NGR 21-002-199	2369
13	UNIV MARYLAND-COL PK	Bohlin, J. D.	HQ-ST	Spicer, D. S.	NSG 7427	2412
13	UNIV MD-EASTRN SHORE	Trafford, G. H.	WFC	Singh, G.	NGR 21-119-003	2418
13	UNIV OF MASS-AMHERST	Harris, J. W.	JSC	Haggerty, S. E.	NGL 22-010-089	2614
13	UNIV MICH-ANN ARBOR	Fellerman, K. D.	GSFC	Carignan, G. R.	NAS 5-24295	2637
13	UNIV MICH-ANN ARBOR	Fellerman, K. D.	GSFC	Hays, P. B.	NAS 5-24296	2638
13	UNIV MICH-ANN ARBOR	Hoffman, R. A.	GSFC	Nagy, A. F.	NAS 5-25038	2643
13	UNIV MICH-ANN ARBOR	Haykin, D.	GSFC	Fresh, F.	NAS 5-25158	2646
13	UNIV MICH-ANN ARBOR	Krehbiel, J. P.	GSFC	Carignan, G. R.	NAS 5-25409	2647
13	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-25916	2648
13	UNIV MICH-ANN ARBOR	Bissell, E. E.	GSFC	Sharp, W. E.	NGR 23-005-360	2661
13	UNIV MICH-ANN ARBOR	Hedin, A. E.	HQ-ST	Samir, U.	NGR 23-005-320	2660
13	U MINN-MNPLS-ST PAUL	Sugiura, M.	GSFC	Cahill, L. J., Jr.	NAS 5-25389	2702
13	U MINN-MNPLS-ST PAUL	Bissell, E. E.	GSFC	Winckler, J. R.	NSG 5088	2715
13	U MINN-MNPLS-ST PAUL	Bissell, E. E.	GSFC	Kellogg, P. J.	NSG 5373	2717
13	U MINN-MNPLS-ST PAUL	Harris, J. W.	JSC	Pepin, R. O.	NGL 24-005-225	2707
13	U MINN-MNPLS-ST PAUL	Harris, J. W.	JSC	Murthy, V. R.	NGR 24-005-223	2710
13	U MINN-MNPLS-ST PAUL	Sovey, J. S.	LERC	Wehner, G. K.	NSG 3041	2713
13	U MINN-MNPLS-ST PAUL	Lundholm, J. G., Jr.	HQ-RS	Scriven, L. E.	NSG 7296	2726
13	UNIV NEW HAMP-DURH M	Trainor, J. H.	GSFC	Webber, W. R.	NAS 5-24354	2821
13	UNIV NEW HAMP-DURHAM	VonRosenvinge, T. T.	GSFC	Fisk, L. A.	NAS 5-25642	2823
13	UNIV NEW HAMP-DURHAM	Bohlin, J. D.	HQ-ST	Chupp, E. L.	NGL 30-002-018	2825
13	UNIV NEW HAMP-DURHAM	Bohlin, J. D.	HQ-ST	Fisk, L. A.	NSG 7411	2830
13	UNIV OF NOTRE DAME	Scott, J. N.	LERC	Atassi, H.	NSG 3195	2181
13	UNIV OREGON-EUGENE	Harris, J. W.	JSC	Weill, D. F.	NGL 38-003-022	3331
13	UNIV OF PENNSYLVANIA	Hansen, C. F.	ARC	Rabii, S.	NAS 2-10070	3423
13	UNIV OF PITTSBURGH	Cooper, D. M.	ARC	Jordan, K. D.	NSG 2407	3442
13	UNIV OF PITTSBURGH	Kostiuk, T.	GSFC	Falk, J.	NAS 5-25013	3433
13	UNIV OF PITTSBURGH	Harris, J. W.	JSC	Hapke, B. W.	NSG 9056	3451
13	UNIV OF PITTSBURGH	Brown, G. V.	LERC	Wallace, W. E.	NSG 3168	3444
13	UNIV OF ROCHESTER	Stallcop, J. R.	ARC	George, T. F.	NSG 2198	3097
13	UNIV OF ROCHESTER	Bohlin, J. D.	HQ-ST	Thomas, J. H.	NSG 7562	3101
13	UNIV SAN FRANCISCO	Souza, K. A.	ARC	Benton, E. V.	NAS 2-9504	1663
13	UNIV SAN FRANCISCO	Thirolf, R. G.	JSC	Benton, E. V.	NAS 9-15337	1668
13	UNIV SAN FRANCISCO	Parnell, T. A.	MSFC	Benton, E. V.	NAS 8-26758	1666
13	UNIV OF SANTA CLARA	Whitten, R. C.	ARC	McCormick, P. T.	NCA 2-685906	1680
13	UNIV OF SOUTHERN CAL	Bissell, E. E.	GSFC	Judge, D. L.	NSG 5108	1703
13	UNIV OF SOUTHERN CAL	Schmerling, E. R.	HQ-ST	Intriligator, D. S.	NGR 05-018-181	1696
13	UNIV OF SOUTHERN CAL	Cauuffman, D. P.	HQ-ST	Intriligator, D. S.	NGR 05-018-185	1697
13	UNIV OF SYDNEY	Melfi, L. T., Jr.	LARC	Bird, G. A.	NSG 7272	4023
13	UNIV TENNESSEE-KNOXV	Maguire, W. C.	GSFC	Fox, K.	NAS 5-25428	3493
13	UNIV TENNESSEE-KNOXV	Fichtl, G. H.	MSFC	Antar, B. N.	NAS 8-33447	3506
13	UNIV TEXAS-AUSTIN	Rice, E. J.	LERC	Blackstock, D. T.	NSG 3198	3669
13	UNIV TEXAS-DALLAS	Fellerman, K. D.	GSFC	Heelis, R. A.	NAS 5-24297	3694
13	UNIV TEXAS-DALLAS	Fellerman, K. D.	GSFC	Hanson, W. B.	NAS 5-24298	3695
13	UNIV TEXAS-DALLAS	Fellerman, K. D.	GSFC	Winningham, J. D.	NAS 5-24299	3696
13	UNIV TEXAS-DALLAS	Caporale, A. J.	GSFC	Hanson, W. B.	NAS 5-25310	3697
13	UNIV TEXAS-DALLAS	Bissell, E. E.	GSFC	Winningham, J. D.	NGR 44-004-124	3704
13	UNIV TEXAS-DALLAS	Chappell, C. R.	MSFC	Hanson, W. B.	NAS 8-32831	3700
13	UNIV TEXAS-EL PASO	Robertson, J. B.	LARC	Eastman, M. P.	NSG 1316	3711



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13	U TEX HEALTH CTR-SA	Harris, J. W.	JSC	Morgan, J. W.	NSG 9049	3718
13	UNIV OF TOLEDO	Connolley, D. J.	LERC	Rush, W. F.	NSG 3099	3273
13	UNIV OF UTAH	Randolph, L. P.	HQ-RT	Vali, V.	NASW 2967	3728
13	UNIV OF VIRGINIA	Beatty, M. E.	LARC	Batchman, T. E.	NSG 1567	3858
13	UNIV OF WASHINGTON	Schwenk, F. C.	HQ-RT	Hertzberg, A.	NGL 48-002-044	3931
13	UNIV WISC-MADISON	King, J. H.	HQ-ST	Scherb, F.	NGR 50-002-162	3993
13	UTAH STATE UNIV	Eiband, A. M.	GSFC	Banks, P. M.	NAS 5-24455	3736
13	UTAH STATE UNIV	Spencer, N. W.	GSFC	StMaurice, J. P.	NSG 5215	3741
13	UTAH STATE UNIV	Spencer, N. W.	GSFC	Foster, J. C.	NSG 5216	3742
13	VANDERBILT UNIVERSTY	Hohl, F.	LARC	Lee, J. H.	NCC 1 8	3521
13	VANDERBILT UNIVERSTY	Hohl, F.	LARC	Lee, J. H.	NSG 1235	3522
13	VIRGINIA POLY INST	Smith, A.	LARC	Sanzone, G.	NSG 1020	3884
13	VIRGINIA STATE UNIV	Singh, J. J.	LARC	Stronach, C. E.	NSG 1342	3921
13	VIRGINIA STATE UNIV	Wilson, J. W.	LARC	Stronach, C. E.	NSG 1646	3922
13	WASHINGTON ST UNIV	Poppa, H. R.	ARC	Dickinson, J. T.	NCA 2-840801	3961
13	WASHINGTON ST UNIV	Poppa, H. R.	ARC	Dickinson, J. T.	NCA 2-840901	3962
13	WASHINGTON UNIVERSTY	Harris, J. W.	JSC	Walker, R. M.	NGL 26-008-065	2781
13	WASHINGTON UNIVERSTY	Heyman, J. S.	LARC	Miller, J. G.	NSG 1601	2783
13	WILLIAMS COLLEGE	Reinhardt, V. S.	GSFC	Crampton, S. B.	NSG 5218	2621
13	WRIGHT STATE UNIV	DiCarlo, J. A.	LERC	Bambakidis, G.	NSG 3240	3295
13	XAVIER UNIV-LA	Wood, G. M.	LARC	Ioup, J. W.	NSG 1361	2293
13	YORK COLLEGE-NY	Quaide, W. L.	HQ-SL	Spergel, M. S.	NSG 7454	3103
13	OREGON GRADUATE CTR	McKenzie, R. L.	ARC	Elliott, R. A.	NSG 2387	3316
19	ARIZONA STATE UNIV	Black, D. C.	ARC	Greeley, R.	NSG 2284	1079
19	ATHENS STATE COLLEGE	Zwiener, J. M.	MSFC	Workman, G. L.	NAS 8-32920	1017
19	BOSTON UNIVERSITY	Taylor, W. W.	HQ-ST	Mendillo, M.	NSG 7254	2436
19	CALIF INST OF TECH	Harris, J. W.	JSC	Ahrens, T. J.	NSG 9019	1232
19	CASE WESTERN RESERVE	Weigand, A. J.	LERC	Gibbons, D. F.	NAS 3-22259	3144
19	CASE WESTERN RESERVE	Mirtich, M. J.	LERC	Topich, J. A.	NSG 3131	3162
19	CASE WESTERN RESERVE	Mirtich, M. J.	LERC	Wallace, J. F.	NSG 3279	3181
19	CHRISTPHR NEWPRT COL	Wilson, J. W.	LARC	Chang, C. K.	NSG 1614	3755
19	COLLEGE OF WM & MARY	Smith, D. D.	LARC	Heeman, W.	NAS 1-9990	3756
19	COLLEGE OF WM & MARY	Cauuffman, D. P.	HQ-ST	Montgomery, D. C.	NSG 7416	3771
19	COLUMBIA UNIVERSITY	Smith, D. E.	GSFC	Scholz, C. H.	NGR 33-008-146	2930
19	COLUMBIA UNIVERSITY	Seltzer, S. M.	MSFC	Likins, P. A.	NAS 8-32212	2924
19	CORNELL UNIVERSITY	Gray, J. W.	WFC	Wray, J. D.	NSG 6020	2979
19	HAMPTON INSTITUTE	Erickson, W. D.	LARC	Darden, G. C.	NAS 1-14832	3778
19	HARVARD UNIVERSITY	Tate, F.	HQ-SP	Field, G. B.	NSG 7176	2476
19	HOUSTON BAPTIST UNIV	McCoy, J.	JSC	Warren, D. G.	NSG 9076	3538
19	KENT STATE UNIV-KENT	Sater, B. L.	LERC	Gelerinter, E.	NAS 3-21945	3199
19	MASS INST OF TECH	Pepper, S. V.	LERC	Johnson, K. H.	NCC 3 1	2518
19	MICHIGAN STATE UNIV	Nakanishi, S.	LERC	Asmussen, J.	NSG 3299	2626
19	MORGAN STATE UNIV	Pohly, J. G.	HQ-LU	Proctor, N. K.	NGT 21-025-006	2332
19	NEW MEX ST U-LAS CR	Hedin, A. E.	HQ-ST	Theimer, O. H.	NSG 7622	2892
19	OLD DOMINION UNIV	Fowler, W. B.	GSFC	Becher, J.	NSG 5053	3839
19	PENN STATE U-UNIV PK	Gray, J. W.	WFC	Ferguson, G. A.	NSG 6004	3415
19	PRINCETON UNIVERSITY	Williams, T. S., Jr.	LARC	Hargraves, R. B.	NAS 1-9705	2833
19	RENSSELAER POLY-NY	Davidson, M. C.	MSFC	Wiedemeier, H.	NAS 8-32639	3029
19	RENSSELAER POLY-NY	Gevarter, W. B.	HQ-RE	Shen, C. N.	NSG 7184	3044
19	STANFORD UNIVERSITY	Rubensin, M. W.	ARC	Reynolds, W. C.	NCC 2 15	1342
19	STANFORD UNIVERSITY	Snyder, C. T.	ARC	Karamchett, K.	NSG 2007	1371
19	STANFORD UNIVERSITY	Ostrow, H.	GSFC	MacOvski, A.	NAS 5-25043	1313
19	STANFORD UNIVERSITY	Davidson, M. C.	MSFC	Tiller, W. A.	NAS 8-33110	1320
19	STANFORD UNIVERSITY	Kaiser, M. L.	HQ-ST	Crawford, F. W.	NGL 05-020-176	1349
19	STANFORD UNIVERSITY	Kaiser, M. L.	HQ-ST	DaRosa, A. V.	NGR 05-020-001	1354
19	STATE U NY-STONY BRK	Boese, R. W.	ARC	Boudart, M.	NCA 2-760801	3067
19	TEXAS A&M UNIVERSITY	Stonesifer, G. R.	GSFC	Harlan, J. C.	NAS 5-24383	3571
19	UNIV ALA-HUNTSVILLE	Morgan, S. H.	MSFC	Wu, S. T.	NAS 8-33132	1050

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19	UNIV ALASKA-FAIRBNKS	Gray, J. W.	WFC	Davis, T. N.	NSG 6014	1065
19	UNIV ALASKA-FAIRBNKS	Gray, J. W.	WFC	Hallinan, T. J.	NSG 6024	1066
19	UNIV ALASKA-FAIRBNKS	Gray, J. W.	WFC	Hallinan, T. J.	NSG 6028	1067
19	UNIV ALASKA-FAIRBNKS	Hedin, A. E.	HQ-ST	Swift, O. W.	NSG 7625	1069
19	UNIV ARKANSAS-FAYETV	Demel, K. J.	JSC	Waite, W. P.	NAS 9-14251	1164
19	UNIV CALIF-BERKELEY	King, J. H.	HQ-ST	Anderson, K. A.	NGL 05-003-017	1439
19	UNIV CALIF-BERKELEY	Kaiser, M. L.	HQ-ST	Mozer, F. S.	NSG 7401	1476
19	UNIV CALIF-L ANGELES	Riccitiello, S. R.	ARC	MacKenzie, J. D.	NSG 2321	1531
19	UNIV CALIF-L ANGELES	Wiskerchen, M. J.	HQ-ST	Kennel, C. F.	NGL 05-007-190	1517
19	UNIV CALIF-L ANGELES	Schmerling, E. R.	HQ-ST	Stenzel, R. L.	NSG 7616	1565
19	UNIV CALIF-SAN DIEGO	Rubesin, M. W.	ARC	Rosenblatt, M.	NSG 2376	1601
19	UNIV CALIF-SAN DIEGO	Kahn, W. D.	GSFC	Goodkind, J. M.	NSG 5331	1611
19	UNIV CALIF-SAN DIEGO	Salzman, J. A.	LERC	Austin, R. W.	NAS 3-21386	1569
19	UNIV CALIF-SAN DIEGO	Woollam, J. A.	LERC	Webb, G. W.	NSG 3055	1604
19	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HQ-SL	Suess, H. E.	NGL 05-009-005	1588
19	UNIV CALIF-SAN DIEGO	Schmerling, E. R.	HQ-ST	Alfven, H.	NSG 7623	1621
19	UNIV CALIF-S BARBARA	Harris, J. W.	JSC	Fuller, M. D.	NSG 9020	1658
19	UNIV COLORADO-BOLDR	Hall, C. F.	ARC	Stewart, I. A.	NAS 2-9477	1741
19	UNIV COLORADO-BOLDR	Bissell, E. E.	GSFC	Barth, C. A.	NSG 5103	1764
19	UNIV DC-VAN NESS	Chappelle, E. W.	GSFC	Wattlington, R. A.	NSG 5290	1905
19	UNIV OF HAWAII-MANOA	Finley, C. J.	HQ-SL	Berg, E.	NSG 7179	2045
19	UNIV HOUSTON-HOUSTON	Jackson, J. T.	JSC	Morrow, J. R.	NAS 9-15521	3613
19	UNIV HOUSTON-HOUSTON	Gray, J. W.	WFC	Sheldon, W. R.	NSG 6008	3626
19	UNIV HOUSTON-HOUSTON	Wiskerchen, M. J.	HQ-ST	Sheldon, W. R.	NSG 7609	3632
19	UNIV ILLINOIS-URBANA	Gray, J. W.	WFC	Bowhill, S. A.	NGR 14-005-181	2118
19	UNIV OF IOWA	Hedin, A. E.	HQ-ST	Joyce, G.	NSG 7632	2220
19	UNIV MARYLAND-COL PK	Hedin, A. E.	HQ-ST	Wu, C. S.	NGL 21-002-005	2364
19	UNIV MICH-ANN ARBOR	Ruff, R. C.	MSFC	Carignan, G. R.	NAS 8-31987	2650
19	UNIV MICH-ANN ARBOR	Chappell, C. R.	MSFC	Carignan, G. R.	NAS 8-32332	2651
19	UNIV MICH-ANN ARBOR	Jones, C. T.	MSFC	Torr, M. R.	NAS 8-32569	2652
19	U MINN-MNPLS-ST PAUL	Morris, J. F.	LERC	Chanin, L. M.	NSG 3094	2714
19	U MINN-MNPLS-ST PAUL	Ballance, C. W., Jr.	WFC	Arnoldy, R. J.	NSG 6005	2719
19	U MINN-MNPLS-ST PAUL	Gray, J. W.	WFC	Nier, A. O.	NSG 6009	2720
19	U MINN-MNPLS-ST PAUL	Gray, J. W.	WFC	Cahill, L. J., Jr.	NSG 6021	2721
19	U MINN-MNPLS-ST PAUL	Taylor, W. H.	HQ-ST	Kellogg, P. J.	NSG 7108	2723
19	U MINN-MNPLS-ST PAUL	Cauuffman, D. P.	HQ-ST	Cahill, L. J., Jr.	NSG 7237	2725
19	UNIV MO-ROLLA	Weigand, A. J.	LERC	Yasuda, H. K.	NSG 3199	2771
19	UNIV OF NEVADA-RENO	Smith, R. E.	MSFC	Telford, J. W.	NAS 8-31441	2809
19	UNIV NEW HAMP-DURHAM	Wende, C. D.	GSFC	Arnoldy, R. L.	NAS 5-24328	2820
19	UNIV NEW HAMP-DURHAM	Gray, J. W.	WFC	Arnoldy, R. L.	NSG 6022	2829
19	UNIV OF PENNSYLVANIA	Brewer, W. D.	LARC	Vogel, F. L.	NSG 1596	3430
19	UNIV OF PITTSBURGH	Gray, J. W.	WFC	Zipf, E. C.	NSG 6011	3448
19	UNIV STHN COLORADO	Lofgren, G.	JSC	Smith, R. K.	NSG 9051	1812
19	UNIV SO MISSISSIPPI	Wood, G. M.	LARC	Rayborn, G. H.	NSG 1515	2753
19	UNIV TEXAS-AUSTIN	Kahn, W. D.	GSFC	Tapley, B. D.	NAS 5-25018	3640
19	UNIV TEXAS-AUSTIN	White, W. W.	GSFC	Shelus, P. J.	NSG 7162	3679
19	UNIV TEXAS-AUSTIN	Flinn, E. A.	HQ-ER	Dorman, J. H.	NSG 7159	3678
19	UNIV TEXAS-AUSTIN	Shirey, W. H.	HQ-SM	Silverberg, E. C.	NASW 2974	3652
19	UNIV TEXAS-DALLAS	Chappell, C. R.	MSFC	Hanson, W. B.	NAS 8-31775	3698
19	UNIV TEXAS-DALLAS	Gray, J. W.	WFC	Christensen, A. B.	NSG 6023	3708
19	UNIV OF TOLEDO	Fellows, R. F.	HQ-SL	Delsemme, A. H.	W-14168	3291
19	UNIV OF UTAH	Kourtides, D. A.	ARC	Hughes, B. M.	NAS 2-10064	3723
19	UTAH STATE UNIV	Gray, J. W.	WFC	Williamson, P. R.	NSG 6027	3743
19	VIRGINIA POLY INST	Parker, L. C.	WFC	Powell, N. L.	NSG 6029	3917
19	VIRGINIA POLY INST	Parker, L. C.	WFC	Powell, N. L.	NSG 6030	3918
19	VIRGINIA POLY INST	Parker, L. C.	WFC	Powell, N. L.	NSG 6031	3919
19	WASHINGTON UNIVERSTY	Williams, R.	JSC	Haskin, L. A.	NSG 9073	2793

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21	ALABAMA A&M UNIV	Smith, O. E.	MSFC	Temple, E. C.	NSG 8065	1011
21	ARIZONA STATE UNIV	Lee, G.	MSFC	Woodfin, M. A.	NAS 8-32230	1072
21	BOWIE STATE COLLEGE	Lefferts, E. J.	GSFC	Srivastava, S.	NGR 21-027-004	2296
21	COLLEGE OF WM & MARY	Harris, J. L.	LARC	Donegan, M. K.	NSG 1435	3766
21	COLORADO STATE UNIV	Murphy, J. D.	ARC	Prenter, P. M.	NCA 2-165901	1716
21	DREXEL UNIVERSITY	Zeleznik, F. J.	LERC	Rosen, G. H.	NSG 3090	3354
21	DUKE UNIVERSITY	Ford, W. F.	LERC	Smith, D. A.	NSG 3160	3108
21	GEORGE WASHINGTON U	Harris, J. L.	LARC	Foley, J. D.	NSG 1508	1866
21	GEORGE WASHINGTON U	Elber, W.	LARC	Gross, D.	NSG 1556	1868
21	HAMPTON INSTITUTE	Haigler, G. W.	LARC	Shan, S. N.	NCC 1 7	3782
21	HAMPTON INSTITUTE	Hogge, J. E.	LARC	Hargrove, A.	NSG 1478	3785
21	HOWARD UNIVERSITY	Laughlin, C. R.	GSFC	Gill, T. L.	NSG 5295	1893
21	IOWA STATE UNIV	Shoosmith, J. N.	LARC	Feinberg, R. B.	NSG 1538	2193
21	LEHIGH UNIVERSITY	Everett, R. A., Jr.	LARC	Erdogan, F.	NGR 39-007-011	3364
21	MISSISSIPPI STATE U	Smith, R. E.	LARC	Thompson, J. F.	NSG 1577	2748
21	NEW YORK UNIVERSITY	Warming, R. F.	ARC	Harten, A.	NCA 2-525901	2999
21	NEW YORK UNIVERSITY	South, J. C., Jr.	LARC	Garabedian, P. R.	NSG 1579	3006
21	NEW YORK UNIVERSITY	Knight, J. C.	LARC	Schwartz, J. T.	NSG 1610	3007
21	NO CAR A&T STATE U	Ramapriyan, H. K.	GSFC	Alexander, W. E.	NSG 5406	3115
21	OLD DOMINION UNIV	Waller, M. C.	LARC	Rana, D. S.	NSG 1565	3831
21	OREGON STATE UNIV	Wilson, D. E.	ARC	Murray, R. J.	NCA 2-586901	3321
21	PENN STATE U-UNIV PK	Labovitz, M.	GSFC	McMurtry, G. J.	NAS 5-25702	3379
21	STANFORD UNIVERSITY	Romiez, M. P.	ARC	VanCleemput, W. M.	NCA 2-745903	1330
21	STANFORD UNIVERSITY	Lomax, H.	ARC	VanDyke, M. D.	NCA 2-745909	1335
21	STANFORD UNIVERSITY	Lomax, H.	ARC	Golub, G. H.	NCA 2-745912	1338
21	STANFORD UNIVERSITY	Shoosmith, J. N.	LARC	Golub, G. H.	NSG 1443	1370
21	UNIV CALIF-BERKELEY	Lomax, H.	ARC	Miller, K.	NCA 2-50901	1434
21	UNIV DC-MT VERNON SQ	Fuchs, A. J.	GSFC	Bakshi, J. S.	NSG 5122	1902
21	UNIV ILLINOIS-CHICGO	Randolph, L. P.	HQ-RT	Barcion, V.	NSG 7247	2111
21	UNIV ILLINOIS-URBANA	Foudriat, E. C.	LARC	Campbell, R. H.	NSG 1471	2121
21	UNIV MARYLAND-COL PK	Gevarter, W. B.	HQ-RE	Minker, J.	NGR 21-002-270	2371
21	UNIV OF MIAMI	Tucker, J. H.	LARC	Tapia, M. A.	NSG 1436	1961
21	UNIV NEW HAMP-DURHAM	MacElroy, R. D.	ARC	Moore, B.	NCA 2-512901	2824
21	UNIV OF NEW ORLEANS	Lambiotte, J. J., Jr.	LARC	Ioup, G. E.	NSG 1648	2291
21	UNIV OF SANTA CLARA	Hofman, L. B.	ARC	Danielson, R. L.	NCA 2-685907	1681
21	UNIV OF SO FLORIDA	Park, S. K.	LARC	Tsokos, C. P.	NSG 1487	1966
21	UNIV OF SOUTHERN CAL	Jaffee, R. L.	ARC	Segal, G. A.	NSG 2351	1700
21	UNIV TEXAS-AUSTIN	Fuchs, A. J.	GSFC	Tapley, B. D.	NSG 5154	3670
21	UNIV TEXAS-AUSTIN	Shoosmith, J. N.	LARC	Daniel, J. W.	NSG 1440	3659
21	UNIV TEXAS-AUSTIN	Smith, R. E.	LARC	Sherman, A. H.	NSG 1632	3663
21	UNIV OF VIRGINIA	Bowles, R. L.	LARC	Brown, R. L., Jr.	NSG 1335	3853
21	WICHITA STATE UNIV	Smith, J. M.	LERC	Jordan, K. D.	NSG 3186	2256
22	CAL STATE U-FULLERTN	Tobias, L.	ARC	Dear, R. G.	NCA 2-253801	1240
22	CAL STATE U-NRTHRDGE	Greene, E. P.	GSFC	Nathanson, W. I.	NAS 5-24436	1249
22	COLLEGE OF WM & MARY	Foudriat, E. C.	LARC	Feyock, S.	NSG 1626	3769
22	GEORGIA INST OF TECH	Pearson, R.	NSTL	Faust, N. L.	NAS13-84	1990
22	MASS INST OF TECH	Shoosmith, J. N.	LARC	Moses, J.	NSG 1323	2546
22	MISSISSIPPI STATE U	Darden, J. H.	MSFC	Mitchell, J. R.	NAS 8-32810	2735
22	NO CAROLINA STATE U	Park, S. K.	LARC	Roulier, J. A.	NSG 1549	3133
22	PURDUE UNIVERSITY	Gordon, F., Jr.	GSFC	Phillips, T. L.	NAS 5-24462	2146
22	SAN JOSE STATE UNIV	Chyu, W. J.	ARC	Mitchem, J.	NCA 2-675901	1273
22	TEXAS A&M UNIVERSITY	Broune, I. D.	JSC	Freund, R. J.	NAS 9-13894	3578
22	TEXAS A&M UNIVERSITY	Browne, I. D.	JSC	Guseman, L. F., Jr.	NAS 9-14689	3580
22	UNIV ALA-HUNTSVILLE	Jones, R. E.	MSFC	Shiva, S. G.	NAS 8-33096	1049
22	UNIV OF ARIZONA	Hall, C. F.	ARC	Baker, L. R.	NAS 2-10089	1095
22	UNIV OF GEORGIA	Harrison, J. O.	HQ-ET	Hale, H.	NASW 3247	2021
22	UNIV MARYLAND-COL PK	Whiting, E. E.	HQ-RT	Reiger, C. J.	NSG 7253	2407
22	UNIV MO-COLUMBIA	Migneault, G. E.	LARC	Miller, D. R.	NSG 1540	2761

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22	U PUERTO RICO-RIO PI	Lopez, J. J.	GSFC	Cabassa, H. D.	NAS 5-25844	4022
22	UNIV OF SANTA CLARA	Knauer, S. C.	ARC	Danielson, R. L.	NCA 2-685905	1679
22	UNIV TEXAS-AUSTIN	Shipman, F. S.	LARC	Browne, J. C.	NSG 1446	3660
22	UNIV TEXAS-AUSTIN	Will, R. W.	LARC	Browne, J. C.	NSG 1479	3661
22	UNIV TEXAS-AUSTIN	Schiess, J. R.	LARC	Cline, A. K.	NSG 1544	3662
22	UNIV OF VIRGINIA	Will, R. W.	LARC	Berman, W. J.	NAS 1-14862	3841
22	UNIV OF VIRGINIA	Will, R. W.	LARC	Pratt, T. W.	NSG 1458	3856
31	ALCORN STATE UNIV	Grebowsky, J.	GSFC	Paul, M. P.	NGR 25-012-001	2729
31	ARIZONA STATE UNIV	Spence, D. C.	LARC	Greeley, R.	NAS 1-15168	1071
31	ARIZONA STATE UNIV	Alexander, M. B.	MSFC	Logan, E., Jr.	NAS 8-32357	1073
31	ARIZONA STATE UNIV	Dwornik, S. E.	HQ-SL	Greeley, R.	NSG 7548	1085
31	AUGSBURG COLLEGE	Spencer, N. W.	GSFC	Engebretson, M. J.	NSG 5285	2696
31	BOSTON UNIVERSITY	Guynes, B. V.	MSFC	Mendillo, M.	NAS 8-32844	2429
31	CALIF INST OF TECH	Pollack, J. B.	ARC	Yung, Y. L.	NSG 2283	1205
31	CALIF INST OF TECH	Nelsen, E. D.	GSFC	Ingersoll, A. P.	NAS 5-22965	1173
31	CALIF INST OF TECH	Hansen, J. E.	GSFC	Yung, Y. L.	NSG 5301	1212
31	CALIF INST OF TECH	Donley, J. L.	GSFC	Zirin, H.	NSG 5314	1213
31	CALIF INST OF TECH	Donley, J. L.	GSFC	Zinn, H.	NSG 5327	1214
31	CALIF INST OF TECH	Mitz, M. A.	HQ-SL	Yung, Y. L.	NSG 7376	1224
31	CAL STATE U-FULLERTN	Murphy, R. L.	HQ-SL	Ryan, J. A.	NSG 7614	1243
31	CAL STATE U-NRTHRIDGE	Donley, J. L.	GSFC	Martin, S. F.	NSG 5324	1251
31	CAL STATE U-NRTHRIDGE	Donley, J. L.	GSFC	Chapman, G. A.	NSG 5330	1252
31	CAL STATE U-NRTHRIDGE	Donley, J. L.	GSFC	Chapman, G. A.	NSG 5333	1253
31	CITY COLLEGE OF N Y	Hansen, J. E.	GSFC	Spar, J.	NGR 33-013-086	2909
31	CLEMSON UNIV-CLEMSON	Rodgers, E. B.	GSFC	Centry, R. C.	NSG 5349	3470
31	CLEMSON UNIV-CLEMSON	Wexler, R.	GSFC	Centry, R. C.	NSG 5350	3471
31	COLLEGE OF WM & MARY	Sullivan, E. M.	LARC	Smith, M. A.	NCC 1 3	3760
31	COLLEGE OF WM & MARY	Sullivan, E. M.	LARC	Smith, M. A.	NCC 1 16	3761
31	COLLEGE OF WM & MARY	Sullivan, E. M.	LARC	Park, J. H.	NSG 1203	3764
31	COLORADO STATE UNIV	Schnetzler, C. C.	GSFC	McIver, J. L.	NAS 5 25769	1714
31	COLORADO STATE UNIV	Theon, J. S.	GSFC	Reiter, W. R.	NGR 06-002-098	1718
31	COLORADO STATE UNIV	Neul, F. A.	GSFC	Marlatt, W. E.	NSG 5073	1732
31	COLORADO STATE UNIV	Reigers, F. B.	GSFC	VonderHaar, T. H.	NSG 5258	1733
31	COLORADO STATE UNIV	Arling, A.	GSFC	VonderHaar, T. H.	NSG 5259	1734
31	COLORADO STATE UNIV	Reiter, E. R.	GSFC	Reiter, E. R.	NSG 5340	1735
31	COLORADO STATE UNIV	Leymfield, G. M.	GSFC	Cotton, W. R.	NSG 5341	1736
31	COLORADO STATE UNIV	Curtin, R. J.	GSFC	Cox, S. K.	NSG 5357	1738
31	COLORADO STATE UNIV	Ernstson, E. F.	LARC	VonderHaar, T. H.	NAS 1-15550	1709
31	COLORADO STATE UNIV	Leister, W. S.	LARC	Meroney, R. N.	NAS 1-13925	1710
31	COLUMBIA UNIVERSITY	Maddeus, P.	GSFC	Broecker, W. S.	NCC 5 16	2928
31	COLUMBIA UNIVERSITY	West, G. S., Jr.	MSFC	Balachandran, N. K.	NAS 8-33378	2925
31	CORNELL UNIVERSITY	Pirraglia, J. A.	GSFC	Gierasch, P. J.	NAS 5-23785	2952
31	CORNELL UNIVERSITY	Murphy, R. E.	HQ-SL	Sagan, C. E.	NGL 33-010-082	2956
31	CORNELL UNIVERSITY	Murphy, R. E.	HQ-SL	Gierasch, P. J.	NGL 33-010-186	2958
31	CORNELL UNIVERSITY	Quaide, W. E.	HQ-SL	Burns, J. A.	NSG 7445	2986
31	CORNELL UNIVERSITY	Murphy, R. E.	HQ-SL	Gierasch, P. J.	NSG 7612	2995
31	DARTMOUTH COLLEGE	Hansen, J. E.	GSFC	Self, S.	NSG 5145	2816
31	DREXEL UNIVERSITY	Ucellini, L. W.	GSFC	Kreitzberg, C.	NSG 5162	3356
31	DREXEL UNIVERSITY	Russell, J. M., III	LARC	House, F. B.	NAS 1-14393	3346
31	DREXEL UNIVERSITY	Smith, G. L.	LARC	House, F. B.	NSG 1545	3351
31	DREXEL UNIVERSITY	Black, R. E.	MSFC	Lord, A. E.	NAS 8-33372	3348
31	DREXEL UNIVERSITY	Holland, A. C.	WFC	Hackney, R. L.	NSG 6007	3357
31	DUKE UNIVERSITY	Kakar, R. K.	HQ-ST	DeLucia, F. C.	NSG 7540	3109
31	FAIRFIELD UNIVERSITY	Heath, D. F.	GSFC	McElaney, J. H.	NCC 5 6	1813
31	FAIRFIELD UNIVERSITY	Heath, D. F.	GSFC	McElaney, J. H.	NGR 07-010-002	1814
31	FLORIDA STATE UNIV	McMaster, L. R.	LARC	Craig, R. A.	NAS 1-14930	1916
31	FLORIDA STATE UNIV	Kakar, R. K.	HQ-EB	Hunt, R. H.	NSG 7473	1919
31	FLORIDA STATE UNIV	Murphy, R. E.	HQ-SL	Hess, S. K.	NSG 7629	1920

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31	GEORGE WASHINGTON U	Orr, H. D., III	LARC	Liebowitz, H.	NCC 1 1	1847
31	GEORGE WASHINGTON U	Callis, L. B., Jr.	LARC	Liebowitz, H.	NCC 1 19	1849
31	GEORGE WASHINGTON U	Callis, L. B., Jr.	LARC	Rogerson, A. C.	NSG 1026	1857
31	GEORGE WASHINGTON U	Callis, L. B., Jr.	LARC	Liebowitz, H.	NSG 1216	1861
31	GEORGE WASHINGTON U	Costen, R. C.	LARC	Rogerson, A. C.	NSG 1251	1862
31	GEORGE WASHINGTON U	Smith, G. L.	LARC	Liebowitz, H.	NSG 1555	1867
31	GEORGIA INST OF TECH	Young, R. E.	ARC	Alyea, F. N.	NCC 2 9	1991
31	GEORGIA INST OF TECH	Ragent, B.	ARC	Grams, G. W.	NSG 2306	1996
31	GEORGIA INST OF TECH	Pollack, J. B.	ARC	Grams, G. W.	NSG 2363	1999
31	GEORGIA INST OF TECH	LeVine, D. M.	GSFC	Wilson, C. S.	NAS 5-24148	1983
31	GEORGIA INST OF TECH	King, J. L.	GSFC	Dee, J. W.	NSG 5082	2008
31	GEORGIA INST OF TECH	Atlas, D.	GSFC	Metcalf, J. I.	NSG 5220	2009
31	GEORGIA INST OF TECH	Lawrence, G. F.	LARC	Zimmer, R. P.	NAS 1-14351	976
31	GEORGIA INST OF TECH	McMaster, L. R.	LARC	Grams, G. W.	NSG 1493	1993
31	GEORGIA INST OF TECH	McMaster, L. R.	LARC	Cunruld, D. M.	NSG 1643	1995
31	GEORGIA INST OF TECH	Smith, O. F.	MSFC	Justus, C. G.	NAS 8-32897	1986
31	GEORGIA INST OF TECH	Fellows, R. F.	HQ-SL	Edwards, H. D.	NGL 11-002-004	1992
31	HARVARD UNIVERSITY	Donley, J. L.	GSFC	Reeves, F. M.	NAS 5-23494	2445
31	HARVARD UNIVERSITY	Rice, C. F.	GSFC	McElroy, M. B.	NAS 5-24134	2446
31	HARVARD UNIVERSITY	Halem, M.	GSFC	Lindzen, R. S.	NSG 5160	2464
31	HARVARD UNIVERSITY	Williams, T. S., Jr	LARC	McElroy, M. B.	NAS 1-10492	2441
31	HARVARD UNIVERSITY	Roman, N. G.	HQ-SC	Parkinson, W. H.	NSG 7304	2477
31	HARVARD UNIVERSITY	Murphy, R. E.	HQ-SL	Goody, R. M.	NGL 22-007-228	2454
31	HARVARD UNIVERSITY	Murphy, R. E.	HQ-SL	Pipkin, F. M.	NSG 7095	2475
31	HARVARD UNIVERSITY	Seals, R. K., Jr.	HQ-ST	Anderson, J.	NASW 3242	2451
31	HARVARD UNIVERSITY	Kakar, R. K.	HQ-ST	McElroy, M. B.	NSG 2031	2460
31	IOWA STATE UNIV	Halem, M.	GSFC	Chen, T.	NSG 5339	2199
31	JOHNS HOPKINS UNIV	Rice, C. F.	GSFC	Doering, J. P.	NAS 5-11415	2303
31	KANSAS STATE UNIV	Baldwin, R. R.	JSC	Kanemasu, E. T.	NAS 9-14899	2222
31	KANSAS STATE UNIV	Murphy, R. E.	HQ-SL	Williams, D.	NGL 17-001-026	2223
31	LE MOYNE OWEN COL	Woods, D. C.	LARC	Matthews, N.	NSG 1593	3485
31	MASS INST OF TECH	Poppoff, L. G.	ARC	Prinn, R. G.	NSG 2010	2555
31	MASS INST OF TECH	Poppoff, L. G.	ARC	Alyea, F. N.	NSG 2196	2561
31	MASS INST OF TECH	Theo, J. S.	GSFC	Staelin, D. H.	NAS 5-21980	2495
31	MASS INST OF TECH	Halem, M.	GSFC	Charney, J. G.	NGR 22-009-727	2538
31	MASS INST OF TECH	Hansen, J. L.	GSFC	Stone, P. H.	NSG 5113	2584
31	MASS INST OF TECH	Halem, M.	GSFC	Charney, J. G.	NSG 5166	2586
31	MASS INST OF TECH	McMaster, L. R.	LARC	Connold, D. M.	NAS 1-14932	2486
31	MASS INST OF TECH	Murphy, R. E.	HQ-SL	Lewis, J. S.	NGL 22-009-521	2525
31	MASS INST OF TECH	Murphy, R. E.	HQ-SL	McCord, T. B.	NSG 638	2608
31	MORGAN STATE UNIV	Duncan, C. H.	GSFC	Oliver, F. W.	NSG 5401	2334
31	MURRAY STATL UNIV	Atwell, B. H.	NSTL	Franklin, W. A.	NAS13-111	3296
31	NEW YORK UNIVERSITY	Halem, M.	GSFC	Isaacson, E.	NSG 5034	3009
31	NEW YORK UNIVERSITY	Halem, M.	GSFC	Isaacson, E.	NSG 5130	3010
31	NEW YORK UNIVERSITY	Murphy, R. E.	HQ-SL	Hoffert, M. I.	NSG 7591	3013
31	NO CAROLINA STATE U	Heppner, J. P.	GSFC	Manning, E. R.	NAS 5-25751	3118
31	OHIO STATE UNIV	Murphy, J. P.	HQ-ER	Mueller, I. I.	NASW 3194	3214
31	OHIO STATE UNIV	Simon, N. K.	HQ-ST	Seliga, T. A.	NASW 3149	3213
31	OHIO STATE UNIV	Kakar, R. K.	HQ-ST	Shaw, J. H.	NSG 7479	3241
31	OKLAHOMA STATE UNIV	Vitale, J. A.	HQ-ET	Walsh, S.	NSG 7640	3304
31	OLD DOMINION UNIV	Reichle, H. G., Jr	LARC	Kindie, E. C.	NCC 1 2	3791
31	OLD DOMINION UNIV	Dodgen, J. A.	LARC	Kindie, E. C.	NSG 113	3797
31	OLD DOMINION UNIV	McMaster, L. R.	LARC	Chu, W. P.	NSG 1341	3807
31	OLD DOMINION UNIV	Reichle, H. G., Jr.	LARC	Kindie, E. C.	NSG 1396	3812
31	OLD DOMINION UNIV	Beck, S. M.	LARC	Kindie, E. C.	NSG 1406	3813
31	OLD DOMINION UNIV	Hoell, J. M.	LARC	Copeland, G. E.	NSG 1435	3814
31	OLD DOMINION UNIV	Suttles, J. T.	LARC	Tiwari, S. N.	NSG 1522	3827
31	OREGON STATE UNIV	Halem, M.	GSFC	Esbensen, S.	NSG 5308	3726

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31	OREGON STATE UNIV	Adler, R. F.	GSFC	Decker, F. W.	NSG 5343	3327
31	OREGON STATE UNIV	Halem, M.	GSFC	Gates, W. L.	NSG 5353	3328
31	OREGON STATE UNIV	Hill, C. K.	MSFC	Barber, D. A.	NAS 8-32694	3319
31	PENN STATE U-UNIV PK	Oseroff, H.	GSFC	Carlson, T. N.	NAS 5-24264	3376
31	PENN STATE U-UNIV PK	Ucellini, L. W.	GSFC	Anthes, R. A.	NSG 5205	3411
31	PENN STATE U-UNIV PK	Greaves, J. R.	GSFC	Clark, J. H.	NSG 5347	3414
31	PENN STATE U-UNIV PK	Duke, J. R.	WFC	Olivero, J.	NAS 6-2726	3380
31	PENN STATE U-UNIV PK	Schmidlin, F. J.	WFC	Clark, J. H.	NAS 6-2818	3381
31	PENN STATE U-UNIV PK	Schmidlin, F. J.	WFC	Hale, L. C.	NAS 6-2826	3382
31	PENN STATE U-UNIV PK	Tilford, S. G.	HQ-ST	Hale, L. C.	NSG 7350	3418
31	POLY INST OF NY	Pirraglia, J. A.	GSFC	Gross, S. H.	NAS 7-25076	3015
31	POLY INST OF NY	Spencer, N. W.	GSFC	Gross, S. H.	NSG 5284	3024
31	POLY INST OF NY	Murphy, R. E.	HQ-SL	Gross, S. H.	NGR 33-006-068	3016
31	RENSSELAER POLY-NY	Gevarter, W. B.	HQ-RT	Yerazunis, S. W.	NASW 3279	3033
31	RENSSELAER POLY-NY	Fellows, R. F.	HQ-SL	Harteck, P.	NGL 33-018-007	3035
31	RICE UNIVERSITY	Teegarden, B. J.	GSFC	Haymes, R. C.	NAS 5-25032	3543
31	RICE UNIVERSITY	Spencer, N. W.	GSFC	Reiff, P. H.	NSG 5286	3556
31	RICE UNIVERSITY	Quaide, W. L.	HQ-SL	Michel, F. C.	NSG 7032	3558
31	RICE UNIVERSITY	Fellows, R. F.	HQ-SL	Chamberlain, J. W.	NSG 7043	3559
31	RICE UNIVERSITY	Murphy, R. E.	HQ-SL	Stebbing, R. F.	NSG 7386	3563
31	ST U NY COL-PURCHASE	Halem, M.	GSFC	Tenenbaum, J.	NSG 5077	3091
31	ST LOUIS UNIVERSITY	Hill, C. K.	MSFC	Fuelberg, H. E.	NAS 8-32838	2754
31	ST LOUIS UNIVERSITY	Hill, C. K.	MSFC	Fuelberg, H. E.	NAS 8-33370	2755
31	SAN DIEGO STATE UNIV	Levine, J. S.	LARC	Angione, R. J.	NSG 1430	1262
31	SAN JOSE STATE UNIV	Whitten, R. C.	ARC	Riegel, C. A.	NCA 2-675809	1271
31	SAN JOSE STATE UNIV	Pollack, J. B.	ARC	Riegel, C. A.	NCC 2 2	1281
31	SAN JOSE STATE UNIV	Swan, P. R.	ARC	Bornstein, R. D.	NCC 2 5	1284
31	SAN JOSE STATE UNIV	Young, R. E.	ARC	Riegel, C. A.	NCC 2 17	1287
31	SAN JOSE STATE UNIV	Whitten, R. C.	ARC	Riegel, C. A.	NSG 2130	1289
31	SAN JOSE STATE UNIV	Woeller, F. H.	ARC	Mayer, L. A.	NSG 2315	1298
31	SO UNIV-BATON ROUGE	O'Neal, R. L.	LARC	Scott, R. L., Jr.	NAS 1-15331	2279
31	STANFORD UNIVERSITY	Halem, M.	GSFC	Spreiter, J. R.	NSG 5254	1401
31	STANFORD UNIVERSITY	Guynes, B. V.	MSFC	Darosa, A. V.	NAS 8-32852	1318
31	STANFORD UNIVERSITY	Murphy, R. E.	HQ-SL	Eshleman, V. R.	NGL 05-020-014	1347
31	STATE UNIV NY-ALBANY	Page, W. A.	ARC	Lazrus, A. L.	NSG 2386	3053
31	STATE UNIV NY-ALBANY	Holdeman, J. D.	LERC	Falconer, P.	NSG 3138	3055
31	STATE UNIV NY-ALBANY	Clifton, K. S.	MSFC	Schuerman, D.	NAS 8-32485	3048
31	STATE UNIV NY-ALBANY	Turner, R. E.	MSFC	Orville, R. E.	NAS 8-33380	3051
31	STATE UNIV NY-ALBANY	Murphy, R. E.	HQ-SL	Weinberg, J. L.	NSG 7093	3057
31	STATE UNIV NY-ALBANY	Greenwood, L. R.	HQ-ST	Kiang, C. S.	NSG 7222	3058
31	STATE U NY-STONY BRK	Stewart, R. W.	GSFC	Hogan, J. S.	NCC 5 7	3070
31	STATE U NY-STONY BRK	Hansen, J. E.	GSFC	Owen, T.	NGR 33-015-165	3075
31	STATE U NY-STONY BRK	Stewart, R. W.	GSFC	Hogan, J. S.	NSG 5102	3079
31	STATE U NY-STONY BRK	Adler, R. F.	GSFC	Alas, R. M.	NSG 5271	3082
31	STATE U NY-STONY BRK	Murphy, R. E.	HQ-SL	Varanasi, P.	NGR 33-015-139	3073
31	TENNESSEE TECH U	Humphries, W. R.	MSFC	Griggs, E. I.	NAS 8-31564	3490
31	TEXAS A&M UNIVERSITY	Schmugge, T. J.	GSFC	McFarland, M. J.	NSG 5193	3601
31	TEXAS A&M UNIVERSITY	Hill, C. K.	MSFC	Scoggins, J. R.	NAS 8-31773	3575
31	TEXAS A&M UNIVERSITY	Fellows, R. F.	HQ-SL	Plass, G. N.	NGR 44-001-117	3592
31	UNIV ALA-UNIVERSITY	Peters, P. N.	MSFC	Bertsch, W.	NAS 8-33507	1060
31	UNIV ALASKA-FAIRBANKS	King, J. H.	HQ-ST	Akasofu, S.	NSG 7447	1068
31	UNIV OF ARIZONA	Hall, C. F.	ARC	Barnes, C. H., Jr.	NAS 2-9487	1094
31	UNIV OF ARIZONA	Murphy, J. P.	ARC	Fink, U. W.	NSG 2349	1127
31	UNIV OF ARIZONA	Sours, W. T.	GSFC	Smith, B. A.	NAS 5-25484	1098
31	UNIV OF ARIZONA	Dunkelman, L.	GSFC	Martineck, S.	NCA 5-76	1107
31	UNIV OF ARIZONA	Doan, B.	GSFC	Martineck, S.	NCA 5-93	1108
31	UNIV OF ARIZONA	LeVine, D. M.	GSFC	Krider, E. P.	NSG 5023	1129
31	UNIV OF ARIZONA	Schmugge, T. J.	GSFC	Evans, D. D.	NSG 5279	1132

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31	UNIV OF ARIZONA	Jafferis, W.	KSC	Krider, E. P.	NAS10-8518	1106
31	UNIV OF ARIZONA	McCormick, M. P.	LARC	Herman, B. M.	NAS 1-14332	1090
31	UNIV OF ARIZONA	McMaster, L. R.	LARC	Herman, B. M.	NAS 1-14928	1091
31	UNIV OF ARIZONA	Fellows, R. F.	HQ-SL	Hoenig, S. A.	NGL 03-002-019	1111
31	UNIV OF ARIZONA	Murphy, R. E.	HQ-SL	Hunten, D. M.	NSG 7558	1154
31	UNIV OF ARIZONA	Murphy, R. E.	HQ-SL	Tomasko, M. G.	NSG 7573	1155
31	UNIV OF ARIZONA	Newton, G. P.	HQ-ST	Hunten, D. M.	NSG 7485	1151
31	UNIV ARKANSAS-FAYETV	Falls, L. W.	MSFC	Tubbs, J. D.	NAS 8-31550	1162
31	UNIV ARKANSAS-FAYETV	Smith, O. E.	MSFC	Tubbs, J. D.	NAS 8-33224	1163
31	UNIV CALIF-BERKELEY	Fellows, R. F.	HQ-SL	Pimental, G. C.	NGL 05-003-286	1441
31	UNIV CALIF-BERKELEY	Smith, M. J.	HQ-SL	Lin, R. P.	NSG 7277	1474
31	UNIV CALIF-DAVIS	Millard, J. P.	ARC	Hatfield, J. L.	NCA 2-180901	1487
31	UNIV CALIF-IRVINE	Seals, R. K., Jr.	HQ-EB	Molina, M. J.	NSG 7208	1498
31	UNIV CALIF-L ANGELES	Hall, C. F.	ARC	Russell, C. T.	NAS 2-9491	1503
31	UNIV CALIF-L ANGELES	Ehernberger, L. J.	DFRC	Wurtele, M. G.	NSG 4001	1536
31	UNIV CALIF-L ANGLES	Ehernberger, L. J.	DFRC	Wurtele, M. G.	NSG 4024	1538
31	UNIV CALIF-L ANGELES	Halem, M.	GSFC	Arakawa, A.	NGR 05-007-328	1523
31	UNIV CALIF-L ANGELES	Reed, E. I.	GSFC	Thorne, R. M.	NSG 5190	1542
31	UNIV CALIF-SAN DIEGO	Murphy, R. E.	HQ-SL	Schubert, G.	NSG 7164	1550
31	UNIV CALIF-L ANGELES	Murphy, R. E.	HQ-SL	Swinson, W. F.	NSG 7239	1552
31	UNIV CALIF-L ANGELES	Dwornik, S. E.	HQ-SL	Coleman, P. J., Jr.	NSG 7295	1554
31	UNIV CALIF-L ANGELES	Murphy, R. E.	HQ-SL	Martin, T. Z.	NSG 7594	1564
31	UNIV CALIF-SAN DIEGO	Wende, C. D.	GSFC	McIlwain, C. E.	NAS 5-23705	1573
31	UNIV CALIF-SAN DIEGO	Donley, J. L.	GSFC	Hudson, H. S.	NSG 5321	1609
31	UNIV CALIF-SAN DIEGO	Donley, J. L.	GSFC	Hudson, H. S.	NSG 5322	1610
31	UNIV CALIF-SAN DIEGO	Sullivan, E. M.	LARC	Cicerone, R. J.	NSG 1590	1599
31	UNIV CALIF-SAN DIEGO	Aucremanne, M. J.	HQ-SC	McIlwain, C. E.	NASW 2996	1582
31	UNIV OF CENTRAL FLA	Smith, O. E.	MSFC	Somerville, P. N.	NAS 8-33071	1923
31	UNIV OF CHICAGO	Adler, R. F.	GSFC	Srivastava, R. C.	NSG 5402	2100
31	UNIV OF CHICAGO	Guynes, B. V.	MSFC	Meyer, P.	NAS 8-32828	2078
31	UNIV OF CHICAGO	Dodge, J. C.	HQ-EB	Fujita, T. T.	NGR 14-001-008	2090
31	UNIV OF CHICAGO	Kaluzienski, L. J.	HQ-SC	Muller, D.	NSG 7464	2105
31	UNIV OF CHICAGO	Fellows, R. F.	HQ-SL	Clayton, R. N.	NGR 14-001-194	2093
31	UNIV OF CHICAGO	Seals, R. K., Jr.	HQ-ST	Kaplan, I. D.	NSG 7356	2104
31	UNIV COLORADO-BOLDR	Rice, C. F.	GSFC	Barth, C. A.	NAS 5-11405	1742
31	UNIV COLORADO-BOLDR	Gemmell, J. D.	GSFC	Barth, C. A.	NAS 5-22409	1743
31	UNIV COLORADO-BOLDR	Rice, C. F.	GSFC	Stewart, A. I.	NAS 5-23808	1746
31	UNIV COLORADO-BOLDR	Stephanides, C. C.	GSFC	Smith, M. L.	NAS 5-25887	1747
31	UNIV COLORADO-BOLDR	Reber, C. A.	GSFC	London, J.	NSG 5153	1765
31	UNIV COLORADO-BOLDR	Donley, J. L.	GSFC	Gebbie, K. B.	NSG 5318	1771
31	UNIV COLORADO-BOLDR	Reed, E. I.	GSFC	Rusch, D. W.	NSG 5372	1774
31	UNIV COLORADO-BOLDR	Brunk, W. E.	HQ-SL	Barth, C. A.	NGL 06-003-052	1754
31	UNIV COLORADO-BOLDR	Murphy, R. E.	HQ-SL	Barth, C. A.	NGR 06-003-127	1757
31	UNIV COLORADO-BOLDR	Kakar, R. K.	HQ-ST	Thomas, R. J.	NSG 7231	1776
31	UNIV COLORADO-BOLDR	Kakar, R. K.	HQ-ST	Timothy, J. G.	NSG 7559	1789
31	UNIV OF CONNECTICUT	Halem, M.	GSFC	Cooper, A. R.	NSG 5075	1817
31	UNIV OF CONNECTICUT	Halem, M.	GSFC	Lin, J. D.	NSG 5346	1818
31	UNIV OF DAYTON	Camp, D. W.	MSFC	Leurs, J. K.	NAS 8-33369	3266
31	UNIV OF DAYTON	Duke, J. R.	WFC	Luers, J. K.	NAS 6-2456	3263
31	UNIV OF DENVER	Munoz, R. M.	ARC	Murcray, D. G.	NAS 2-10158	1797
31	UNIV OF DENVER	Kunde, V. G.	GSFC	Goldman, A.	NAS 5-25097	1798
31	UNIV OF DENVER	McMaster, L. R.	LARC	Murcray, D. G.	NAS 1-14929	1796
31	UNIV OF DENVER	Goad, J. H., Jr.	LARC	Goldman, A.	NSG 1405	1803
31	UNIV OF DENVER	McCormick, M. P.	LARC	Murcray, D. G.	NSG 1439	1805
31	UNIV OF DENVER	Goad, J. H., Jr.	LARC	Murcray, D. G.	NSG 1557	1806
31	UNIV OF DENVER	Kakar, R. K.	HQ-ST	Murcray, D. G.	NSG 7271	1809
31	UNIV OF FLORIDA	Wilhelmi, A. J.	ARC	Lanzetta, L. J.	NAS 2-9976	1926
31	UNIV OF FLORIDA	Pope, C. D.	KSC	Gerber, J. F.	NAS10-9611	1934

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31	UNIV OF FLORIDA	Jafferis, W.	KSC	Uman, M. A.	NGR 10-005-169	1939
31	UNIV OF FLORIDA	Reichle, H. G., Jr.	LARC	Chameides, W. L.	NSG 1600	1943
31	UNIV OF FLORIDA	Donn, B.	HQ-SL	Green, A. S.	NGL 10-005-008	1937
31	UNIV OF HAWAII-MANOA	Greaves, J. R.	GSFC	Sadler, J. C.	NAS 5-25376	2028
31	UNIV OF HAWAII-MANOA	Greaves, J. R.	GSFC	Murakami, T.	NAS 5-25378	2029
31	UNIV OF HAWAII-MANOA	Thompson, J. S.	GSFC	Ramage, C. S.	NSG 5159	2040
31	UNIV OF HAWAII-MANOA	Donley, J. L.	GSFC	Jefferies, J. T.	NSG 5317	2043
31	UNIV OF HAWAII-MANOA	Donley, J. L.	GSFC	Orrall, F. Q.	NSG 5326	2044
31	UNIV OF HAWAII-MANOA	Quaide, W. L.	HQ-SL	McCord, T. B.	NSG 7590	2054
31	UNIV HOUSTON-CL LAKE	Clark, J.	MSFC	Samfield, E.	DEN 8 1	3635
31	UNIV ILLINOIS-URBANA	Denley, J. L.	GSFC	Mouschovias, T. C.	NSG 5319	2132
31	UNIV ILLINOIS-URBANA	Seals, R. K., Jr.	HQ-ST	Bowhill, S. A.	NSG 7506	2134
31	UNIV OF IOWA	Davis, M. A.	GSFC	Gurnett, D. A.	NAS 5-11431	2203
31	UNIV OF IOWA	Guynes, B. V.	MSFC	Shawhan, S. D.	NAS 8-32807	2210
31	UNIV OF KANSAS	Schmugge, T. J.	GSFC	Ulaby, F. T.	NAS 5-25807	2229
31	UNIV OF KANSAS	Demel, K. J.	JSC	Ulaby, F. T.	NAS 9-15421	2231
31	UNIV OF KENTUCKY	Reichle, H. G., Jr.	LARC	Peters, L. K.	NSG 1501	2261
31	UNIV MARYLAND-COL PK	Sours, W. T.	GSFC	Currie, D. G.	NAS 5-25486	2344
31	UNIV MARYLAND-COL PK	Dennis, B. R.	GSFC	Rosenfeld, A.	NCA 5-79	2361
31	UNIV MARYLAND-COL PK	Donn, B. D.	GSFC	Smith, E. P.	NGL 21-002-033	2365
31	UNIV MARYLAND-COL PK	Hartle, R. E.	GSFC	Matthews, D. L.	NGR 21-002-096	2368
31	UNIV MARYLAND-COL PK	Barnes, W. L.	GSFC	Wilkerson, T. D.	NSG 5174	2391
31	UNIV MARYLAND-COL PK	Arking, A.	GSFC	Thompson, O. E.	NSG 5209	2393
31	UNIV MARYLAND-COL PK	Winston, G. C.	GSFC	Currie, D. G.	NSG 5234	2394
31	UNIV MARYLAND-COL PK	Winston, G. C.	GSFC	Currie, D. G.	NSG 5287	2395
31	UNIV MARYLAND-COL PK	Donley, J. L.	GSFC	Kundu, M. R.	NSG 5320	2398
31	UNIV MARYLAND-COL PK	Donley, J. L.	GSFC	Spicer, D. S.	NSG 5323	2399
31	UNIV MARYLAND-COL PK	Spencer, N. W.	GSFC	Lin, C. S.	NSG 5404	2402
31	UNIV MARYLAND-COL PK	Browell, E. V.	LARC	Wilkerson, T. D.	NCC 1 25	2362
31	UNIV MD-EASTRN SHORE	Parsons, C. L.	WFC	Smith, J. C.	NSG 6016	2420
31	UNIV OF MIAMI	Nelsen, E. D.	GSFC	Gordon, H. R.	NAS 5-22963	1952
31	UNIV OF MIAMI	Greaves, J. R.	GSFC	Krause, E. B.	NAS 5-25374	1953
31	UNIV OF MIAMI	Halem, M.	GSFC	Estoque, M. A.	NSG 5342	1962
31	UNIV OF MIAMI	Fowles, W. W.	MSFC	Geisler, J. E.	NAS 8-32898	1954
31	UNIV OF MIAMI	Fowles, W. W.	MSFC	Geisler, J. E.	NAS 8-33558	1955
31	UNIV MICH-ANN ARBOR	Hedin, A. E.	GSFC	Carignan, G. R.	NAS 5-11376	2633
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-11380	2634
31	UNIV MICH-ANN ARBOR	Cooley, J. E.	GSFC	Carignan, G. R.	NAS 5-20939	2635
31	UNIV MICH-ANN ARBOR	Rice, C. F.	GSFC	Hays, P. B.	NAS 5-23006	2636
31	UNIV MICH-ANN ARBOR	Rice, C. F.	GSFC	Walker, J.	NAS 5-24331	2639
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-25002	2641
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-25031	2642
31	UNIV MICH-ANN ARBOR	Niemann, H. B.	GSFC	Carignan, G. R.	NAS 5-25145	2644
31	UNIV MICH-ANN ARBOR	Niemann, H. B.	GSFC	Carignan, G. R.	NAS 5-25153	2645
31	UNIV MICH-ANN ARBOR	Stolarski, R. S.	GSFC	Rusch, D. W.	NSG 5171	2679
31	UNIV MICH-ANN ARBOR	Reed, E. I.	GSFC	Stedman, D. H.	NSG 5189	2680
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Fontheim, E. G.	NSG 5281	2683
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Nagy, A. F.	NSG 5282	2684
31	UNIV MICH-ANN ARBOR	Russell, J. M., III	LARC	Drayson, S. R.	NAS 1-14394	2629
31	UNIV MICH-ANN ARBOR	Pellett, G. L.	LARC	Dingle, A. N.	NSG 1243	2664
31	UNIV MICH-ANN ARBOR	Sullivan, F. M.	LARC	Drayson, S. R.	NSG 1373	2667
31	UNIV MICH-ANN ARBOR	Smith, G. I.	LARC	Bartman, F. L.	NSG 1482	2669
31	UNIV MICH-ANN ARBOR	Frostrom, R. J., Jr	WFC	Horvath, J. J.	NAS 6-2794	2649
31	UNIV MICH-ANN ARBOR	Young, R. S.	HQ-SB	Kuhn, W. R.	NSG 7308	2687
31	UNIV MICH-ANN ARBOR	Murphy, R. E.	HQ-SL	Liu, V. C.	NGR 23-005-094	2659
31	UNIV MICH-ANN ARBOR	Murphy, R. E.	HQ-SL	Atreya, S. K.	NSG 7404	2688
31	UNIV MICH-ANN ARBOR	Murphy, R. E.	HQ-SL	Carignan, G. R.	NSG 7587	2691
31	UNIV MICH-ANN ARBOR	Caffman, D. P.	HQ-ST	Nagy, A. F.	NGR 23-005-015	2675



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31	UNIV MICH-ANN ARBOR	Newton, G. P.	HQ-ST	Donahue, Y. M.	NSC 7209	2686
31	UNIV MICH-ANN ARBOR	Cauffman, D. P.	HQ-ST	Hays, P. B.	NSG 7492	2690
31	U MINN-MNPLS-ST PAUL	Hall, C. F.	ARC	Nier, A. O.	NAS 2-8812	2697
31	U MINN-MNPLS-ST PAUL	Findlay, J. A.	GSFC	Neir, J. A.	NAS 5-11438	2699
31	U MINN-MNPLS-ST PAUL	Wende, C. D.	GSFC	Winckler, J. R.	NAS 5-23703	2700
31	U MINN-MNPLS-ST PAUL	Beswick, A. G.	LARC	Mauersberger, K.	NSG 1431	2711
31	U MINN-MNPLS-ST PAUL	Seals, R. K., Jr.	HQ-EB	Mauersberger, K.	NSG 7221	2724
31	U MINN-MNPLS-ST PAUL	Murphy, R. E.	HQ-SL	Nier, A. O.	NGL 24-005-009	2706
31	U MINN-MNPLS-ST PAUL	Murphy, R. E.	HQ-SL	Nier, A. O.	NSG 7575	2727
31	UNIV MO-COLUMBIA	Smith, R. E.	MSFC	Tung, C.	NAS 8-31150	2756
31	UNIV MO-COLUMBIA	Smith, R. E.	MSFC	Kassner, J. L., Jr.	NAS 8-31849	2757
31	UNIV MO-ROLLA	Fallon, R. A.	MSFC	Hagen, D. E.	NAS 8-32976	2764
31	UNIV NEBRASKA-LINCLN	Fellows, R. F.	HQ-SL	Samson, J. A.	NGR 28-004-021	2798
31	UNIV NEVADA-DRI	Smith, R. E.	MSFC	Squires, P.	NAS 8-31470	2802
31	UNIV NEVADA-DRI	Fallon, R. A.	MSFC	Kocmond, W. C.	NAS 8-32975	2803
31	UNIV NEVADA-DRI	Fallon, R. A.	MSFC	Hallett, J.	NAS 8-32977	2804
31	UNIV NEVADA-DRI	Fallon, R. A.	MSFC	Kocmond, W. C.	NAS 8-33273	2805
31	UNIV NEVADA-DRI	Anderson, B. J.	MSFC	Hallett, J.	NAS 8-33295	2806
31	UNIV OF NEVADA-RENO	Schrick, B. J.	MSFC	Kocmond, W. C.	NAS 8-32313	2810
31	UNIV NEW HAMP-DURHAM	Donley, J. L.	GSFC	Chupp, E. L.	NAS 5-23761	2819
31	UNIV NEW HAMP-DURHAM	Donley, J. L.	GSFC	Fisk, L. A.	NSG 5316	2828
31	UNIV OF NEW MEXICO	Quaide, W. L.	HQ-SL	Keil, K.	NSG 7579	2902
31	UNIV OKLAHOMA-NORMAN	Greaves, J. R.	GSFC	Sasaki, Y. K.	NAS 5-25375	3308
31	UNIV OKLAHOMA-NORMAN	Camp, D. W.	MSFC	McCarthy, J.	NAS 8-31377	3309
31	UNIV OREGON-EUGENE	Kakar, R. K.	HQ-ST	Nolt, I. G.	NSG 7360	3333
31	UNIV OF PITTSBURGH	Murphy, R. E.	HQ-SL	Fite, W. L.	NGL 39-011-013	3436
31	UNIV OF PITTSBURGH	Murphy, R. E.	HQ-SL	Zipf, E. C.	NGL 39-011-030	3437
31	UNIV OF PITTSBURGH	Murphy, R. E.	HQ-SL	Biondi, M. A.	NGR 39-011-137	3439
31	UNIV SO CAROLINA-COL	Fellows, R. F.	HQ-SL	Durig, J. R.	NGL 41-002-003	3473
31	UNIV OF SOUTHERN CAL	Murphy, R. E.	HQ-SL	Maxworthy, T.	NGR 05-018-178	1694
31	UNIV OF SOUTHERN CAL	Murphy, R. E.	HQ-SL	Judge, D. L.	NGR 05-018-180	1695
31	UNIV OF SOUTHERN CAL	Murphy, R. E.	HQ-SL	Shemary, D. E.	NSG 7595	1707
31	UNIV TENNESSEE-KNOXV	Hill, C. K.	MSFC	Frost, W.	NAS 8-31718	3496
31	UNIV TENNESSEE-KNOXV	Vaughan, O. H.	MSFC	Connett, J. R.	NAS 8-32031	3497
31	UNIV TENNESSEE-KNOXV	Camp, D. W.	MSFC	Kohl, R. H.	NAS 8-32635	3500
31	UNIV TENNESSEE-KNOXV	Camp, D. W.	MSFC	Frost, W.	NAS 8-32692	3501
31	UNIV TENNESSEE-KNOXV	Fowles, W. W.	MSFC	Antar, B. N.	NAS 8-33386	3505
31	UNIV TENNESSEE-KNOXV	Fellows, R. F.	HQ-SL	Gailar, N. M.	NGL 43-001-006	3510
31	UNIV TEXAS-DALLAS	Hall, C. F.	ARC	Hoffman, J. H.	NAS 2-9485	3691
31	UNIV TEXAS-DALLAS	Rice, C. F.	GSFC	Hoffman, J. H.	NAS 5-11406	3692
31	UNIV TEXAS-DALLAS	Rice, C. F.	GSFC	Hanson, W. B.	NAS 5-11407	3693
31	UNIV TEXAS-DALLAS	Brace, L. H.	GSFC	Heikkila, W. J.	NSG 5085	3705
31	UNIV TEXAS-DALLAS	Brace, L. H.	GSFC	Hoffman, J. H.	NSG 5087	3706
31	UNIV TEXAS-DALLAS	Spencer, N. W.	GSFC	Klumpar, D. M.	NSG 5280	3707
31	UNIV TEXAS-DALLAS	Oran, W. A.	MSFC	Hoffman, J. H.	NAS 8-32689	3699
31	UNIV TEXAS-DALLAS	Murphy, R. E.	HQ-SL	Johnson, F. S.	NGL 44-004-026	3701
31	UNIV TEXAS-DALLAS	Quaide, W. L.	HQ-SL	Hodges, R. R., Jr.	NSG 7034	3709
31	UNIV TEXAS-DALLAS	Murphy, R. E.	HQ-SL	Hanson, W. B.	NSG 7599	3710
31	UNIV TEXAS-DALLAS	Wiskerchen, M. J.	HQ-ST	Hanson, W. B.	NGR 44-004-120	3703
31	UNIV TEXAS-S ANTONIO	Spencer, N. W.	GSFC	Burch, J. L.	NSG 5418	3721
31	UNIV TEXAS-S ANTONIO	Chappell, C. R.	MSFC	Burch, J. L.	NAS 8-32584	3720
31	UNIV OF UTAH	Greaves, J. R.	GSFC	Kao, S. K.	NAS 5-25373	3725
31	UNIV OF UTAH	Duke, J. R.	WFC	Kao, S. K.	NAS 6-2498	3726
31	UNIV OF UTAH	Duke, J. R.	WFC	Staffanson, F. L.	NAS 6-2727	3727
31	UNIV OF WASHINGTON	Young, R. E.	ARC	Holton, J. R.	NSG 2228	2936
31	UNIV OF WASHINGTON	Pollack, J. B.	ARC	Charlson, R. J.	NSG 2362	3938
31	UNIV OF WASHINGTON	Spencer, N. W.	GSFC	Lin, C. S.	NSG 5283	3946
31	UNIV OF WASHINGTON	Harris, J. W.	JSC	Brownlee, D. F.	NSG 9052	3959

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31	UNIV OF WASHINGTON	Williams, T. S., Jr.	LARC	Leovy, C. B.	NAS 1-9694	3923
31	UNIV OF WASHINGTON	Russell, J. M., III	LARC	Leovy, C. B.	NAS 1-14341	3924
31	UNIV OF WASHINGTON	Fallon, R. A.	MSFC	Hobbs, P. V.	NAS 8-33148	3926
31	UNIV OF WASHINGTON	Murphy, R. E.	HQ-SL	Leovy, C. B.	NSG 7085	3951
31	UNIV OF WASHINGTON	Murphy, R. E.	HQ-SL	Leovy, C. B.	NSG 7611	3957
31	UNIV WISC-MADISON	Hall, C. F.	ARC	Suomi, D. V.	NAS 2-9480	3969
31	UNIV WISC-MADISON	Montgomery, H. E.	GSFC	Suomi, V. E.	NAS 5-21965	3971
31	UNIV WISC-MADISON	Gemmell, J. D.	GSFC	Kraushaar, W. L.	NAS 5-22410	3973
31	UNIV WISC-MADISON	Greaves, J. R.	GSFC	Suomi, V. E.	NAS 5-23462	3974
31	UNIV WISC-MADISON	Hasler, A. F.	GSFC	Suomi, V. E.	NAS 5-23706	3975
31	UNIV WISC-MADISON	Theon, J. S.	GSFC	Weinman, J. A.	NAS 5-24230	3976
31	UNIV WISC-MADISON	Greaves, J. R.	GSFC	Suomi, V. E.	NAS 5-25148	3979
31	UNIV WISC-MADISON	Greaves, J. R.	GSFC	Suomi, V. E.	NAS 5-25377	3980
31	UNIV WISC-MADISON	Greaves, J. R.	GSFC	Johnson, D. R.	NAS 5-25399	3981
31	UNIV WISC-MADISON	Halem, M.	GSFC	Houghton, D. D.	NSG 5152	3998
31	UNIV WISC-MADISON	Halem, M.	GSFC	Herman, G. F.	NSG 5223	4001
31	UNIV WISC-MADISON	Minzner, R. A.	GSFC	Suomi, V. E.	NSG 5251	4004
31	UNIV WISC-MADISON	Halem, M.	GSFC	Horn, L. H.	NSG 5252	4005
31	UNIV WISC-MADISON	Browell, E. V.	LARC	Eloranta, E.	NAS 1-14136	3968
31	UNIV WISC-MADISON	Turner, R. E.	MSFC	Johnson, D. R.	NAS 8-33222	3985
31	UNIV WISC-MADISON	Murphy, R. E.	HQ-SL	Suomi, V. E.	NGR 50-002-189	3994
31	UNIV OF WYOMING	Hedgepeth, K. D.	LARC	Pepin, T. J.	NAS 1-13797	4012
31	UNIV OF WYOMING	McCormick, M. P.	LARC	Pepin, T. J.	NAS 1-14373	4013
31	UNIV OF WYOMING	McMaster, L. R.	LARC	Pepin, T. J.	NAS 1-14931	4014
31	UNIV OF WYOMING	McMaster, L. R.	LARC	Hofmann, D. J.	NAS 1-15377	4015
31	UNIV OF WYOMING	McMaster, L. R.	LARC	Pepin, T. J.	NSG 1518	4019
31	UNIV OF WYOMING	Schrick, B. J.	MSFC	Vali, G.	NAS 8-32067	4016
31	UNIV OF WYOMING	Fallon, R. A.	MSFC	Vali, G.	NAS 8-33150	4018
31	UNIV OF WYOMING	Kakar, R. K.	HQ-EB	Hofmann, D. J.	NSG 7349	4021
31	UTAH STATE UNIV	Lowenstein, M.	ARC	Jeppesen, H.	NAS 2-9557	3735
31	UTAH STATE UNIV	Chappell, C. R.	MSFC	Raitt, W. J.	NAS 8-32636	3737
31	UTAH STATE UNIV	Johnson, W. G.	MSFC	Williamson, P. R.	NAS 8-33381	3738
31	UTAH STATE UNIV	Johnson, W. G.	MSFC	Banks, P. M.	NAS 8-33383	3739
31	UTAH STATE UNIV	Tilford, S. G.	HQ-ST	Baker, K. D.	NSG 7210	3746
31	UTAH STATE UNIV	Hedin, A. F.	HQ-ST	Banks, P. M.	NSG 7289	3747
31	UTAH STATE UNIV	Kakar, R. K.	HQ-ST	Megill, L. R.	NSG 7388	3748
31	VIRGINIA POLY INST	Argeniero, P. D.	GSFC	Havalick, R. M.	NAS 5-25839	3872
31	VIRGINIA POLY INST	Schmidlin, F. J.	WFC	Tieleman, H. W.	NGL 47-004-067	3881
31	WEBER STATE COL	DeLoach, A. C.	MSFC	Tripp, D. A.	NAS 8-33113	3750
31	WASHINGTON ST UNIV	Kakar, R. K.	HQ-EB	Cronn, D.	NSG 7214	3964
31	WESTRN KENTUCKY UNIV	Stonemetz, R. E.	MSFC	Healy, H.	NAS 8-33387	2269
31	YALE UNIVERSITY	Murphy, R. E.	HQ-SL	Cross, R. J., Jr.	NGL 07-004-043	1823
31	YORK UNIVERSITY	Cooper, D. M.	ARC	Nichols, R. W.	NSG 7223	4026
31	YORK UNIVERSITY	Newton, G. P.	HQ-ST	Schiff, H. I.	NGR 52-134-005	4025
31	OREGON GRADUATE CTR	Kakar, R. K.	HQ-EB	Rasmussen, R. A.	NSG 7457	3317
32	ARIZONA STATE UNIV	Black, D. C.	ARC	Greeley, R.	NCA 2-35802	1075
32	ARIZONA STATE UNIV	Pollack, J. B.	ARC	Krinsley, D.	NCA 2-35901	1076
32	ARIZONA STATE UNIV	Pollack, J. B.	ARC	Krinsley, D.	NCA 2-35902	1077
32	ARIZONA STATE UNIV	Harris, J. W.	JSC	Buseck, P. R.	NSG 9068	1088
32	ARIZONA STATE UNIV	Young, R. S.	HQ-SB	Cronin, J. R.	NSG 7255	1082
32	ARIZONA STATE UNIV	French, B. M.	HQ-SL	Moore, C. B.	NGL 03-001-001	1078
32	ARIZONA STATE UNIV	French, B. M.	HQ-SL	Larimer, J. W.	NSG 7040	1081
32	ARIZONA STATE UNIV	Dwornik, S. E.	HQ-SL	Greeley, R.	NSG 7415	1083
32	ARIZONA STATE UNIV	Quaide, W. L.	HQ-SL	Greeley, R.	NSG 7429	1084
32	ARIZONA STATE UNIV	Dwornik, S. E.	HQ-SL	Rankin, R. L.	NSG 7630	1086
32	ARIZONA STATE UNIV	Dwornik, S. E.	HQ-SL	Sheridan, M.	NSG 7642	1087
32	BOSTON UNIVERSITY	Young, R. S.	HQ-SB	Margulis, L.	NGR 22-004-025	2431
32	BROWN UNIVERSITY	Harris, J. W.	JSC	Rutherford, M. J.	NGR 40-002-123	3456

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32	BROWN UNIVERSITY	Dwornik, S. E.	HQ-SL	Mutch, T. A.	NASW 3285	3453
32	BROWN UNIVERSITY	Dwornik, S. E.	HQ-SL	Head, J. W.	NGR 40-002-088	3454
32	BROWN UNIVERSITY	Dwornik, S. E.	HQ-SL	Head, J. W.	NGR 40-002-116	3455
32	BROWN UNIVERSITY	Dwornik, S. E.	HQ-SL	Mutch, T. A.	NSG 7569	3459
32	BROWN UNIVERSITY	Dwornik, S. E.	HQ-SL	Head, J. W.	NSG 7570	3460
32	BROWN UNIVERSITY	Quaide, W. L.	HQ-SL	Rutherford, M. J.	NSG 7589	3461
32	BROWN UNIVERSITY	Quaide, W. L.	HQ-SL	Parmentier, E. M.	NSG 7605	3462
32	CALIF INST OF TECH	Cohen, S. C.	GSFC	Melosh, H. J.	NCC 5 17	1184
32	CALIF INST OF TECH	Allenby, R. J.	GSFC	Whitcomb, J. H.	NSG 5224	1208
32	CALIF INST OF TECH	Allenby, R. J.	GSFC	Melosh, H. J.	NSG 5267	1211
32	CALIF INST OF TECH	Vitale, J. A.	HQ-ET	Anderson, D. L.	NSG 7610	1231
32	CALIF INST OF TECH	Quaide, W. L.	HQ-SL	Anderson, D. L.	NGL 05-002-069	1187
32	CALIF INST OF TECH	Quaide, W. L.	HQ-SL	Ahrens, T. J.	NGL 05-002-105	1188
32	CALIF INST OF TECH	Dwornik, S. E.	HQ-SL	Shoemaker, E. M.	NGR 05-002-303	1201
32	CALIF INST OF TECH	Quaide, W. L.	HQ-SL	Ahrens, T. J.	NSG 7129	1219
32	CALIF INST OF TECH	Quaide, W. L.	HQ-SL	Burnett, D. S.	NSG 7202	1220
32	CALIF INST OF TECH	Quaide, W. L.	HQ-SL	Melosh, H. J.	NSG 7316	1222
32	CALIF INST OF TECH	Dwornik, S. E.	HQ-SL	Albee, A. L.	NSG 7442	1226
32	CALIF INST OF TECH	Quaide, W. L.	HQ-SL	Muhleman, D. O.	NSG 7565	1230
32	CAL STATE U-FULLERTN	French, B. M.	HQ-SL	Woolum, D. S.	NSG 7314	1242
32	CARNEGIE-MELLON UNIV	French, B. M.	HQ-SL	Kohman, T. P.	NSG 7585	3345
32	COLORADO STATE UNIV	Carpenter, L. H.	GSFC	Thompson, E. G.	NGR 06-002-191	1721
32	COLUMBIA UNIVERSITY	Wagner, C. A.	GSFC	Watts, A. B.	NCC 5 3	2927
32	COLUMBIA UNIVERSITY	Allenby, R. J.	GSFC	Bilham, R. G.	NSG 5072	2937
32	COLUMBIA UNIVERSITY	Ungar, S. G.	GSFC	High, C. J.	NSG 5080	2938
32	COLUMBIA UNIVERSITY	Labovitz, M.	GSFC	Kuo, J. T.	NSG 5222	2942
32	COLUMBIA UNIVERSITY	Smith, D. E.	GSFC	Talwani, M.	NSG 5273	2943
32	COLUMBIA UNIVERSITY	Stanley, H. R.	WFC	Talwani, M.	NAS 6-2519	2922
32	COLUMBIA UNIVERSITY	Quaide, W. L.	HQ-SL	Keihm, S. J.	NSG 7194	2945
32	COLUMBIA UNIVERSITY	French, B. M.	HQ-SL	Onions, R. K.	NSG 7200	2946
32	COLUMBIA UNIVERSITY	Quaide, W. L.	HQ-SL	Takahashi, T.	NSG 7434	2948
32	COLUMBIA UNIVERSITY	French, B. E.	HQ-SL	Onions, R. K.	NSG 7466	2949
32	CORNELL UNIVERSITY	Allenby, R. J.	GSFC	Oliver, J.	NCC 5 4	2955
32	CORNELL UNIVERSITY	Cohen, S. C.	GSFC	Turcotte, D. L.	NSG 5060	2978
32	CORNELL UNIVERSITY	Quaide, W. L.	HQ-SL	Turcotte, D. L.	NGR 33-010-108	2961
32	CORNELL UNIVERSITY	Dwornik, S. E.	HQ-SL	Sagan, C. E.	NGR 33-010-220	2967
32	CORNELL UNIVERSITY	Boyce, J. M.	HQ-SL	Veverka, J.	NSG 7156	2981
32	CORNELL UNIVERSITY	Kochendorfer, F. D.	HQ-SL	Harwit, M. O.	NSG 7268	2983
32	CORNELL UNIVERSITY	Goldstein, B. E.	HQ-SL	Gold, T.	NSG 7348	2985
32	CORNELL UNIVERSITY	Boyce, J. M.	HQ-SL	Veverka, J.	NSG 7498	2989
32	CORNELL UNIVERSITY	Boyce, J. M.	HQ-SL	Veverka, J.	NSG 7546	2991
32	CORNELL UNIVERSITY	Boyce, J. M.	HQ-SL	Veverka, J.	NSG 7547	2992
32	CORNELL UNIVERSITY	Quaide, W. L.	HQ-SL	Burns, J. A.	NSG 7593	2993
32	CORNELL UNIVERSITY	Quaide, W. L.	HQ-SL	Veverka, J.	NSG 7606	2994
32	DARTMOUTH COLLEGE	Kupperian, J. E., Jr	GSFC	Sonnerup, B. U.	NSG 5348	2817
32	FLORIDA STATE UNIV	Williams, T. S., Jr.	LARC	Hess, S. K.	NAS 1-9693	1915
32	GEORGIA INST OF TECH	Downs, S. W., Jr.	MSFC	Faust, C. E.	NAS 8-31990	1985
32	HUNTER COLLEGE	Ungar, S. G.	GSFC	Coiner, J. C.	NSG 5325	2997
32	HARVARD UNIVERSITY	Young, R. S.	HQ-SB	Barghoorn, E. S.	NGL 22-007-069	2453
32	HARVARD UNIVERSITY	Quaide, W. L.	HQ-SL	Cameron, A. G.	NGR 22-007-269	2457
32	HARVARD UNIVERSITY	Dwornik, S. E.	HQ-SL	Goody, R. M.	NSG 7398	2479
32	HARVARD UNIVERSITY	Quaide, W. L.	HQ-SL	O'Connell, R. J.	NSG 7513	2482
32	INDIANA U-BLOOMINGTN	McKay, D. S.	JSC	Basu, A.	NSG 9072	2141
32	INDIANA U-BLOOMINGTN	Harris, J. W.	JSC	Basu, A.	NSG 9077	2142
32	INDIANA U-BLOOMINGTN	Young, R. S.	HQ-SB	Hayes, J. M.	NGR 15-003-118	2138
32	INDIANA U-BLOOMINGTN	Young, R. S.	HQ-SB	Ripley, E. M.	NSG 7389	2139
32	INDIANA U-BLOOMINGTN	Young, R. S.	HQ-SB	Ripley, E. M.	NSG 7520	2140
32	JACKSON STATE UNIV	Atwell, B. H.	NSTL	Lang, M.	NSG 736	2731

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32	JOHNS HOPKINS UNIV	Marsh, J. G.	GSFC	Marsh, B. D.	NCC 5 1	2311
32	JOHNS HOPKINS UNIV	Taylor, P. T.	GSFC	Marsh, B. D.	NCC 5 13	2312
32	JOHNS HOPKINS UNIV	Langel, R. A.	GSFC	Marsh, B. D.	NCC 5 18	2313
32	JOHNS HOPKINS UNIV	Smith, D. E.	GSFC	Marsh, B. D.	NSG 5090	2318
32	JOHNS HOPKINS UNIV	Langel, R. A.	GSFC	Marsh, B. D.	NSG 5269	2322
32	KANSAS STATE UNIV	Dwornik, S. E.	HQ-SL	Underwood, J. R., Jr.	NSG 7478	2224
32	KANSAS STATE UNIV	Quaide, W. L.	HQ-SL	Underwood, J. R., Jr.	NSG 7580	2225
32	KANSAS STATE UNIV	Dwornik, S. E.	HQ-SL	Underwood, J. R., Jr.	NSG 7613	2226
32	LEHIGH UNIVERSITY	French, B. M.	HQ-SL	Goldstein, J. I.	NGR 39-007-043	3365
32	LA STATE U-SHREVEPT	Dwornik, S. E.	HQ-SL	Nummedal, D.	NSG 7542	2274
32	MASS INST OF TECH	Mead, G. D.	GSFC	Molnar, P.	NCC 5 8	2519
32	MASS INST OF TECH	Mead, G. D.	GSFC	Solomon, S. C.	NCC 5 14	2520
32	MASS INST OF TECH	Clark, T. A.	GSFC	Counselman, C. C., III	NGR 22-009-839	2542
32	MASS INST OF TECH	Smith, D. E.	GSFC	Sclater, J. G.	NSG 5253	2587
32	MASS INST OF TECH	Frey, H. V.	GSFC	Molnar, P.	NSG 5260	2588
32	MASS INST OF TECH	Halem, M.	GSFC	Eagleson, P. S.	NSG 5306	2589
32	MASS INST OF TECH	Flinn, E. A.	HQ-ER	Counselman, C. C., III	NSG 7428	2601
32	MASS INST OF TECH	Flinn, E. A.	HQ-ES	Soloman, S. C.	NSG 7329	2596
32	MASS INST OF TECH	Quaide, W. L.	HQ-SL	Counselman, C. C., III	NSG 7010	2590
32	MASS INST OF TECH	Williams, R.	HQ-SL	Suomi, V. E.	NSG 7077	2591
32	MASS INST OF TECH	Quaide, W. L.	HQ-SL	Toksoz, M. N.	NSG 7081	2592
32	MASS INST OF TECH	Dwornik, S. E.	HQ-SL	Solomon, S. C.	NSG 7297	2594
32	MASS INST OF TECH	Quaide, W. L.	HQ-SL	Burns, R. G.	NSG 7338	2598
32	MASS INST OF TECH	Dwornik, S. E.	HQ-SL	Biemann, K.	NSG 7432	2602
32	MASS INST OF TECH	Dwornik, S. E.	HQ-SL	Solomon, S. C.	NSG 7438	2603
32	MASS INST OF TECH	Quaide, W. L.	HQ-SL	Pinson, W.	NSG 7467	2604
32	MASS INST OF TECH	Quaide, W. L.	HQ-SL	Burns, R. G.	NSG 7604	2607
32	NEW MEX ST U-LAS CR	Krabill, W. B.	WFC	Guard, K.	NAS 6-2885	2887
32	NE LOUISIANA UNIV	Dwornik, S. E.	HQ-SL	Dehon, R. A.	NSG 7357	2275
32	NE LOUISIANA UNIV	Quaide, W. L.	HQ-SL	Dehon, R. A.	NSG 7420	2276
32	NE LOUISIANA UNIV	Dwornik, S. E.	HQ-SL	Dehon, R. A.	NSG 7534	2277
32	NE LOUISIANA UNIV	Dwornik, S. E.	HQ-SL	Dehon, R. A.	NSG 7628	2278
32	OHIO STATE UNIV	Stephanides, C. C.	GSFC	Mueller, I. I.	NAS 5-25888	3212
32	OHIO STATE UNIV	Marsh, J. G.	GSFC	Rapp, R. H.	NGR 36-008-161	3217
32	OHIO STATE UNIV	Smith, D. E.	GSFC	Mueller, I. I.	NSG 5265	3237
32	OHIO STATE UNIV	Smith, D. E.	GSFC	Schmidt, E. G.	NSG 5275	3238
32	OHIO STATE UNIV	Murphy, J. P.	HQ-ER	Mueller, I. I.	NGR 36-008-204	3218
32	OKLAHOMA STATE UNIV	Marquis, D. L.	JSC	Ray, D. E.	NAS 9-15692	3299
32	OREGON STATE UNIV	Bryson, R. P.	HQ-SL	Schmitt, R. A.	NGL 38-002-020	3322
32	OREGON STATE UNIV	Dwornik, S. E.	HQ-SL	Komar, P. D.	NSG 7178	3329
32	PENN STATE U-UNIV PK	Allenby, R. J.	GSFC	Alexander, S. S.	NCC 5 12	3387
32	PENN STATE U-UNIV PK	Allenby, R. J.	GSFC	Alexander, S. S.	NCC 5 19	3388
32	PENN STATE U-UNIV PK	Allenby, R. J.	GSFC	Alexander, S. S.	NSG 5185	3410
32	PENN STATE U-UNIV PK	Allenby, R. J.	GSFC	Alexander, S. S.	NSG 5276	3413
32	PENN STATE U-UNIV PK	Quaide, W. L.	HQ-SL	Gold, D. P.	NGL 39-009-010	3391
32	PENN STATE U-UNIV PK	Goldstein, B. E.	HQ-SL	Muan, A.	NSG 7120	3416
32	PENN STATE U-UNIV PK	Goldstein, B. E.	HQ-SL	Alexander, S. S.	NSG 7193	3417
32	PENN STATE U-UNIV PK	Quaide, W. L.	HQ-SL	Eggler, D.	NSG 7465	3419
32	POMONA COLLEGE	Quaide, W. L.	HQ-SL	Baird, A. K.	NSG 7566	1261
32	PRINCETON UNIVERSITY	Wilson, L.	GSFC	Jenkins, E. B.	NAS 5-22360	2837
32	PRINCETON UNIVERSITY	Quaide, W. L.	HQ-SL	Phinney, R. A.	NSG 7080	2863
32	PRINCETON UNIVERSITY	Dwornik, S. E.	HQ-SL	Smoluchowski, R.	NSG 7283	2866
32	PRINCETON UNIVERSITY	Dwornik, S. E.	HQ-SL	Judson, S.	NSG 7568	2869
32	PRINCETON UNIVERSITY	French, B. M.	HQ-SL	Hargraves, R. B.	NSG 7602	2871
32	PURDUE UNIVERSITY	Langel, R. A.	GSFC	Hinze, A. J.	NAS 5-22816	2145
32	PURDUE UNIVERSITY	Langel, R. A.	GSFC	Hinze, W. J.	NAS 5-25030	2147
32	PURDUE UNIVERSITY	Allenby, R. J.	GSFC	Braille, L. W.	NCC 5 21	2154
32	PURDUE UNIVERSITY	Amsbury, D. L.	JSC	Hoffer, R. M.	NAS 9-15889	2153

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32	PURDUE UNIVERSITY	French, B. M.	HQ-SL	Lipschutz, M. E.	NGL 15-005-140	2155
32	QUEENS COLLEGE	Quaide, W. L.	HQ-SL	Takahashi, T.	NSG 7321	3025
32	RICE UNIVERSITY	Harris, J. W.	JSC	Heymann, D.	NGL 44-006-127	3554
32	RICE UNIVERSITY	Quaide, W. L.	HQ-SL	Clayton, D. D.	NSG 7361	3561
32	RICE UNIVERSITY	Quaide, W. L.	HQ-SL	Debremaecker, J. C.	NSG 7362	3562
32	RICE UNIVERSITY	Quaide, W. L.	HQ-ST	Freeman, J. W., Jr.	NSG 7157	3560
32	RUTGERS U-N BRUNSWK	Harris, J. W.	JSC	Klein, L. C.	NSG 9065	2878
32	RUTGERS U-N BRUNSWK	French, B. M.	HQ-SL	Hewins, R. H.	NSG 7327	2876
32	RUTGERS U-N BRUNSWK	Dwornik, S. E.	HQ-SL	Zebib, A.	NSG 7601	2877
32	ST MARY'S UNIV-SA	Horz, F.	JSC	Hanss, R. E.	NSG 9039	3565
32	SO DAKOTA STATE UNIV	Bullock, H. E., Jr.	JSC	Westin, F. C.	NAS 9-15345	3479
32	STANFORD UNIVERSITY	Broderick, J. C.	GSFC	Lyon, R. J.	NAS 5-24232	1309
32	STANFORD UNIVERSITY	Broderick, J. C.	GSFC	Rich, E. I.	NAS 5-24479	1312
32	STANFORD UNIVERSITY	Dwornik, S. E.	HQ-SL	Howard, H. T.	NGR 05-020-649	1363
32	STANFORD UNIVERSITY	Dwornik, S. E.	HQ-SL	Levinthal, E. C.	NSG 7538	1406
32	STATE UNIV NY-ALBANY	Frey, H. V.	GSFC	Burke, K.	NSG 5274	3056
32	STATE UNIV NY-BUFFAL	Dwornik, S. E.	HQ-SL	King, J. S.	NGR 33-015-108	3062
32	STATE U NY-STONY BRK	Harris, J. W.	JSC	Hartung, J. B.	NSG 9013	3088
32	STATE U NY-STONY BRK	Dwornik, S. E.	HQ-SL	Owen, T.	NSG 7553	3087
32	TEXAS A&M UNIVERSITY	Taylor, P. T.	GSFC	Jones, G. M.	NCC 5 11	3589
32	TEXAS A&M UNIVERSITY	Chang, A. T.	GSFC	Blanchard, B. J.	NSG 5134	3599
32	TEXAS A&M UNIVERSITY	Chang, A. T.	GSFC	Blanchard, B. J.	NSG 5156	3600
32	TEXAS A&M UNIVERSITY	Demel, K. J.	JSC	Newton, R. R.	NAS 9-14875	3582
32	TEXAS A&M UNIVERSITY	Armsbury, D. L.	JSC	Harlan, J. C.	NAS 9-15465	3585
32	TEXAS A&M UNIVERSITY	Goldstein, B. E.	HQ-SL	Gangi, A. F.	NSG 7189	3604
32	TEXAS A&M UNIVERSITY	Murphy, R. E.	HQ-SL	Young, A. T.	NSG 7370	3605
32	TEXAS A&M UNIVERSITY	Quaide, W. L.	HQ-SL	Gangi, A. F.	NSG 7417	3606
32	TEXAS TECH UNIV	Halstead, T. W.	HQ-SB	Hartman, H. B.	NSG 7435	3609
32	UNIV OF ARIZONA	Young, R. S.	HQ-SB	Nagy, B.	NGR 03-002-171	1117
32	UNIV OF ARIZONA	Bohlin, J. M.	HQ-SL	Strom, R. G.	NGL 03-002-191	1114
32	UNIV OF ARIZONA	Dwornik, S. E.	HQ-SL	Sonett, C. P.	NGR 03-002-370	1121
32	UNIV OF ARIZONA	French, B. M.	HQ-SL	Wilkening, L. L.	NSG 7011	1134
32	UNIV OF ARIZONA	Quaide, W. L.	HQ-SL	Sonett, C. P.	NSG 7020	1135
32	UNIV OF ARIZONA	Boyce, J. M.	HQ-SL	Strom, R. G.	NSG 7146	1141
32	UNIV OF ARIZONA	French, B. M.	HQ-SL	Gehrels, A. M.	NSG 7246	1143
32	UNIV OF ARIZONA	French, B. M.	HQ-SL	Zellner, B. H.	NSG 7249	1144
32	UNIV OF ARIZONA	Quaide, W. L.	HQ-SL	Levy, E. H.	NSG 7419	1149
32	UNIV OF ARIZONA	French, B. M.	HQ-SL	Boynton, W. V.	NSG 7436	1150
32	UNIV OF ARIZONA	Dwornik, S. E.	HQ-SL	Woronow, A.	NSG 7544	1153
32	UNIV OF ARIZONA	Quaide, W. L.	HQ-SL	Drake, M. J.	NSG 7576	1157
32	UNIV OF ARIZONA	Quaide, W. L.	HQ-SL	Drake, M. J.	NSG 7577	1158
32	UNIV OF ARIZONA	Quaide, W. L.	HQ-SL	Lehofskey, L.	NSG 7607	1159
32	UNIV CALIF-BERKELEY	Davis, M. A.	GSFC	Anderson, K. A.	NAS 5-22307	1413
32	UNIV CALIF-BERKELEY	Young, R. S.	HQ-SB	Calvin, M.	NGL 05-003-003	1438
32	UNIV CALIF-L ANGELES	Smith, D. E.	GSFC	Kaula, W. M.	NSG 5263	1543
32	UNIV CALIF-L ANGELES	Kupperman, J. E., Jr.	GSFC	Siscoe, G. L.	NSG 5351	1545
32	UNIV CALIF-L ANGELES	Young, R. S.	HQ-SB	Kaplan, I. R.	NGR 05-007-221	1519
32	UNIV CALIF-L ANGELES	Young, R. S.	HQ-SB	Anderson, R. N.	NGR 05-007-407	1526
32	UNIV CALIF-L ANGELES	Young, R. S.	HQ-SB	Schopf, J. W.	NSG 7489	1560
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-SL	Kaula, W. M.	NGL 05-007-002	1515
32	UNIV CALIF-L ANGELES	Dwornik, S. E.	HQ-SL	Schubert, G.	NGR 05-007-317	1522
32	UNIV CALIF-L ANGELES	French, B. M.	HQ-SL	Wasson, J. T.	NGR 05-007-329	1524
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-SL	Coleman, P. J., Jr.	NGR 05-007-351	1525
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-SL	Oertel, G.	NSG 7052	1548
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-SL	Kieffer, H. H.	NSG 7282	1553
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-SL	Schubert, G.	NSG 7315	1555
32	UNIV CALIF-L ANGELES	French, B. M.	HQ-SL	Boynton, W. V.	NSG 7335	1556
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-SL	Busse, F. W.	NSG 7484	1559

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32	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-SL	Kieffer, H. H.	NSG 7581	1561
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-SL	Kieffer, H. H.	NSG 7582	1562
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-SL	Shubert, G.	NSG 7583	1563
32	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HQ-SL	Arrhenius, G.	NGL 05-009-002	1586
32	UNIV CALIF-SAN DIEGO	French, B. M.	HQ-SL	Arnold, J. R.	NGL 05-009-004	1587
32	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HQ-SL	Arnold, J. R.	NGR 05-005-005	1592
32	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HQ-SL	Arnold, J. R.	NSG 7027	1612
32	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HQ-SL	Aliven, H.	NSG 7102	1613
32	UNIV CALIF-SAN DIEGO	French, B. M.	HQ-SL	MacDougall, J. D.	NSG 7121	1614
32	UNIV CALIF-SAN DIEGO	French, B. M.	HQ-SL	Rudee, M. L.	NSG 7474	1619
32	UNIV CALIF-S BARBARA	Chang, A. T.	GSFC	Estes, J. E.	NCC 5 5	1646
32	UNIV CALIF-S BARBARA	Salomonson, V. V.	GSFC	Ozier, J. D.	NSG 5153	1654
32	UNIV CALIF-S BARBARA	Chang, A. T.	GSFC	Estes, J. E.	NSG 5170	1655
32	UNIV CALIF-S BARBARA	Amsbury, D. L.	JSC	Strahler, A. H.	NAS 9-15509	1640
32	UNIV CALIF-S BARBARA	Harris, J. W.	JSC	Tilton, G. R.	NGR 05-010-081	1648
32	UNIV CALIF-S BARBARA	Quaide, W. L.	HQ-SL	Peale, S. J.	NGR 05-010-062	1647
32	UNIV CALIF-S BARBARA	Quaide, W. L.	HQ-SL	Fuller, M. D.	NSG 7586	1657
32	UNIV OF CHICAGO	French, B. M.	HQ-SL	Anders, E.	NGL 14-001-010	2085
32	UNIV OF CHICAGO	Quaide, W. L.	HQ-SL	Turkevich, A. L.	NGR 14-001-135	2091
32	UNIV OF CHICAGO	French, B. M.	HQ-SL	Grossman, L.	NGR 14-001-249	2096
32	UNIV OF CHICAGO	Quaide, W. L.	HQ-SL	Schramm, D. N.	NSG 7212	2102
32	UNIV OF CHICAGO	Quaide, W. L.	HQ-SL	Turkevich, A. L.	NSG 7532	2106
32	UNIV OF CHICAGO	French, B. M.	HQ-SL	Smith, J. V.	NSG 7550	2107
32	UNIV COLORADO-BOLDR	Harris, J. W.	JSC	Spetzler, H. A.	NSG 9036	1793
32	UNIV COLORADO-BOLDR	Murphy, J. P.	HQ-ER	Wyss, M.	NASW 3103	1753
32	UNIV COLORADO-BOLDR	Flinn, E. A.	HQ-SL	Smith, M. L.	NSG 7319	1781
32	UNIV COLORADO-BOLDR	Quaide, W. L.	HQ-SL	Spetzler, H. A.	NSG 7584	1790
32	UNIV OF DAYTON	Quaide, W. L.	HQ-SL	Pickutowski, A. J.	NSG 7444	3270
32	UNIV OF FLORIDA	Atwell, B. H.	NSTL	Cross, C.	NAS13-106	1936
32	UNIV OF GEORGIA	Butera, M. K.	NSTL	Cooley, J. E.	NAS13-121	2022
32	UNIV OF GEORGIA	Atwell, B. H.	NSTL	Welch, R.	NAS13-123	2023
32	UNIV OF GEORGIA	Boyce, J. M.	HQ-SL	Howard, J. H.	NGR 11-003-037	2024
32	UNIV OF GEORGIA	Quaide, W. L.	HQ-SL	Wenner, D. B.	NSG 7433	2025
32	UNIV OF GEORGIA	Dwornik, S. E.	HQ-SL	Brook, G.	NSG 7539	2026
32	UNIV OF HAWAII-MANOA	White, W. W.	GSFC	Jefferies, J. T.	NGR 12-001-127	2039
32	UNIV OF HAWAII-MANOA	Nava, D. F.	GSFC	Philpotts, J. A.	NSG 5203	2041
32	UNIV OF HAWAII-MANOA	Harris, J. W.	JSC	Philpotts, J. A.	NSG 9071	2057
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HQ-SL	McCord, T. B.	NSG 7312	2047
32	UNIV OF HAWAII-MANOA	Dwornik, S. E.	HQ-SL	Kafotos, M.	NSG 7403	2049
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HQ-SL	Russ, G. P.	NSG 7423	2050
32	UNIV OF HAWAII-MANOA	Dwornik, S. E.	HQ-SL	McCord, T. B.	NSG 7443	2051
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HQ-SL	Gaffey, M. J.	NSG 7462	2052
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HQ-SL	Gaffey, M. J.	NSG 7597	2055
32	UNIV HOUSTON-HOUSTON	Young, R. S.	HQ-SB	Oro, J.	NGR 44-005-002	3619
32	UNIV HOUSTON-HOUSTON	Dwornik, S. E.	HQ-SL	King, E. A.	NSG 7228	3627
32	UNIV HOUSTON-HOUSTON	Dwornik, S. E.	HQ-SL	Smith, R. S.	NSG 7410	3629
32	UNIV HOUSTON-HOUSTON	Dwornik, S. E.	HQ-SL	Smith, R.	NSG 7551	3631
32	UNIV HOUSTON-HOUSTON	French, B. M.	HQ-SL	King, E. A.	NSG 7617	3633
32	UNIV OF KANSAS	Chang, A. T.	GSFC	Ulaby, F. T.	NSG 5335	2250
32	UNIV OF KANSAS	Goldstein, B. E.	HQ-SL	VanSchmus, W. R.	NSG 7351	2251
32	UNIV MARYLAND-COL PK	Stief, L. J.	GSFC	Khanna, R. K.	NGR 21-002-368	2376
32	UNIV MARYLAND-COL PK	Rango, A.	GSFC	McCuen, R. H.	NGR 21-002-399	2377
32	UNIV MARYLAND-COL PK	Salomonson, V. V.	GSFC	Ragan, R. M.	NSG 5017	2384
32	UNIV MARYLAND-COL PK	Trombka, J. I.	GSFC	Balakrishnan, A. V.	NSG 5094	2386
32	UNIV MARYLAND-COL PK	Schmugge, T. J.	GSFC	Witezak, M. W.	NSG 5137	2389
32	UNIV MARYLAND-COL PK	Quaide, W. L.	HQ-SL	Adler, I.	NSG 7046	2404
32	UNIV MARYLAND-COL PK	Quaide, W. L.	HQ-SL	Pai, S. I.	NSG 7365	2411
32	UNIV MARYLAND-COL PK	Quaide, W. E.	HQ-SL	Tossell, J.	NSG 7482	2414

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32	UNIV OF MASS-AMHERST	Harris, J. W.	JSC	Rhodes, J. M.	NSG 9069	2619
32	UNIV OF MASS-AMHERST	Dwornik, S. E.	HQ-SL	McGill, G. E.	NGR 22-010-076	2615
32	UNIV OF MASS-AMHERST	Dwornik, S. E.	HQ-SL	Huguenin, R. L.	NSG 7405	2617
32	UNIV OF MASS-AMHERST	Dwornik, S. E.	HQ-SL	Wise, D.	NSG 7571	2618
32	UNIV OF MIAMI	French, B. M.	HQ-SL	Fisher, D. E.	NSG 7309	1964
32	UNIV OF MIAMI	Quaide, W. L.	HQ-SL	Brass, G. B.	NSG 7510	1965
32	U MINN-MNPLS-ST PAUL	Harris, J. W.	JSC	Weiblen, P. W.	NSG 9050	2728
32	UNIV MO-ST LOUIS	Quaide, W. L.	HQ-SL	James, P. B.	NSG 7563	2776
32	UNIV OF NEW MEXICO	Atwell, B. H.	NSTL	Morain, S. R.	NAS13-109	2896
32	UNIV OF NEW MEXICO	Dwornik, S. E.	HQ-SL	Elston, W. E.	NGL 32-004-011	2897
32	UNIV OF NEW MEXICO	French, B. M.	HQ-SL	Keil, K.	NGL 32-004-064	2899
32	UNIV OF NEW MEXICO	Dwornik, S. E.	HQ-SL	Elston, W. E.	NGR 32-004-062	2900
32	UNIV OKLAHOMA-NORMAN	Atwell, B. H.	NSTL	Harrington, J. A.	NAS13-122	3311
32	UNIV OREGON-EUGENE	Quaide, W. L.	HQ-SL	Weill, D. F.	NGR 38-003-020	3332
32	UNIV OF PITTSBURGH	Thomas, H. H.	GSFC	Lidiak, E. G.	NSG 5270	3446
32	UNIV OF PITTSBURGH	Quaide, W. L.	HQ-SL	Cassidy, W. A.	NGL 39-011-085	3438
32	UNIV OF PITTSBURGH	Quaide, W. L.	HQ-SL	Hapke, B. W.	NSG 7631	3450
32	UNIV OF RHODE ISLAND	Dwornik, S. E.	HQ-SL	Boothroyd, J. C.	NSG 7414	3465
32	UNIV OF SANTA CLARA	Oberbeck, V. R.	ARC	Aggarwal, H. R.	NSG 2275	1686
32	UNIV OF SANTA CLARA	Quaide, W. L.	HQ-SL	Aggarwal, H. R.	NSG 7330	1688
32	UNIV SO CAROLINA-COL	Dwornik, S. E.	HQ-SL	Nummedal, D.	NSG 7076	3474
32	UNIV OF SOUTHERN CAL	Quaide, W. L.	HQ-SL	Huth, G. C.	NSG 7535	1706
32	UNIV TENNESSEE-KNOXV	Bensko, J.	MSFC	Shahrokhi, F.	NAS 8-32034	3498
32	UNIV TENNESSEE-KNOXV	French, B. M.	HQ-SL	McSween, H. Y.	NSG 7413	3517
32	UNIV TEXAS-AUSTIN	White, W. W.	GSFC	Silverberg, E. C.	NGR 44-012-165	3656
32	UNIV TEXAS-AUSTIN	Kolenkiewicz, R.	GSFC	Tapley, B. D.	NGR 44-012-283	3658
32	UNIV TEXAS-AUSTIN	Harris, J. W.	JSC	Gose, W. A.	NSG 9021	3690
32	UNIV TEXAS-AUSTIN	Dwornik, S. E.	HQ-SL	Baker, V. R.	NSG 7326	3681
32	UNIV TEXAS-AUSTIN	Dwornik, S. E.	HQ-SL	Muehlberger, W. R.	NSG 7363	3683
32	UNIV TEXAS-AUSTIN	Quaide, W. L.	HQ-SL	Smoluchowski, R.	NSG 7505	3688
32	UNIV TEXAS-AUSTIN	Dwornik, S. E.	HQ-SL	Baker, V. R.	NSG 7557	3689
32	UNIV TEXAS-GALVESTON	Quaide, W. L.	HQ-SL	Makamura, Y.	NSG 7418	3716
32	UNIV OF UTAH	Quaide, W. L.	HQ-SL	Shorthill, R. W.	NSG 7425	3733
32	UNIV OF VERMONT	Vitale, J. A.	HQ-ET	John, H. H.	NSG 7453	3753
32	UNIV OF VIRGINIA	Dwornik, S. E.	HQ-SL	Howard, A.	NGR 47-005-172	3851
32	UNIV OF VIRGINIA	Dwornik, S. E.	HQ-SL	Howard, A.	NSG 7572	3866
32	UNIV OF WASHINGTON	Harris, J. W.	JSC	Adams, J. B.	NSG 9032	3958
32	UNIV OF WASHINGTON	Quaide, W. L.	HQ-SL	Adams, J. B.	NSG 7173	3952
32	UNIV OF WASHINGTON	Quaide, W. L.	HQ-SL	Adams, J. B.	NSG 7174	3953
32	UNIV OF WASHINGTON	Quaide, W. L.	HQ-SL	McCallum, I. S.	NSG 7313	3954
32	UNIV OF WASHINGTON	Quaide, W. L.	HQ-SL	Adams, J. B.	NSG 7448	3956
32	UNIV WISC-MADISON	Quaide, W. L.	HQ-SL	Taylor, J. W.	NSG 7215	4008
32	UNIV WISC-PARKSIDE	Dwornik, S. E.	HQ-SL	Smith, E. I.	NGR 50-009-001	4011
32	UTAH STATE UNIV	Young, R. S.	HQ-SB	Smith, G. G.	NSG 7038	3744
32	VA MILITARY INSTITUT	Quaide, W. L.	HQ-SL	Gates, W. L.	NSG 7355	3868
32	VIRGINIA POLY INST	Costes, N. C.	MSFC	Storre, S.	NAS 8-33449	3875
32	WASHINGTON UNIVERSTY	Harris, J. W.	JSC	Haskin, L. A.	NSG 9055	2792
32	WASHINGTON UNIVERSTY	Quaide, W. L.	HQ-SL	Hohenberg, C. M.	NSG 7016	2786
32	WASHINGTON UNIVERSTY	Dwornik, S. E.	HQ-SL	Arvidson, R. E.	NSG 7087	2787
32	WASHINGTON UNIVERSTY	Dwornik, S. E.	HQ-SL	Arvidson, R. E.	NSG 7545	2790
32	WASHINGTON UNIVERSTY	Quaide, W. L.	HQ-SL	Goettal, K. A.	NSG 7578	2791
33	CITY COLLEGE OF N Y	Schroeder, L. C.	LARC	Pierson, W. J.	NAS 1-15669	2905
33	HARVARD UNIVERSITY	Halem, M.	GSFC	Robinson, A. R.	NSG 5228	2468
33	HARVARD UNIVERSITY	King, J. H.	HQ-ST	McElroy, M. B.	NASW 2952	2450
33	JOHNS HOPKINS UNIV	Stanley, H. R.	WFC	Phillips, O. M.	NAS 6-2706	2306
33	JOHNS HOPKINS UNIV	Huang, N. E.	WFC	Phillips, O. M.	NAS 6-2888	2307
33	JOHNS HOPKINS UNIV	Huang, N. E.	WFC	Phillips, O. M.	NAS 6-2993	2308
33	NO CAROLINA STATE U	Huang, N. E.	WFC	Tung, C.	NAS 6-3018	3119

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33	RUTGERS U-N BRUNSWK	Jones, W. L.	LARC	Delnore, V. E.	NSG 1566	2873
33	SAN JOSE STATE UNIV	Wrigley, R. C.	ARC	Broenkow, W. W.	NSG 2239	1293
33	TEXAS A&M UNIVERSITY	Huang, N. E.	WFC	Ichiye, T.	NAS 6-2884	3574
33	UNIV CALIF-BERKELEY	Kim, H. H.	GSFC	Colwell, R. N.	NSG 5256	1466
33	UNIV CALIF-SAN DIEGO	Nelsen, E. D.	GSFC	Austin, R. W.	NAS 5-25450	1578
33	UNIV CALIF-SAN DIEGO	Whillock, C. H.	LARC	Smith, R. C.	NSG 1641	1600
33	UNIV CALIF-SAN DIEGO	Salzman, J. A.	LERC	Austin, R. W.	NAS 3-21473	1570
33	UNIV CALIF-S BARBARA	Barnes, W. L.	GSFC	Estes, J. E.	NSG 5106	1653
33	UNIV OF DELAWARE	Huang, N. E.	WFC	Wu, J.	NAS 6-2820	1829
33	UNIV OF KANSAS	Schroeder, L. C.	LARC	Moore, R. K.	NSG 1397	2237
33	UNIV MD-EASTRN SHORE	Huang, N. E.	WFC	Dudis, J. J.	NSG 6025	2422
33	UNIV OF MIAMI	Mueller, J. L.	GSFC	Williams, F.	NSG 5344	1963
33	UNIV OF RHODE ISLAND	Campbell, J. W.	LARC	Spaulding, M. L.	NSG 1495	3464
33	UNIV OF RHODE ISLAND	Zetka, E. F.	NSTL	Tippie, V.	NAS13-112	3463
33	UNIV OF WASHINGTON	Huang, N. E.	WFC	Katsaros, K. B.	NAS 6-2996	3925
39	ALABAMA A&M UNIV	Downs, S. W., Jr.	MSFC	Montgomery, O. L.	NSG 8062	1009
39	ALABAMA A&M UNIV	Smith, A. D.	MSFC	Montgomery, O. L.	NSG 8066	1012
39	AUBURN UNIV-AUBURN	Huffman, J. D.	MSFC	Vachon, R. I.	NAS 8-32215	1019
39	BOSTON COLLEGE	Taylor, W. W.	HQ-ST	Eather, R. H.	NSG 7385	2426
39	BOSTON COLLEGE	Tomayko, D. W.	HQ-ST	Carovillano, R. L.	NSG 7468	2427
39	CALIF INST OF TECH	Williams, T. S., Jr.	LARC	Anderson, D. L.	NAS 1-9703	1167
39	CITY COLLEGE OF N Y	Hesler, R. V.	LARC	Tchen, C. M.	NSG 1485	2910
39	COLORADO STATE UNIV	Nelsen, E. D.	GSFC	VonderHaar, T. H.	NAS 5-22959	1711
39	COLORADO STATE UNIV	Tucker, C. J.	GSFC	Maxwell, E. L.	NAS 5-27081	1712
39	COLORADO STATE UNIV	Toll, D.	GSFC	Maxwell, E. L.	NAS 5-25696	1713
39	CORNELL UNIVERSITY	Wydeven, T. J.	ARC	Shuler, M. L.	NSG 2408	2976
39	CORNELL UNIVERSITY	Vitale, J. A.	HQ-ET	Liang, T.	NGL 33-010-171	2957
39	DARTMOUTH COLLEGE	Ongar, S. G.	GSFC	Stoiber, R. E.	NSG 5014	2815
39	DARTMOUTH COLLEGE	King, J. H.	HQ-ST	Sonnerup, B. U.	NSG 7292	2818
39	FORT VALLEY STATE C	Wolverton, B. C.	NSTL	Rogerson, A. C.	NSG 735	1974
39	GEORGIA INST OF TECH	Slajna, E. F.	GSFC	Cunnold, D. M.	NAS 5-25817	1984
39	HAMPTON INSTITUTE	Poole, L. R.	LARC	Peterson, A. M.	NCC 1 11	3783
39	HOWARD UNIVERSITY	O'Keefe, J. A.	GSFC	Thorpe, A. M.	NAS 5-25185	1879
39	HOWARD UNIVERSITY	Pohly, J. G.	HQ-LU	Ferguson, G. A.	NGL 09-011-046	1883
39	HUMBOLDT STATE UNIV	Norman, S. M.	ARC	Fox, L.	NSG 2341	1258
39	HUMBOLDT STATE UNIV	Weinstein, R. H.	HQ-ET	Hankins, D. B.	NSG 7525	1259
39	JACKSON STATE UNIV	Wolverton, B. C.	NSTL	Garrity, E.	NSG 8026	2732
39	LA ST U&A&M COL-BRGE	Vitale, J. A.	HQ-ET	Whitehurst, C. A.	NGL 19-001-105	2271
39	MASS INST OF TECH	Williams, T. S., Jr.	LARC	Biemann, K.	NAS 1-9684	2485
39	MICHIGAN STATE UNIV	Vitale, J. A.	HQ-ET	Boylan, M. G.	NGL 23-004-083	2625
39	MISSISSIPPI STATE U	Vitale, J. A.	HQ-ET	Miller, W. F.	NGL 25-001-054	2741
39	NEW MEX ST U-LAS CR	Nitschke, H. A.	JSC	Henry, D. G.	NAS 9-95482	2888
39	NEW MEX ST U-LAS CR	Fenner, R. G.	JSC	Carver, K.	NAS 9-95497	2889
39	NEW YORK UNIVERSITY	Halem, M.	GSFC	Hoffert, M. I.	NSG 5133	3011
39	NO CAROLINA STATE U	Paludan, C. T.	MSFC	Welby, G.	NAS 8-31984	3120
39	OLD DOMINION UNIV	Browell, E. V.	LARC	Kindle, E. C.	NSG 1477	3818
39	OREGON STATE UNIV	Mueller, J. L.	GSFC	Zanevelo, R. V.	NAS 5-23738	3318
39	OREGON STATE UNIV	Vitale, J. A.	HQ-ET	Schrumpf, B. J.	NGL 38-002-053	3324
39	PAN AMERICAN UNIV	Heydorn, R. P.	JSC	Lemaster, E. W.	NSG 5-33	3539
39	PENN STATE U-UNIV PK	Alford, W. L.	GSFC	McMurtry, G. J.	NAS 5-23859	3375
39	PENN STATE U-UNIV PK	Irons, J.	GSFC	Petersen, G. W.	NAS 5-25667	3378
39	PRAIRIE VIEW A&M U	Browne, I. D.	JSC	Brams, E. A.	NSG 9006	3541
39	PURDUE UNIVERSITY	McEwen, M. C.	JSC	Bauer, M. E.	NAS 9-15081	3749
39	PURDUE UNIVERSITY	Joosten, R. E.	JSC	Mroczynski, R.	NAS 9-15325	2150
39	PURDUE UNIVERSITY	Erickson, J. D.	JSC	Landgrebe, D. A.	NAS 9-15466	2151
39	PURDUE UNIVERSITY	Amsbury, D. L.	JSC	Hoffer, R. M.	NAS 9-15508	2152
39	PURDUE UNIVERSITY	Maurer, H. E.	WFC	Phillips, T. L.	NAS 6-2695	2148
39	PURDUE UNIVERSITY	Vitale, J. A.	HQ-ET	Weismiller, R. A.	NGL 15-005-186	2156



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39	SAN JOSE STATE UNIV	Nishioka, K.	ARC	Ling, A. C.	NSG 2305	1296
39	SAN JOSE STATE UNIV	Johnson, R. D.	ARC	Funk, G. A.	NSG 2398	1304
39	SAVANNAH STATE COL	Perkins, E. E.	KSC	Ghuman, G. S.	NSG 803	2017
39	SO DAKOTA STATE UNIV	Schmugge, T. J.	GSFC	Heilman, J. L.	NSG 5396	3481
39	SO DAKOTA STATE UNIV	Vitale, J. A.	HQ-ET	Myers, V. I.	NGL 42-003-007	3480
39	STANFORD UNIVERSITY	Hofman, L. B.	ARC	Peterson, A. M.	NCA 2-745910	1336
39	STANFORD UNIVERSITY	Schmitz, F. H.	ARC	Karamcheti, K.	NSG 2254	1383
39	STANFORD UNIVERSITY	Roberson, F. I.	HQ-ET	McAlister, J. F.	NASW 3204	1323
39	STATE UNIV NY-ALBANY	Weinberg, I.	LERC	Corbett, J. W.	NSG 3095	3054
39	STATE UNIV NY-ALBANY	Vaughan, O. H.	MSFC	Vonnegut, B.	NAS 8-32893	3049
39	STATE U NY-STONY BRK	Williams, T. S., Jr.	LARC	Owen, T.	NAS 1-10493	3064
39	TEXAS A&M UNIVERSITY	Deering, D. W.	GSFC	Haos, R. H.	NAS 5-25715	3572
39	TEXAS A&M UNIVERSITY	Schmugge, T. J.	GSFC	Miller, L. D.	NCC 5 15	3590
39	TEXAS A&M UNIVERSITY	Yang, J. R.	GSFC	Newton, R. R.	NSG 5266	3602
39	TEXAS A&M UNIVERSITY	Juras, N. T.	JSC	Rouse, J. W., Jr.	NAS 9-13904	3579
39	TEXAS A&M UNIVERSITY	Blanchard, D.	JSC	Randall, J. D.	NAS 9-14828	3581
39	TEXAS A&M UNIVERSITY	Vitale, J. A.	HQ-ET	Blanchard, B. J.	NGL 44-001-001	3591
39	UNIV ALA-HUNTSVILLE	West, G. S., Jr.	MSFC	Hung, R. J.	NAS 8-31171	1044
39	UNIV ALASKA-FAIRBNKS	Lumb, D. R.	ARC	Krebs, P. V.	NCA 2-20901	1062
39	UNIV ALASKA-FAIRBNKS	Vitale, J. A.	HQ-ET	Miller, J. M.	NGL 02-001-092	1063
39	UNIV OF ARIZONA	Vitale, J. A.	HQ-ET	Johnson, J. D.	NGL 03-002-313	1115
39	UNIV CALIF-BERKELEY	Linlor, W. I.	ARC	Angelakos, D. J.	NCA 2-50704	1429
39	UNIV CALIF-BERKELLY	Norman, S. M.	ARC	Colwell, R. N.	NCA 2-50903	1435
39	UNIV CALIF-BERKELEY	Bauer, E.	ARC	Colwell, R. N.	NSG 2207	1459
39	UNIV CALIF-BERKELEY	Garcia, J. C.	JSC	Colwell, R. N.	NAS 9-14565	1427
39	UNIV CALIF-BERKELLY	Vitale, J. A.	HQ-ET	Colwell, R. N.	NGL 05-003-404	1442
39	UNIV CALIF-BERKELEY	Vitale, J. A.	HQ-ET	Colwell, R. N.	NSG 7220	1472
39	UNIV CALIF-BERKELEY	Quaide, W. L.	HQ-SL	Anderson, K. A.	NSG 7127	1469
39	UNIV CALIF-DAVIS	Rango, A.	GSFC	Algazi, V. R.	NSG 5092	1494
39	UNIV CALIF-L ANGELES	Wende, C. D.	GSFC	Coleman, P. J., Jr	NAS 5-23702	1505
39	UNIV CALIF-L ANGELES	Cauffman, D. P.	HQ-ST	Coleman, P. J., Jr.	NGL 35-007-004	1516
39	UNIV CALIF-L ANGELES	Cauffman, D. P.	HQ-ST	Siscoe, G. L.	NSG 7180	1551
39	UNIV CALIF-SAN DIEGO	Smith, D. E.	GSFC	Berger, J.	NGR 05-009-246	1296
39	UNIV CALIF-SAN DIEGO	Purvis, C. K.	LERC	Whipple, E. C., Jr.	NSG 3150	1606
39	UNIV CALIF-S BARBARA	Norman, S. M.	ARC	Estes, J. E.	NCA 2-680901	1642
39	UNIV CALIF-S BARBARA	Norman, S. M.	ARC	Estes, J. E.	NCA 2-680902	1643
39	UNIV CALIF-S BARBARA	Jones, H.	ARC	Estes, J. E.	NCA 2-680903	1644
39	UNIV CALIF-S BARBARA	Jones, H.	ARC	Estes, J. E.	NSG 2358	1650
39	UNIV CALIF-S BARBARA	Peterson, D.	ARC	Estes, J. E.	NSG 2377	1651
39	UNIV CALIF-S BARBARA	Rango, A.	GSFC	Dozier, J.	NSG 5262	1656
39	UNIV OF CENTRAL FLA	Buchanan, P.	KSC	Vickers, D. H.	NAS10-8986	1924
39	UNIV COLORADO-BOLDR	Jones, C. T.	MSFC	Toomre, D. J.	NAS 8-31958	1748
39	UNIV COLORADO-BOLDR	Vitale, J. A.	HQ-ET	Ives, J. D.	NGL 06-003-200	1756
39	UNIV DC-HARVARD GA	Ruitberg, A. P.	GSFC	Walker, E. L.	NGR 09-053-003	1899
39	UNIV DC-MT VERNON SQ	Gross, F. C.	GSFC	Phelps, H. L.	NGR 09-050-019	1901
39	UNIV OF DELAWARE	Bowker, D. E.	LARC	Klemus, V.	NSG 1433	1832
39	UNIV OF DENVER	Orr, H. D., III	LARC	Murcray, D. G.	NSG 1432	1804
39	UNIV OF FLORIDA	Pope, C. D.	KSC	Manvi, R.	NAS10-8920	1930
39	UNIV OF FLORIDA	Pope, C. D.	KSC	Gerber, J. F.	NAS10-9168	1931
39	UNIV OF FLORIDA	Bland, R. A.	KSC	Arvanitis, L. G.	NAS10-9466	1933
39	UNIV OF FLORIDA	Horn, F. W.	KSC	Blazquez, C. H.	NAS10-9666	1935
39	UNIV OF FLORIDA	Vitale, J. A.	HQ-ET	Ruth, B. E.	NSG 7236	1950
39	UNIV HOUSTON-HOUSTON	Browne, I. D.	JSC	Decell, H. P., Jr.	NAS 9-15543	3614
39	UNIV OF KANSAS	Demel, K. J.	JSC	Ulaby, F. T.	NAS 9-14052	2230
39	UNIV OF KANSAS	Vitale, J. A.	HQ-ET	Barr, B. G.	NGL 17-004-024	2234
39	UNIV MARYLAND-COL PK	Trombka, J. I.	GSFC	Sommer, S. E.	NAS 5-23457	2339
39	UNIV MARYLAND-COL PK	Short, N. M.	GSFC	Ragan, R. M.	NAS 5-25851	2346
39	UNIV MD-EASTRN SHORE	Trafford, G. H.	WFC	Gupta, G. C.	NSG 6034	2424

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39	UNIV MICH-ANN ARBOR	Ruff, R. C.	MSFC	Shyn, T. W.	NAS 8-32661	2653
39	U MINN-MNPLS-ST PAUL	Vitale, J. A.	HQ-ET	Shepherd, W. G.	NGL 24-005-263	2708
39	U MINN-MNPLS-ST PAUL	King, J. H.	HQ-ST	Winckler, J. R.	NSG 7005	2722
39	UNIV MO-COLUMBIA	Schmugge, T. J.	GSFC	Rouse, J. W., Jr.	NSG 5338	2763
39	UNIV MO-COLUMBIA	Harnage, M. J.	JSC	Rouse, J. W., Jr.	NAS 9-15896	2759
39	UNIV OF MONTANA	Oseroff, H.	GSFC	Craighead, J. J.	NAS 5-23891	2796
39	UNIV NEBRASKA-LINCLN	Vitale, J. A.	HQ-ET	Carlson, M. P.	NGL 28-004-020	2797
39	UNIV OF PENNSYLVANIA	Barnes, C. M.	JSC	Shen, B. S.	NAS 9-15789	3428
39	UNIV SO CAROLINA-COL	Vitale, J. A.	HQ-ET	Cooper, J. M.	NSG 7504	3476
39	UNIV SO MISSISSIPPI	Wolverton, B. C.	NSTL	Stocks, P. K.	NAS13-81	2751
39	UNIV TENNESSEE-KNOXV	Golden, T. S.	GSFC	Snyder, W. M.	NAS 5-25101	3492
39	UNIV TENNESSEE-KNOXV	Anderson, B. J.	MSFC	Carter, J. M.	NAS 8-32611	3499
39	UNIV TENNESSEE-KNOXV	Daniel, J. L.	MSFC	Shahrokhi, F.	NAS 8-33218	3503
39	UNIV OF UTAH	Vitale, J. A.	HQ-ET	Ridd, M. K.	NSG 7226	3732
39	UNIV WISC-MADISON	Middletton, E.	GSFC	Scarpice, F. L.	NAS 5-25505	3983
39	UNIV WISC-MADISON	Vitale, J. A.	HQ-ET	Clapp, J. L.	NGL 50-002-127	3991
39	VIRGINIA POLY INST	Tenney, D. R.	LARC	Unnam, J.	NCC 1 10	3878
39	VIRGINIA POLY INST	Scott, J. H., Jr.	WFC	Powell, N. L.	NAS 6-2388	3873
39	WASHINGTON UNIVERSTY	Williams, T. S., Jr.	LARC	Arvidson, R. E.	NAS 1-13889	2777
39	WASHINGTON UNIVERSTY	Daniels, J. L., Jr.	MSFC	Eastwood, L.	NAS 8-32354	2780
39	XAVIER UNIV-LA	Espy, P. N.	MSFC	Loup, J. W.	NSG 8050	2294
41	ARIZONA STATE UNIV	Hippenstele, S. A.	LERC	Metzger, D. E.	NSG 3075	1080
41	AUBURN UNIV-AUBURN	Shackelford, B. W., Jr.	MSFC	Sforzini, R. H.	NCA 8-130	1023
41	BOSTON UNIVERSITY	Yates, E. C., Jr.	LARC	Morino, L.	NGR 22-004-030	2432
41	BROWN UNIVERSITY	Townsend, J. C.	LARC	Sirovich, L.	NSG 1617	3457
41	CALIF INST OF TECH	Houbolt, J. C.	LARC	Culick, F. E.	NAS 1-15668	1168
41	CALIF INST OF TECH	Starns, J. H., Jr.	LARC	Knauss, W. G.	NSG 1483	1204
41	CAL POLY ST U-S LUIS	Magee, J. P.	ARC	Grimes, J. E.	NAS 2-10364	1234
41	CAL POLY ST U-S LUIS	Koenig, D. G.	ARC	Hoffmann, J. A.	NSG 2391	1235
41	CAL POLY ST U-S LUIS	Ayers, T. G.	DFRC	Sandlin, D. R.	NSG 4014	1236
41	CAL POLY ST U-S LUIS	Gee, S. W.	DFRC	Sandlin, D. R.	NSG 4020	1237
41	CAL POLY ST U-S LUIS	Gee, S. W.	DFRC	Sandlin, D. R.	NSG 4022	1238
41	CASE WESTERN RESERVE	Sockol, P. M.	LERC	Reshotko, E.	NCC 3 4	3148
41	CASE WESTERN RESERVE	Bishop, A. R.	LERC	Reshotko, E.	NGR 36-027-064	3151
41	CASE WESTERN RESERVE	Sockol, P. M.	LERC	Reshotko, E.	NSG 3062	3157
41	CASE WESTERN RESERVE	Anderson, B. H.	LERC	Lynch, W. C.	NSG 3115	3160
41	CASE WESTERN RESERVE	Riddlebaugh, S. M.	LERC	Greber, I.	NSG 3206	3168
41	CASE WESTERN RESERVE	Anderson, B. H.	LERC	Parke, F. I.	NSG 3207	3169
41	CASE WESTERN RESERVE	Hingst, W. R.	LERC	Greber, I.	NSG 3211	3170
41	CASE WESTERN RESERVE	Hingst, W. R.	LERC	Greber, I.	NSG 3271	3178
41	CLEMSON UNIV-CLEMSON	Doggett, R. V., Jr.	LARC	Rudisill, C. S.	NSG 1411	3468
41	CLEVELAND STATE UNIV	Dunning, R. S.	LARC	Chukwu, E. N.	NSG 1445	3192
41	COLORADO STATE UNIV	Sockol, P. M.	LERC	Sadeh, W. Z.	NSG 3127	1728
41	COLUMBIA UNIVERSITY	Harris, R. L., Sr.	LARC	Galanter, E.	NCC 1 5	2926
41	COLUMBIA UNIVERSITY	Mixson, J. S.	LARC	Vaicantis, R.	NSG 1450	2932
41	COLUMBIA UNIVERSITY	Harris, R. L., Sr.	LARC	Galanter, E.	NSG 1541	2933
41	CORNELL UNIVERSITY	Yu, Y. H.	ARC	George, A. R.	NSG 2331	2970
41	CORNELL UNIVERSITY	Schmitz, F. H.	ARC	George, A. R.	NSG 2360	2972
41	CORNELL UNIVERSITY	Chapman, G. T.	ARC	Lumley, J. L.	NSG 2382	2973
41	CORNELL UNIVERSITY	Marek, C. J.	LERC	Gouldin, F. C.	NSG 3019	2977
41	DEL MAR COLLEGE	Murrow, H. N.	LARC	Trevino, G.	NSG 1615	3535
41	DREXEL UNIVERSITY	Price, D. B.	LARC	Calise, A. J.	NSG 1496	3350
41	EMBRY-RIDDLE AERO U	Houck, J. A.	LARC	Gandelman, J. H.	NAS 1-15724	1906
41	GEORGE WASHINGTON U	Duberg, J. E.	LARC	Liebowitz, H.	NAS 1-14605	1844
41	GEORGE WASHINGTON U	Margeolis, K.	LARC	Liebowitz, H.	NCC 1 14	1848
41	GEORGE WASHINGTON U	Bobbitt, P. J.	LARC	Liebowitz, H.	NCC 1 24	1850
41	GEORGE WASHINGTON U	Erickson, W. D.	LARC	Liebowitz, H.	NCC 1 27	1851
41	GEORGE WASHINGTON U	Bobbitt, P. J.	LARC	Liebowitz, H.	NGR 09-010-074	1853

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41	GEORGE WASHINGTON U	Anderson, R. A.	LARC	Liebowitz, H.	NGR 09-010-078	1854
41	GEORGE WASHINGTON U	Margeolis, K.	LARC	Liebowitz, H.	NGR 09-010-085	1855
41	GEORGE WASHINGTON U	Sut, W. T.	LARC	Liebowitz, H.	NSG 1161	1860
41	GEORGE WASHINGTON U	Kemp, W. B., Jr.	LARC	Liebowitz, H.	NSG 1585	1869
41	GEORGIA INST OF TECH	Young, W. H., Jr.	LARC	Gray, R. B.	NAS 1-15158	1979
41	GEORGIA INST OF TECH	Lee, B. L.	LARC	Pierce, G. A.	NSG 1592	1994
41	GEORGIA INST OF TECH	Baumeister, K. J.	LERC	Zinn, B. T.	NSG 3036	2000
41	GEORGIA INST OF TECH	Sockol, P. M.	LERC	Johnston, W. A.	NSG 3260	2004
41	GEORGIA INST OF TECH	McFarland, E. R.	LERC	Wu, J.	NSG 3307	2006
41	HAMPTON INSTITUTE	Jewel, J. W., Jr.	LARC	Williams, G. K.	NAS 1-14507	3777
41	HAMPTON INSTITUTE	Knox, C. E.	LARC	Hargrove, A.	NAS 1-15445	3779
41	HAMPTON INSTITUTE	Beckwith, I. E.	LARC	Anyiwo, J. C.	NAS 1-15877	3780
41	HAMPTON INSTITUTE	Beckwith, I. E.	LARC	Anyiwo, J. C.	NSG 1505	3786
41	HARVARD UNIVERSITY	Doolin, B. F.	ARC	Brockett, R. W.	NSG 2265	2461
41	HARVEY MUDD COLLEGE	Luebs, A. B.	ARC	Williams, H.	NCA 2-283801	1256
41	HOWARD UNIVERSITY	Barrowman, J. S.	GSFC	McElroy, M. B.	NAS 5-24242	1876
41	ILL INST OF TECH	Adelman, H. M.	LARC	Haftka, R. T.	NSG 1266	2060
41	ILL INST OF TECH	Hefner, J. N.	LARC	Nagib, H. M.	NSG 1591	2061
41	ILL INST OF TECH	Groeneweg, J. F.	LERC	Nagib, H. M.	NSG 3220	2062
41	IMPERIAL C SCI & TEC	Povinelli, F. P.	HQ-RP	Whitelow, J.	NASW 3258	4028
41	IND U-PURDUE-INDAPLS	Sockol, P. M.	LERC	Bodonyi, R. J.	NSG 3183	2143
41	IND U-PURDUE-INDAPLS	Chima, R. U.	LERC	Ecer, A.	NSG 3294	2144
41	IOWA STATE UNIV	Hicks, R. M.	ARC	Vogel, J. C.	NCC 2 19	2188
41	IOWA STATE UNIV	Rakich, J. V.	ARC	Tannehill, J. C.	NGR 16-002-038	2190
41	IOWA STATE UNIV	Malcolm, G. N.	ARC	James, W. D.	NSG 2091	2196
41	IOWA STATE UNIV	Cison, L. G.	ARC	James, W. D.	NSG 2257	2197
41	IOWA STATE UNIV	Salas, M. D.	LARC	Anderson, D. A.	NCC 1 17	2187
41	IOWA STATE UNIV	Salas, M. D.	LARC	Anderson, D. A.	NSG 1535	2192
41	IOWA STATE UNIV	Morris, D. J.	LARC	Iversen, J. D.	NSG 1582	2194
41	IOWA STATE UNIV	Corsiglia, V. R.	HQ-	Nogel, J.	NCC 2 22	2189
41	ISRAEL INST OF TECH	Abel, I.	LARC	Nissim, I.	NSG 7373	4033
41	JOHNS HOPKINS UNIV	Rubesin, M. W.	ARC	Corrsin, S.	NSG 2303	2317
41	LEHIGH UNIVERSITY	Batterton, P. G.	LERC	Rockwell, D. O.	NSG 3162	3369
41	MASS INST OF TECH	Johnson, W. R.	ARC	Widnall, S. E.	NSG 2142	2558
41	MASS INST OF TECH	Johnson, W. R.	ARC	Ham, N. D.	NSG 2266	2564
41	MASS INST OF TECH	Heath, D. F.	GSFC	Cummond, D. M.	NAS 5-22915	2496
41	MASS INST OF TECH	Gloersen, P.	GSFC	Staelin, D. H.	NAS 5-22929	2497
41	MASS INST OF TECH	Hubbard, H. H.	LARC	Ingard, K. V.	NAS 1-15154	2487
41	MASS INST OF TECH	Maddalon, D. V.	LARC	Taneja, N. K.	NAS 1-15268	2488
41	MASS INST OF TECH	Harris, R. L., Sr	LARC	Tole, J. R.	NCC 1 23	2517
41	MASS INST OF TECH	Downing, D. R.	LARC	Simpson, P. W.	NGL 22-009-640	2527
41	MASS INST OF TECH	Boyden, R. P.	LARC	Covert, F. E.	NSG 1356	2547
41	MASS INST OF TECH	Bushnell, D. M.	LARC	Melcher, J. R.	NSG 1453	2549
41	MASS INST OF TECH	Boyden, R. P.	LARC	Covert, F. E.	NSG 1502	2550
41	MASS INST OF TECH	Crouse, J. E.	LERC	Kerrebrock, J. L.	NAS 3-20473	2492
41	MASS INST OF TECH	McNally, W. D.	LERC	Kerrebrock, J. L.	NGL 22-009-383	2524
41	MASS INST OF TECH	Holms, A. G.	LEPC	Witmer, E. A.	NGR 22-009-339	2530
41	MASS INST OF TECH	Brabbs, T. A.	LERC	Hoult, D. P.	NSG 3076	2572
41	MASS INST OF TECH	Adamezyk, J. J.	LERC	Kerrebrock, J. L.	NSG 3079	2573
41	MASS INST OF TECH	Baumeister, K. J.	LERC	Ungard, K. U.	NSG 3 29	2574
41	MASS INST OF TECH	Adamezyk, J. J.	LERC	Gretzer, F. M.	NSG 3208	2577
41	MASS INST OF TECH	McNally, W. D.	LERC	Kerrebrock, J. L.	NSG 3234	2579
41	MASS INST OF TECH	Janetzke, D. C.	LERC	Miller, R. H.	NSG 3303	2582
41	MISSISSIPPI STATE U	South, J. C., Jr.	LARC	Thompson, J. F.	NGR 25-091-055	2742
41	MISSISSIPPI STATE U	Hall, A. W.	LARC	Rogerson, A. C.	NSG 1083	2743
41	MISSISSIPPI STATE U	Stewart, E. C.	LARC	Bennett, A. G., Jr	NSG 1249	2744
41	MISSISSIPPI STATE U	Hassell, J. L., Jr	LARC	Bennett, A. G., Jr	NSG 1402	2745
41	MISSISSIPPI STATE U	Judd, J. H.	LARC	Bennett, A. G., Jr	NSG 1454	2746

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41	MISSISSIPPI STATE U	Holmes, B. J.	LARC	Cross, E. J.	NSG 1511	2747
41	MISSISSIPPI STATE U	Thomas, J. L.	LARC	Bennett, A. G., Jr.	NSG 1623	2749
41	NEW YORK UNIVERSITY	Hicks, R. M.	ARC	Garabedian, P. R.	NGR 33-016-201	3002
41	NEW YORK UNIVERSITY	Huber, P. W.	LARC	Agnone, A. M.	NGR 33-016-131	3000
41	NEW YORK UNIVERSITY	Edwards, C. L.	LARC	Zakkay, V.	NSG 1444	3003
41	NEW YORK UNIVERSITY	Liu, C. H.	LARC	Ting, L.	NSG 1469	3004
41	NO CAROLINA STATE U	Kurtenbach, F. J.	DFRC	Smetana, F. O.	NSG 4025	3137
41	NO CAROLINA STATE U	Lamar, J. E.	LARC	Dejarnette, F. R.	NCC 1 13	3121
41	NO CAROLINA STATE U	South, J. C., Jr.	LARC	Hassan, H. A.	NCC 1 22	3122
41	NO CAROLINA STATE U	Crane, H. L.	LARC	Smetana, F. O.	NSG 1077	3127
41	NO CAROLINA STATE U	Brooks, T. F.	LARC	Hodgson, T. H.	NSG 1377	3131
41	NO CAROLINA STATE U	Crane, H. L.	LARC	Smetana, F. O.	NSG 1584	3135
41	NORTHWESTERN UNIV	Anderson, J. L.	ARC	Spencer, F. A.	NSG 2149	2068
41	NORTHWESTERN UNIV	Anderson, J. L.	ARC	Spencer, F. A.	NSG 2328	2069
41	OHIO STATE UNIV	Holst, T. L.	ARC	Nakamura, S.	NCA 2-565901	3215
41	OHIO STATE UNIV	McDevitt, J. B.	ARC	Petrie, S. L.	NSG 2298	3229
41	OHIO STATE UNIV	Barnwell, R. W.	LARC	Gregorek, G. M.	NAS 1-14406	3207
41	OHIO STATE UNIV	Greene, G. C.	LARC	Gregorek, G. M.	NAS 1-15680	3208
41	OHIO STATE UNIV	Bergeron, H. P.	LARC	Weislogel, G. S.	NAS 1-15969	3209
41	OHIO STATE UNIV	Holmes, B. J.	LARC	Gilson, R. D.	NSG 1620	3223
41	OHIO STATE UNIV	Barnwell, R. W.	LARC	Burggraf, O. R.	NSG 1622	3224
41	OHIO STATE UNIV	Mikkelson, D. C.	LERC	Gregorek, G. M.	NSG 3247	3232
41	OKLAHOMA STATE UNIV	Steinle, F. W., Jr.	ARC	Moretti, P. M.	NSG 2396	3301
41	OKLAHOMA STATE UNIV	Gilyard, G. B.	DFRC	Swan, R. L.	NSG 4018	3302
41	OKLAHOMA STATE UNIV	Seiner, J. M.	LARC	McLaughlin, D. K.	NSG 1467	3300
41	OLD DOMINION UNIV	Erickson, W. D.	LARC	Unavailable	NAS 1-15648	3790
41	OLD DOMINION UNIV	Peterson, J. B., Jr.	LARC	Goglia, G. L.	NCC 1 9	3792
41	OLD DOMINION UNIV	Erickson, W. D.	LARC	Roberts, A. S., Jr.	NGR 47-003-052	3793
41	OLD DOMINION UNIV	Kersliner, D. D.	LARC	Barna, P. S.	NSG 1143	3798
41	OLD DOMINION UNIV	Davis, J. G., Jr.	LARC	Thornton, E. A.	NSG 1167	3799
41	OLD DOMINION UNIV	Peterson, J. B., Jr.	LARC	Goglia, G. L.	NSG 1315	3803
41	OLD DOMINION UNIV	Peterson, J. B., Jr.	LARC	Kuhlman, J. M.	NSG 1357	3808
41	OLD DOMINION UNIV	Graves, R. A., Jr.	LARC	Tiwari, S. N.	NSG 1464	3815
41	OLD DOMINION UNIV	Creedon, J. F.	LARC	Tcheng, P. L.	NSG 1480	3819
41	OLD DOMINION UNIV	Bushnell, D. M.	LARC	Goglia, G. L.	NSG 1491	3820
41	OLD DOMINION UNIV	Kilgore, R. A.	LARC	Goglia, G. L.	NSG 1503	3822
41	OLD DOMINION UNIV	Dwoyer, D. L.	LARC	Cooke, C. H.	NSG 1517	3824
41	OLD DOMINION UNIV	Moul, M. T.	LARC	Liberty, S. R.	NSG 1519	3825
41	OLD DOMINION UNIV	Yates, E. C., Jr.	LARC	Kandil, O. A.	NSG 1560	3828
41	OLD DOMINION UNIV	Lamar, J. E.	LARC	Goglia, G. L.	NSG 1561	3829
41	OLD DOMINION UNIV	Gentry, G. L.	LARC	Barna, P. S.	NSG 1563	3830
41	OLD DOMINION UNIV	Bushnell, D. M.	LARC	Grosch, C. E.	NSG 1618	3833
41	OLD DOMINION UNIV	Hefner, J. N.	LARC	Ash, R. L.	NSG 1634	3834
41	OLD DOMINION UNIV	Harvey, W. D.	LARC	Goglia, G. L.	NSG 1645	3835
41	OLD DOMINION UNIV	Moul, M. T.	LARC	Liberty, S. R.	NSG 1650	3837
41	OREGON STATE UNIV	Iliff, K. W.	DFRC	Ruzicka, J.	NSG 4013	3325
41	PENN STATE U-UNIV PK	Fisher, B. D.	LARC	McCormick, B. W.	NSG 1308	3395
41	PENN STATE U-UNIV PK	Gatski, T. B.	LARC	Morris, P. J.	NSG 1580	3397
41	PENN STATE U-UNIV PK	Britsch, W. R.	LERC	Lakshminarayana, B.	NGL 39-009-007	3390
41	PENN STATE U-UNIV PK	Heidmann, M. F.	LERC	Eisenhuth, J.	NSG 3012	3399
41	PENN STATE U-UNIV PK	Sockol, P. M.	LERC	Lakshminarayana, B.	NSG 3032	3401
41	PENN STATE U-UNIV PK	Sockol, P. M.	LERC	Lakshminarayana, B.	NSG 3212	3403
41	PENN STATE U-UNIV PK	Sanger, N. L.	LERC	Kubo, I.	NSG 3264	3404
41	PENN STATE U-UNIV PK	Englert, G. W.	LERC	Morris, P. J.	NSG 3265	3405
41	PENN STATE U-UNIV PK	Sockol, P. M.	LERC	Lakshminarayana, B.	NSG 3266	3406
41	PENN STATE U-UNIV PK	Mitchell, G. A.	LERC	McCormick, B. W.	NSG 3304	3408
41	POLY INST OF NY	Schmitz, F. H.	ARC	Isom, M.	NSG 2368	3022
41	POLY INST OF NY	Salas, M. D.	LARC	Moretti, G.	NSG 1248	3018

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41	POLY INST OF NY	Swanson, R. C	LARC	Rubin, S. G.	NSG 1559	3019
41	PRINCETON UNIVERSITY	Davis, S. S.	ARC	Dowell, E. H.	NSG 2194	2853
41	PRINCETON UNIVERSITY	Horstman, C. C.	ARC	Bogdonoff, S. M.	NSG 2299	2854
41	PRINCETON UNIVERSITY	Miller, G. K.	LARC	Socket, E.	NAS 1-13502	2834
41	PRINCETON UNIVERSITY	Downing, D. R.	LARC	Stengel, R. F.	NAS 1-15758	2835
41	PRINCETON UNIVERSITY	Niessen, F. R.	LARC	Stengel, R. F.	NAS 1-15764	2836
41	PRINCETON UNIVERSITY	Downing, D. R.	LARC	Graham, D.	NGL 31-001-252	2846
41	PRINCETON UNIVERSITY	Mixson, J. S.	LARC	Dowell, E. H.	NSG 1253	2849
41	PRINCETON UNIVERSITY	Schy, A. A.	LARC	Stengel, R. F.	NSG 1587	2850
41	PRINCETON UNIVERSITY	Jones, J. J.	LARC	Bienkowski, G. K.	NSG 1630	2851
41	PRINCETON UNIVERSITY	Braun, W. H.	LERC	Dowell, E. H.	NSG 3292	2858
41	PURDUE UNIVERSITY	Gregory, T. J.	ARC	Anderson, D. C.	NSG 2192	2159
41	PURDUE UNIVERSITY	Berry, D. T.	DFRC	Laver, J. A.	NSG 4003	2171
41	PURDUE UNIVERSITY	Swanson, R. C.	LARC	McCarthy, D. R.	NSG 1635	2158
41	PURDUE UNIVERSITY	Davidson, H. W.	LERC	L'Ecuyer, M. R.	NSG 3071	2162
41	PURDUE UNIVERSITY	Katsanis, T.	LERC	Meinke, W. J.	NSG 3105	2163
41	PURDUE UNIVERSITY	Lehtinen, B.	LERC	Leonard, R. G.	NSG 3119	2164
41	PURDUE UNIVERSITY	Serafini, J. S.	LERC	Sullivan, J. P.	NSG 3135	2165
41	PURDUE UNIVERSITY	Chamis, C. C.	LERC	Sun, C. T.	NSG 3185	2166
41	PURDUE UNIVERSITY	Cooper, L. P.	LERC	Lefebvre, A. H.	NSG 3213	2167
41	PURDUE UNIVERSITY	Boldman, D. R.	LERC	Fleeter, S.	NSG 3285	2170
41	RENSELAER POLY-NY	Barnwell, R. W.	LARC	Nagamatsu, H. T.	NSG 1624	3038
41	RENSELAER POLY-NY	Simoneau, R. J.	LERC	Mayle, R. E.	NSG 3262	3042
41	RUTGERS U-N BRUNSWK	Claus, R. W.	LERC	Johnson, J. A.	NSG 3280	2874
41	SOUTHERN METHODIST U	Bushnell, D. M.	LARC	Simpson, R. L.	NSG 1548	3566
41	STANFORD UNIVERSITY	Lomax, H.	ARC	Shevell, R. S.	NCA 2-745001	1324
41	STANFORD UNIVERSITY	Hickey, D. H.	ARC	Karamcheti, K.	NCC 2 13	1341
41	STANFORD UNIVERSITY	Hickey, D. H.	ARC	Karamcheti, K.	NCC 2 18	1343
41	STANFORD UNIVERSITY	Carr, L. W.	ARC	Reynolds, W. C.	NCC 2 21	1344
41	STANFORD UNIVERSITY	Franklin, J. A.	ARC	Debra, D. B.	NSG 2100	1374
41	STANFORD UNIVERSITY	Galloway, T. L.	ARC	Shevell, R. S.	NSG 2190	1376
41	STANFORD UNIVERSITY	Belsley, S. E.	ARC	Dajani, J. R.	NSG 2203	1377
41	STANFORD UNIVERSITY	Hickey, D. H.	ARC	Karamcheti, K.	NSG 2215	1378
41	STANFORD UNIVERSITY	Davis, S. S.	ARC	Karamcheti, K.	NSG 2233	1379
41	STANFORD UNIVERSITY	McCroskey, W. J.	ARC	Reynolds, W. C.	NSG 2258	1384
41	STANFORD UNIVERSITY	Nagel, D. C.	ARC	Karamcheti, K.	NSG 2297	1389
41	STANFORD UNIVERSITY	Chapman, G.	ARC	Karamcheti, K.	NSG 2308	1390
41	STANFORD UNIVERSITY	Ciffone, D. L.	ARC	Ashley, H.	NSG 2359	1392
41	STANFORD UNIVERSITY	Tauber, M.	ARC	Karamcheti, K.	NSG 2370	1393
41	STANFORD UNIVERSITY	Chapman, G. T.	ARC	Cantwell, B.	NSG 2392	1395
41	STANFORD UNIVERSITY	Franklin, J. A.	ARC	Debra, D. B.	NSG 2400	1397
41	STANFORD UNIVERSITY	Edwards, J. W.	DFRC	Debra, D. B.	NSG 4002	1399
41	STANFORD UNIVERSITY	Doggett, R. V., Jr.	LARC	Ashley, H.	NGL 05-020-243	1350
41	STEVENS INST OF TECH	Bushnell, D. M.	LARC	Saiwen, H.	NSG 1619	2879
41	TEXAS A&M UNIVERSITY	Gambucci, B. J.	ARC	Brusse, J. C.	NAS 2-10272	3568
41	TEXAS A&M UNIVERSITY	Wong, J. T.	ARC	Phillips, D. T.	NSG 2226	3597
41	TEXAS A&M UNIVERSITY	Nelsen, E. D.	GSFC	El-Sayed, S. Z.	NAS 5-22966	3570
41	TEXAS A&M UNIVERSITY	South, J. C., Jr.	LARC	Carlson, L. A.	NSG 1174	3593
41	TEXAS A&M UNIVERSITY	Chambers, J. R.	LARC	Chevalier, H. L.	NSG 1407	3595
41	TUSKEGEE INSTITUTE	Glassman, A. J.	LERC	Jenkins, R. M.	NSG 3295	1034
41	UNIV OF AKRON	Chamis, C. C.	LERC	Adams, M. L.	NSG 3283	3244
41	UNIV OF ARIZONA	Ballhaus, W. F.	ARC	Seebass, A. R.	NSG 2112	1125
41	UNIV ARKANSAS-FAYETV	Ragent, B.	ARC	Broecker, W. S.	NGL 04-001-007	1165
41	UNIV CALIF-BERKELEY	Lee, C.	ARC	Holt, M.	NGR 05-003-451	1448
41	UNIV CALIF-BERKELEY	Williamson, L. J.	ARC	Kanafani, A.	NSG 2127	1457
41	UNIV CALIF-BERKELEY	Marshall, C. J.	LERC	Oppenheim, A. K.	NSG 3227	1463
41	UNIV CALIF-DAVIS	Marvin, J. G.	ARC	Lauder, B.	NSG 2256	1491
41	UNIV CALIF-L ANGELES	Ahtye, W. F.	ARC	Meecham, W. C.	NSG 2290	1530

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41	UNIV CALIF-L ANGELES	Edwards, J. W.	DFRC	Seidel, B. S.	NSG 4015	1537
41	UNIV CALIF-L ANGELES	Hammond, C. E.	LARC	Friedman, P. P.	NSG 1578	1529
41	UNIV CALIF-L ANGELES	Friedman, R.	LERC	Liu, C. Y.	NSG 3116	1533
41	UNIV CALIF-SAN DIEGO	Marek, C. J.	LERC	Libby, P. A.	NSG 3219	1607
41	UNIV OF CINCINNATI	Erzberger, H.	ARC	Slater, G. L.	NCA 2-130801	3246
41	UNIV OF CINCINNATI	Rakich, J. V.	ARC	Davis, R. T.	NCA 2-130901	3247
41	UNIV OF CINCINNATI	McFarland, E. R.	LERC	Tabakoff, W.	NAS 3-21609	3245
41	UNIV OF CINCINNATI	Stepka, F. S.	LERC	Tabakoff, W.	NSG 3066	3252
41	UNIV OF CINCINNATI	Kao, H. C.	LERC	Ghia, K. N.	NSG 3267	3258
41	UNIV COLORADO-BOLDR	Senn, E. H.	LARC	Riddle, W. E.	NSG 1638	1761
41	UNIV COLORADO-BOLDR	Groeneweg, J. F.	LERC	Uberoi, M. S.	NSG 3181	1763
41	UNIV COLORADO-DENVER	Housner, J. M.	LARC	Thurston, G. A.	NAS 1-15775	1794
41	UNIV OF DAYTON	Acurio, J.	LERC	Militello, J.	NAS 3-21698	3262
41	UNIV OF DAYTON	Camp, D. W.	MSFC	Leurs, J. K.	NAS 8-31294	3264
41	UNIV OF DAYTON	Camp, D. W.	MSFC	Luers, J. K.	NAS 8-32111	3265
41	UNIV OF DAYTON	Melson, W. E., Jr.	WFC	Luers, J. K.	NSG 6026	3269
41	UNIV OF DELAWARE	Bushnell, D. M.	LARC	Danberg, J. E.	NSG 1513	1834
41	UNIV OF DELAWARE	Adamczyk, J. J.	LERC	Seidel, B. S.	NSG 3189	1836
41	UNIV OF DELAWARE	Farrell, C. A., Jr.	LERC	Seidel, B. S.	NSG 3270	1837
41	UNIV OF FLORIDA	Malcolm, G. N.	ARC	Clarkson, M. H.	NSG 2120	1944
41	UNIV OF FLORIDA	Aoyagi, K.	ARC	Fearn, R. L.	NSG 2288	1945
41	UNIV HOUSTON-HOUSTON	Eggleston, J. M.	JSC	Michalopoulos, C. O.	NAS 9-15193	3612
41	UNIV HOUSTON-HOUSTON	Maestrello, L.	LARC	Hussain, A. K.	NSG 1475	3623
41	UNIV ILLINOIS-CHICGO	Evans, J. S.	LARC	Chung, P. M.	NSG 1150	2110
41	UNIV ILLINOIS-URBANA	Salmirs, S.	LARC	Jensen, R. S.	NAS 1-14731	2112
41	UNIV ILLINOIS-URBANA	Jordan, F. L.	LARC	Ormsbee, A. I.	NSG 1434	2120
41	UNIV ILLINOIS-URBANA	Bober, L. J.	LERC	Chow, W. L.	NGL 14-005-140	2116
41	UNIV OF IOWA	Marvin, J. G.	ARC	Ramaprian, B. R.	NSG 2300	2214
41	UNIV OF IOWA	Stockman, N. O.	LERC	Chou, D. C.	NSG 3117	2216
41	UNIV OF IOWA	Johnson, G. M.	LERC	Chen, C. J.	NSG 3305	2217
41	UNIV OF KANSAS	Jenkins, J. M.	DFRC	Lenzen, K. H.	NSG 4008	2244
41	UNIV OF KANSAS	Edwards, J. W.	DFRC	Kotsabasis, A.	NSG 4017	2245
41	UNIV OF KANSAS	Kordes, E. E.	DFRC	Roskam, J.	NSG 4019	2246
41	UNIV OF KANSAS	Holmes, B. J.	LARC	Roskam, J.	NAS 1-15770	2227
41	UNIV OF KANSAS	Stephens, D. G.	LARC	Roskam, J.	NCC 1 6	2232
41	UNIV OF KANSAS	Campbell, J. F.	LARC	Lan, C. E.	NCC 1 18	2233
41	UNIV OF KANSAS	Lamar, J. E.	LARC	Roskam, J.	NSG 1046	2235
41	UNIV OF KANSAS	Campbell, J. F.	LARC	Lan, C. E.	NSG 1537	2238
41	UNIV OF KANSAS	Hassell, J. L., Jr.	LARC	Roskam, J.	NSG 1574	2240
41	UNIV OF KANSAS	Lamar, J. E.	LARC	Lan, C. E.	NSG 1629	2241
41	UNIV OF KANSAS	Holmes, B. J.	LARC	Lenzen, K. H.	NSG 1633	2242
41	UNIVERSITY OF LOWELL	Fralich, R. W.	LARC	McElman, J. A.	NSG 1295	2611
41	UNIV MARYLAND-COL PK	DiCarlo, D. J.	LARC	Barlow, J. B.	NSG 1570	2382
41	UNIV MICH-ANN ARBOR	Feistel, T. W.	ARC	Kroeger, R. A.	NSG 2018	2672
41	UNIV MICH-ANN ARBOR	Anderson, S. B.	ARC	Kroeger, R. A.	NSG 2113	2673
41	UNIV MICH-ANN ARBOR	South, J. C., Jr.	LARC	Adamson, T. C., Jr.	NSG 1326	2666
41	UNIV MICH-ANN ARBOR	Dunning, R. S.	LARC	Vinh, N. X.	NSG 1448	2668
41	UNIV MICH-ANN ARBOR	McCarty, J. L.	LARC	Clark, S. K.	NSG 1494	2670
41	UNIV MICH-ANN ARBOR	McCarty, J. L.	LARC	Clark, S. K.	NSG 1607	2671
41	UNIV MICH-ANN ARBOR	Cooper, L. P.	LERC	Nicholls, J. A.	NSG 3148	2675
41	UNIV MICH-ANN ARBOR	Ercegovic, D. E.	LERC	Kauffman, C. W.	NSG 3165	2677
41	UNIV MO-ROLLA	Coe, C. F.	ARC	Cronin, D. L.	NCA 2-450801	2766
41	UNIV MO-ROLLA	Shockey, G. A.	ARC	Selberg, B. P.	NSG 2375	2769
41	UNIV MO-ROLLA	Hefner, J. N.	LARC	Patterson, G. K.	NSG 1452	2768
41	UNIV MO-ROLLA	Rice, E. J.	LERC	Eversman, W.	NSG 3231	2772
41	UNIV NEVADA-L VEGAS	Davis, S. S.	ARC	Fromme, J. A.	NSG 2140	2808
41	UNIV OF NEVADA-RENO	Presley, L. L.	ARC	Rose, W. C.	NSG 2291	2811
41	UNIV OF NEVADA-RENO	Johnson, D. A.	ARC	Rose, W. C.	NSG 2395	2812

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41	UNIV OF NEW MEXICO	Ludi, A. J.	HQ-U	Sanchez, R. S.	NASW 3243	2895
41	UNIV OF NOTRE DAME	Somers, D. M.	LARC	Mueller, T. J.	NSG 1419	2176
41	UNIV OF NOTRE DAME	Crouse, J. E.	LERC	Roberts, W. B.	NSG 3133	2179
41	UNIV OF SANTA CLARA	Lomax, H.	ARC	Vinokur, M.	NCC 2 16	1684
41	UNIV OF SOUTHAMPTON	Kilgore, R. A.	LARC	Goodyer, M. J.	NSG 7172	4030
41	UNIV OF SOUTHAMPTON	Boyden, R. P.	LARC	Goodyer, M. J.	NSG 7523	4031
41	UNIV OF SOUTHERN CAL	Stein, M.	LARC	Seide, P.	NSG 1401	1698
41	UNIV STHN COLORADO	Hruby, R. J.	ARC	Jenkins, R.	NSG 2048	1811
41	UNIV TENNESSEE-KNOXV	Steinle, F. W., Jr.	ARC	Tirres, C.	NCA 2-772901	3509
41	UNIV TENNESSEE-KNOXV	Steinle, F. W., Jr.	ARC	Wu, J. M.	NSG 2379	3513
41	UNIV TENNESSEE-KNOXV	Bland, S. R.	LARC	Kimble, K. R.	NSG 1224	3512
41	UNIV TENNESSEE-KNOXV	Rostafinski, W. A.	LERC	Kurosaka, M.	NSG 3287	3516
41	UNIV TENNESSEE-KNOXV	Mercier, D. R.	MSFC	Smith, V. K., III	NAS 8-33225	3504
41	U TENNESSEE-NASHVILLE	Robinson, J. C.	LARC	Blackburn, C. L.	NSG 1455	3519
41	UNIV TEXAS-AUSTIN	Ballhaus, W. F.	ARC	Carey, G. F.	NSG 2338	3665
41	UNIV TEXAS-AUSTIN	Goodrich, W. D.	JSC	Bertin, J. J.	NAS 9-13680	3646
41	UNIV TEXAS-AUSTIN	Nitschke, H. A.	JSC	Crow, G. L.	NAS 9-15401	3650
41	UNIV OF TOLEDO	Chamis, C. C.	LERC	Koza, K. R.	NSG 3139	3275
41	UNIV OF VIRGINIA	Kilgore, R. A.	LARC	Zapata, R. N.	NSG 1010	3852
41	UNIV OF WASHINGTON	Chapman, G. T.	ARC	Childs, M. E.	NGL 48-002-047	3932
41	UNIV OF WASHINGTON	Lee, G.	ARC	Childs, M. E.	NGR 48-002-141	3933
41	UNIV OF WASHINGTON	Creer, B. Y.	ARC	Joppa, R. G.	NSG 2176	3935
41	UNIV OF WASHINGTON	Corsiglia, V. R.	ARC	Joppa, R. G.	NSG 2260	3937
41	UNIV OF WASHINGTON	Braun, W. H.	LERC	Seebass, A. R.	NSG 3261	3943
41	UNIV WISC-MILWAUKEE	Young, W. H., Jr.	LARC	Bratanow, T.	NGR 50-007-001	4010
41	VIRGINIA POLY INST	Marvin, J. G.	ARC	Pierce, F. J.	NSG 2301	3910
41	VIRGINIA POLY INST	Erickson, W. D.	LARC	Hobeika, A. G.	NCC 1 20	3880
41	VIRGINIA POLY INST	Srokowski, A. J.	LARC	Nayfeh, A. H.	NSG 1255	3890
41	VIRGINIA POLY INST	Yates, E. C., Jr.	LARC	Mook, D. T.	NSG 1262	3891
41	VIRGINIA POLY INST	Creedon, J. F.	LARC	VanLandingham, H. F.	NSG 1354	3892
41	VIRGINIA POLY INST	Moss, J. N.	LARC	Lewis, C. H.	NSG 1520	3896
41	VIRGINIA POLY INST	Hefner, J. N.	LARC	Schetz, J. A.	NSG 1589	3903
41	VIRGINIA POLY INST	Hefner, J. N.	LARC	Saric, W. S.	NSG 1608	3906
41	VIRGINIA POLY INST	Jones, A. L.	LERC	Jakubowski, A. K.	NSG 3073	3911
41	VIRGINIA POLY INST	Ludwig, L. P.	LERC	Mitchell, L. D.	NSG 3239	3913
41	VIRGINIA POLY INST	Lehtinen, B.	LERC	Leonard, R. G.	NSG 3275	3915
41	VIRGINIA STATE UNIV	Lansing, D. L.	LARC	Agrawal, K. M.	NGL 47-014-009	3920
41	WAYNE STATE UNIV	Maestrello, L.	LARC	Chow, P. L.	NSG 1330	2694
41	WICHITA STATE UNIV	Watts, J. D.	LARC	Cook, E. L.	NCC 1 21	2252
41	WICHITA STATE UNIV	Noonan, K. W.	LARC	Rodgers, E. J.	NGR 17-003-021	2253
41	WICHITA STATE UNIV	McGhee, R. J.	LARC	Wentz, W. H., Jr.	NSG 1165	2254
41	WICHITA STATE UNIV	Huber, P. W.	LARC	Zunwalt, G. W.	NSG 1575	2255
41	WICHITA STATE UNIV	Richards, T. R.	LERC	Wentz, W. H., Jr.	NSG 3277	2257
41	WRIGHT STATE UNIV	Queijo, M. J.	LARC	Wells, W. R.	NSG 1417	3294
41	YALE UNIVERSITY	Hall, R. M.	LARC	Wegener, P. P.	NSG 1612	1824
42	CAL STATE U-SACRAMEN	Priem, R. J.	LERC	Reardon, F. H.	NGR 05-058-003	1255
42	COLORADO STATE UNIV	Priem, R. J.	LERC	Mitchell, C. E.	NGR 06-002-095	1717
42	COLORADO STATE UNIV	Rawlin, V. K.	LERC	Kaufman, H. R.	NSG 3011	1725
42	GEORGIA INST OF TECH	Stevens, G. H.	LERC	Zimmer, R. P.	NAS 3-20'10	1981
42	GEORGIA INST OF TECH	Priem, R. J.	LERC	Korkan, K. D.	NSG 3052	2001
42	HARVARD UNIVERSITY	Hall, C. F.	ARC	McElroy, M. B.	NAS 2-10249	2443
42	HOWARD UNIVERSITY	Horner, G. C.	LARC	Jones, I. W.	NSG 1320	1886
42	MASS INST OF TECH	Domitz, S.	LERC	Kolm, H. H.	NSG 3175	2575
42	MASS INST OF TECH	Schwenk, F. C.	HQ-RT	Mar, J. W.	NSG 7396	2600
42	OLD DOMINION UNIV	Mikulas, M. M., Jr.	LARC	Prabhakaran, R.	NSG 1507	3823
42	PENN STATE U-UNIV PK	Priem, R. J.	LERC	Faeth, G. M.	NGR 39-009-077	3393
42	PENN STATE U-UNIV PK	Mahon, J. B.	HQ-ML	Unavailable	NASW 3256	3386
42	PRINCETON UNIVERSITY	Domitz, S.	LERC	O'Neill, G. K.	NSG 3176	2856

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42	PRINCETON UNIVERSITY	Lazar, J.	HQ-RP	Jahn, R. G.	NGL 31-001-005	2844
42	SOUTHERN METHODIST U.	Marvin, J. G.	ARC	Simpson, R. L.	NSG 2354	3567
42	STANFORD UNIVERSITY	Park, C. G.	ARC	Beishader, D.	NCC 2 10	1340
42	STANFORD UNIVERSITY	Howe, J. T.	ARC	Rana, D. S.	NSG 2085	1372
42	STANFORD UNIVERSITY	Kant, S.	GSFC	Debra, D. B.	NAS 5-21960	1308
42	STATE UNIV NY-ALBANY	Randolph, L. P.	HQ-RT	Ratcliff, K. F.	NSG 7501	3060
42	UNIV OF DAYTON	Gentile, L. C.	LERC	Engler, N. A.	NAS 3-20392	3259
42	UNIV OF DAYTON	Gentile, L. C.	LERC	Engler, N. A.	NAS 3-21370	3261
42	UNIV OF DELAWARE	Garcia, R.	LARC	Pipes, R. B.	NSG 1409	1831
42	UNIV OF DELAWARE	McWithey, R. R.	LARC	Vinson, J. R.	NSG 1488	1833
42	UNIV OF LOUISVILLE	Winder, S. W.	MSFC	Childs, D. W.	NAS 8-31233	2264
42	UNIV TEXAS-AUSTIN	Fuchs, A. J.	GSFC	Tapley, B. D.	NAS 5-25756	3642
42	VIRGINIA POLY INST	Montgomery, R. C.	LARC	Meirovitch, L.	NCC 1 4	3877
43	BUCKNELL UNIVERSITY	Gluyas, R. E.	LERC	Snyder, W. J.	NSG 3136	3340
43	CASE WESTERN RESERVE	Dunning, J. W., Jr.	LERC	Angus, J. C.	NSG 3074	3158
43	CASE WESTERN RESERVE	Fordyce, J. S.	LERC	Liu, C. C.	NSG 3203	3167
43	CLEVELAND STATE UNIV	Ashbrook, R. L.	LERC	Yeh, H. C.	NSG 3155	3193
43	FLORIDA INST OF TECH	Howard, F. S.	KSC	Thomas, J. J.	NAS10-9461	1914
43	RICE UNIVERSITY	Howard, J. K.	JSC	Davis, S. H.	NAS 9-15630	3549
43	STANFORD UNIVERSITY	Poppa, H. R.	ARC	Boudart, M.	NCA 2-745908	1334
43	STATE U NY-STONY BRK	Cochran, T. H.	LERC	Berlad, A. L.	NSG 3051	3077
43	UNIV CALIF-SAN DIEGO	Haggard, J. B.	LERC	Williams, F. A.	NSG 3047	1603
43	UNIV OF FLORIDA	Sheibley, D. W.	LERC	Walker, R. D., Jr.	NGR 10-005-182	1940
43	UNIV ILLINOIS-URBANA	Cochran, T. H.	LERC	Strehlow, R. A.	NSG 3043	2125
43	UNIV OF PITTSBURGH	Kostuk, T.	GSFC	Falk, J.	NAS 5-22892	3432
43	UNIV OF SHEFFIELD	Lyons, V. J.	LERC	Chigier, N. A.	NSG 7517	4029
44	NO CAR A&T STATE U	Rhodes, M. D.	LARC	Sharma, A. V.	NSG 1631	3114
44	RENSSELAER POLY-NY	Rogers, J. L.	LARC	Feeser, L. J.	NSG 1636	3040
44	UNIV ILLINOIS-CHICGO	Costes, N. C.	MSFC	Silver, M. L.	NAS 8-32993	2108
45	ALABAMA A&M UNIV	Teasdale, W. E.	JSC	Ingels, F. M.	NAS 9-14770	1001
45	ALABAMA A&M UNIV	Bilbro, J. W.	MSFC	Huth, G. C.	NSG 8037	1004
45	ALABAMA A&M UNIV	Gould, J. M.	MSFC	Shiva, S. G.	NSG 8057	1008
45	ATHENS STATE COLLEGE	Woodis, K. W.	MSFC	Workman, G. L.	NAS 8-32834	1016
45	AUBURN UNIV-AUBURN	Matheney, J. L.	MSFC	Tung, C.	NAS 8-31572	1018
45	AUBURN UNIV-AUBURN	Routh, D. E.	MSFC	Kerns, D. V.	NAS 8-33092	1022
45	AUBURN UNIV-AUBURN	Wagnon, F. W.	MSFC	Irwin, J. D.	NCA 8-133	1025
45	CASE WESTERN RESERVE	Stevens, G. H.	LERC	Pao, Y. H.	NSG 3085	3159
45	CITY COLLEGE OF N Y	Kahle, D. R.	GSFC	Schilling, D. L.	NSG 5013	2913
45	CITY COLLEGE OF N Y	Land, C. K.	JSC	Schilling, D. L.	NAS 9-13940	2907
45	CLARKSON COL OF TECH	Rotnem, J. O.	LERC	Arozullah, M.	NSG 3191	2917
45	CLEVELAND STATE UNIV	Nieberding, W. C.	LERC	Maisel, J. F.	NSG 3222	3194
45	COLORADO STATE UNIV	Taylor, R. E.	GSFC	Parkenson, B. W.	NSG 5352	1737
45	CORNELL UNIVERSITY	McCreight, C. R.	ARC	Lee, C. A.	NSG 2389	2974
45	CORNELL UNIVERSITY	Hutchby, J. A.	LARC	Frey, J.	NSG 1642	2968
45	CORNELL UNIVERSITY	Conway, E. J.	LARC	Ballantyne, J. M.	NSG 1651	2969
45	DUKE UNIVERSITY	Rodriguez, G. E.	GSFC	Wilson, T. G.	NAS 5-25351	3104
45	DUKE UNIVERSITY	Rodriguez, G. E.	GSFC	Wilson, T. G.	NGL 34-001-001	3105
45	DUKE UNIVERSITY	Gruber, R. P.	LERC	Wilson, T. G.	NSG 3157	3107
45	GEORGE WASHINGTON U	Rende, J. V.	GSFC	Helgert, H. J.	NAS 5-24431	1845
45	GEORGE WASHINGTON U	LeVine, D. M.	GSFC	Lang, R. H.	NSG 5288	1873
45	GEORGE WASHINGTON U	Croswell, W. F.	LARC	Liebowitz, H.	NGR 09-010-096	1856
45	GEORGE WASHINGTON U	Croswell, W. F.	LARC	Liebowitz, H.	NSG 1110	1858
45	GEORGIA INST OF TECH	King, J. L.	GSFC	Schuchardt, J. M.	NAS 5-23710	1982
45	GEORGIA INST OF TECH	King, J. L.	GSFC	Forsythe, R. E.	NSG 5012	2007
45	GEORGIA INST OF TECH	O'Neal, R. L.	LARC	Blue, M. D.	NAS 1-14654	1977
45	GEORGIA INST OF TECH	O'Neal, R. L.	LARC	Gaylord, T. K.	NAS 1-15370	1980
45	GEORGIA INST OF TECH	Hein, G. F.	LERC	Zimmer, R. P.	DEN 3 73	1975
45	GEORGIA INST OF TECH	Inman, R. A.	MSFC	Kozakoff, D. J.	NAS 8-33605	1989



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45	HAMPTON INSTITUTE	Jobson, D. J.	LARC	Trehan, A. K.	NSG 1294	3784
45	HAMPTON INSTITUTE	Katzberg, S. J.	LARC	Trehan, A. K.	NSG 1552	3787
45	HOWARD UNIVERSITY	Taylor, R. E.	GSFC	Sennott, J. W.	NSG 5336	1894
45	HOWARD UNIVERSITY	Savely, R. T.	JSC	Choudhury, A. K.	NSG 9010	1898
45	HOWARD UNIVERSITY	Whiting, E. E.	HQ-RT	Choudhury, A. K.	NSG 7624	1897
45	JOHNS HOPKINS UNIV	Bavuso, S. J.	LARC	Masson, G. M.	NSG 1442	2316
45	MASS INST OF TECH	Shiue, J. C.	GSFC	Kong, J. A.	NAS 5-24139	2499
45	MASS INST OF TECH	Ippolitto, L.	GSFC	Staelin, D. H.	NAS 5-25091	2502
45	MASS INST OF TECH	Schaefer, D. H.	GSFC	McClellan, J. H.	NSG 5157	2585
45	MASS INST OF TECH	Armstrong, E. S.	LARC	Stein, G.	NSG 1312	2545
45	MASS INST OF TECH	Armstrong, E. S.	LARC	Stein, G.	NSG 1553	2553
45	MISSISSIPPI STATE U	Wallace, G. R.	MSFC	Ingels, F. M.	NAS 8-31373	2734
45	MISSISSIPPI STATE U	Hollis, B. R., Jr.	MSFC	Wade, T. E.	NAS 8-33448	2737
45	MISSISSIPPI STATE U	Edge, T. M.	MSFC	Causey, W. H., Jr.	NAS 8-33450	2738
45	MORGAN STATE UNIV	Chapman, J. W.	GSFC	Jerkins, K.	NAS 5-25533	2330
45	NO CAR A&T STATE U	Henry, V.	GSFC	Williams, L. J.	NAS 5-24101	3110
45	NO CAR A&T STATE U	Hutchby, J. A.	LARC	Stefanakos, E.	NSG 1390	3112
45	NO CAROLINA STATE U	Croswell, W. F.	LARC	Kauffman, J. F.	NGR 34-002-188	3124
45	NO CAROLINA STATE U	Benz, H. F.	LARC	Snyder, W. E.	NSG 1353	3129
45	NO CAROLINA STATE U	Hatfield, J. J.	LARC	Rajala, S. A.	NSG 1355	3130
45	NO CAROLINA STATE U	Croswell, W. F.	LARC	Kauffman, J. F.	NSG 1588	3136
45	NO CAROLINA STATE U	Godlewski, M. P.	LERC	Hauser, J. R.	NGR 34-002-195	3125
45	OHIO STATE UNIV	Billingham, J.	ARC	Kraus, J. D.	NSG 2162	3225
45	OHIO STATE UNIV	Hirschmann, E.	GSFC	Hodge, D. B.	NAS 5-22575	3211
45	OHIO STATE UNIV	Gilreath, M. C.	LARC	Burnside, W. D.	NSG 1498	3221
45	OHIO STATE UNIV	Gilreath, M. C.	LARC	Peters, L.	NSG 1613	3222
45	OHIO STATE UNIV	Baumbilk, R. J.	LERC	Collins, S. A., Jr.	NSG 3302	3234
45	OHIO UNIVERSITY	Downing, D. R.	LARC	McFarland, R. H.	NGR 36-009-017	3242
45	OLD DOMINION UNIV	Tripp, J. S.	LARC	Tcheng, P. L.	NSG 1079	3796
45	OLD DOMINION UNIV	Hellbaum, R. F.	LARC	Rogerson, A. C.	NSG 1177	3800
45	OLD DOMINION UNIV	Campbell, T. G.	LARC	Becher, J.	NSG 1331	3806
45	OLD DOMINION UNIV	Gainer, P. A.	LARC	Varanasi, M. R.	NSG 1379	3810
45	OLD DOMINION UNIV	Gilreath, M. C.	LARC	Mielke, R. R.	NSG 1655	3838
45	PENN STATE U-UNIV PK	Bailey, J. V.	JSC	Mason, C. A.	NAS 9-15798	3385
45	PURDUE UNIVERSITY	Gilbert, L. J.	LERC	Krause, P. C.	NSG 3237	2168
45	SAN JOSE STATE UNIV	Webbon, B. W.	ARC	Kurzweil, J.	NCA 2-675904	1276
45	SAVANNAH STATE COL	Jayroe, R. R., Jr.	MSFC	Wenner, D. B.	NSG 8048	2018
45	SO UNIV-BATON ROUGE	Echelkamp, R. E.	JSC	Grewal, G. S.	NSG 9030	2285
45	SO UNIV-BATON ROUGE	White, J. B.	MSFC	Montgomery, V. T.	NSG 8053	2283
45	STANFORD UNIVERSITY	Leonard, A.	ARC	Buneman, O.	NCA 2-745906	1332
45	STANFORD UNIVERSITY	Pontious, C. E.	HQ-RE	McCarthy, J.	NASW 2916	1322
45	STANFORD UNIVERSITY	Fitzmaurice, M. W.	HQ-RE	Harris, S. E.	NGL 05-020-103	1348
45	SYRACUSE UNIVERSITY	Benz, H. F.	LARC	Kowel, S. T.	NSG 1602	3092
45	SYRACUSE UNIVERSITY	Segura, R.	LARC	Kowel, S. T.	NSG 1611	3093
45	TEXAS A&M UNIVERSITY	Farris, G. W.	JSC	Jean, B. R.	NAS 9-15311	3583
45	TEXAS A&M UNIVERSITY	Lytle, C. D.	LARC	Painter, J. H.	NSG 1374	3594
45	TEXAS A&M UNIVERSITY	Hearn, C. P.	LARC	Painter, J. H.	NSG 1639	3596
45	TEXAS TECH UNIV	Day, J. L.	JSC	Portnoy, W. M.	NAS 9-11162	3607
45	TUSKEGEE INSTITUTE	Young, L. E.	MSFC	Doreswamy, C. V.	NSG 8038	1035
45	UNIV ALA-UNIVERSITY	Williams, D. E.	MSFC	Raburn, W. D.	NAS 8-33430	1059
45	UNIV OF CINCINNATI	Sundberg, G. R.	LERC	Henderson, H. T.	NSG 3022	3250
45	UNIV OF CINCINNATI	Riley, T. J.	LERC	Nevin, J. H.	NSG 3024	3251
45	UNIV OF FLORIDA	Jafferis, W.	KSC	Heasley, J. N.	NAS10-9378	1932
45	UNIV OF FLORIDA	Walker, G. H.	LARC	Li, S. S.	NSG 1425	1941
45	UNIV OF FLORIDA	Godlewski, M. P.	LERC	Lindholm, F. A.	NSG 3018	1946
45	UNIV HOUSTON-HOUSTON	Horner, G. C.	LARC	Denman, E. D.	NSG 1603	3624
45	UNIV ILLINOIS-URBANA	Schaefer, D. H.	GSFC	Slotnick, D. L.	NAS 5-24275	2113
45	UNIV ILLINOIS-URBANA	Keating, T., Jr.	GSFC	Mittra, R.	NAS 5-25062	2114

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45	UNIV ILLINOIS-URBANA	Abshire, J. B.	GSFC	Ghia, K. N.	NSG 5049	2128
45	UNIV OF KANSAS	Szalai, K. J.	DFRC	Kelley, G. L.	NSG 4026	2249
45	UNIV OF KANSAS	Rango, A.	GSFC	Ulaby, F. T.	NAS 5-23777	2228
45	UNIV OF KANSAS	Crosswell, W. F.	LARC	Moore, R. K.	NSG 1554	2239
45	UNIV MARYLAND-COL PK	Peake, H. J.	GSFC	Taylor, L. S.	NAS 5-25437	2342
45	UNIV MARYLAND-COL PK	Benz, H. F.	LARC	Lin, H. C.	NSG 1468	2380
45	UNIV MARYLAND-COL PK	Schy, A. A.	LARC	Wang, S. H.	NSG 1558	2381
45	UNIV MICH-ANN ARBOR	Migneault, G. E.	LARC	Meyer, J. F.	NSG 1306	2665
45	UNIV MO-COLUMBIA	Eggleston, T. W.	JSC	Tranter, W. H.	NAS 9-15477	2758
45	UNIV MO-ROLLA	Dawson, C. T.	JSC	Tranter, W. H.	NAS 9-14848	2765
45	UNIV OF NOTRE DAME	Seldner, K.	LERC	Sain, M. K.	NSG 3048	2178
45	UNIV OF NOTRE DAME	Burkhart, J. A.	LERC	Gabriel, G. J.	NSG 3182	2180
45	UNIV OKLAHOMA-NORMAN	Gross, C.	LARC	Kahng, S. K.	NSG 1481	3314
45	UNIV OF PENNSYLVANIA	Shiue, J. C.	GSFC	Kritikos, H. N.	NAS 5-25136	3424
45	UNIV OF PITTSBURGH	McBrien, E. F.	LERC	Hamilton, H. B.	NSG 3163	3443
45	UNIV SO CAROLINA-COL	Lowrey, D. O.	MSFC	Fellers, R. G.	NAS 8-28660	3472
45	UNIV OF SOUTHERN CAL	Secunde, R. R.	LERC	Campbell, P. E.	NSG 3243	1701
45	UNIV TENNESSEE-KNOXV	Craig, G. D.	MSFC	Gonzalez, R. C.	NAS 8-29271	3494
45	UNIV TENNESSEE-KNOXV	Howell, J. T., Jr.	MSFC	Hung, J. C.	NAS 8-33604	3507
45	UNIV TEXAS-AUSTIN	Hirschmann, E.	GSFC	Vogel, W.	NAS 5-22576	3639
45	UNIV TEXAS-AUSTIN	Moeckel, W. E.	LERC	Powers, E. J.	NSG 3089	3667
45	UNIV OF TOLEDO	Merrill, W. C.	LERC	Leininger, G. G.	NSG 3084	3272
45	UNIV OF TOLEDO	Lehtinen, B.	LERC	Leininger, G. G.	NSG 3171	3277
45	UNIV OF TOLEDO	Gruber, R. P.	LERC	Stuart, T. A.	NSG 3281	3279
45	UNIV OF VIRGINIA	Kahle, D. R.	GSFC	Wilson, S. G.	NAS 5-25634	3846
45	UNIV OF VIRGINIA	Ashworth, B. R.	LARC	Parrish, E. A.	NSG 1599	3859
45	VIRGINIA POLY INST	Hirschmann, E.	GSFC	Bostian, C. W.	NAS 5-22577	3871
45	VIRGINIA POLY INST	Montgomery, R. C.	LARC	VanLar-ingham, H. F.	NSG 1527	3899
45	VIRGINIA POLY INST	Watson, W. R.	LARC	Nayfeh, A. H.	NSG 1573	3902
45	VIRGINIA POLY INST	Maslowski, E. A.	LERC	Demerdash, N. A.	DEN 3 65	3869
45	VIRGINIA POLY INST	Kolecki, J. C.	LERC	Lec, F. C.	NSG 3274	3914
45	WALLA WALLA COLLEGE	Schmidt, R. L.	GSFC	Heisler, R.	NAS 5-25063	3960
45	WORCESTER POLY INST	Godlewski, M. P.	LERC	Lanyon, H. P.	NSG 3137	2622
45	YALE UNIVERSITY	Pritchard, J. A.	GSFC	Barker, R. C.	NGL 07-004-005	1822
45	YESHIVA UNIVERSITY	Godlewski, M. P.	LERC	Pollak, F.	NSG 3123	3102
46	ALABAMA A&M UNIV	Humphries, W. R.	MSFC	Saha, H.	NSG 8041	1005
46	AUBURN UNIV-AUBURN	Shackleford, B. W., Jr.	MSFC	Storzini, R. H.	NCA 8-132	1024
46	CALIF INST OF TECH	Gross, L. A.	MSFC	Acosta, A. J.	NAS 8-29313	1179
46	CALIF INST OF TECH	Gross, L. A.	MSFC	Costa, A. J.	NAS 8-33108	1180
46	CAL STATE U-L ANGLES	Pohly, J. G.	HQ-LU	Manvi, R.	NASW 3257	1245
46	CAL STATE U-L ANGLES	Pohly, J. G.	HQ-LU	Maniv, R.	NSG 7229	1247
46	CAL STATE U-L ANGLES	Pohly, J. G.	HQ-LU	Gold, P. I.	NSG 7263	1248
46	CAL STATE U-NRTHRDGE	Coe, H. H.	LERC	Nypan, L. J.	NSG 3065	1250
46	CARNEGIE-MELLON UNIV	Srawley, J. E.	LERC	Swedlow, J. L.	NSG 3172	3343
46	CARNEGIE-MELLON UNIV	Cunningham, R. E.	LERC	Hughes, W. F.	NSG 3202	3344
46	CASE WESTERN RESERVE	Ollendorf, S.	GSFC	Kamotani, Y.	NAS 5-24144	3145
46	CASE WESTERN RESERVE	Labus, T. L.	LERC	Ostrach, S.	NAS 3-21046	3140
46	CASE WESTERN RESERVE	Anderson, D. N.	LERC	T'ien, J. S.	NSG 3230	3172
46	CASE WESTERN RESERVE	Brown, W. F., Jr.	LERC	Mendelson, A.	NSG 3251	3175
46	CLEMSON UNIV-CLEMSON	Reveley, W. F.	JSC	Gaddis, J. L.	NAS 9-13669	3466
46	CLEMSON UNIV-CLEMSON	Poe, C. C., Jr.	LARC	Goree, J. G.	NSG 1297	3467
46	CLEVELAND STATE UNIV	Townsend, D. P.	LERC	Kasuba, R.	NAS 3-18547	3189
46	CLEVELAND STATE UNIV	Simoneau, R. J.	LERC	Gorla, R. S.	NCC 3 3	3190
46	CLEVELAND STATE UNIV	Lorenzo, C. F.	LERC	Larson, V. H.	NSG 3257	3196
46	COLLEGE OF WM & MARY	Tanner, J. A.	LARC	Andersen, C. M.	NAS 1-15965	3759
46	COLORADO STATE UNIV	Kerslake, W. R.	LERC	Wilbur, P. J.	NGR 06-002-112	1719
46	COLORADO STATE UNIV	Fichtl, G. H.	MSFC	Edwards, H. W.	NAS 8-31673	1715
46	GEORGIA INST OF TECH	Jones, W. R., Jr.	LERC	Winer, W. O.	NSG 3106	2002

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46	HOWARD UNIVERSITY	Hayes, J. M.	GSFC	Bords, G.	NAS 5-24422	1878
46	IOWA STATE UNIV	Presley, L. L.	ARC	Cook, W. J.	NCA 2-340901	2185
46	IOWA STATE UNIV	Tanner, J. A.	LARC	Baumgarten, J. R.	NSG 1605	2195
46	ISRAEL INST OF TECH	Ludwig, L. P.	LERC	Etsion, I.	NSG 7317	4032
46	MASS INST OF TECH	Cassidy, J. F.	LERC	Heywood, J. B.	NSG 3245	2580
46	MISSISSIPPI STATE U	Broussard, P. H.	MSFC	Jones, E. W.	NCA 8-131	2740
46	NO CAR A&T STATE U	Stuckey, J. M.	MSFC	Sharma, A. V.	NSG 8045	3116
46	NORTHWESTERN UNIV	Ludwig, L. P.	LERC	Burton, R. A.	NAS 3-21261	2063
46	NORTHWESTERN UNIV	Coy, J. J.	LERC	Cheng, H. S.	NSG 3143	2071
46	NORTHWESTERN UNIV	Wedeven, L. D.	LERC	Cheng, H. S.	NSG 3149	2072
46	OLD DOMINION UNIV	Hanks, B. R.	LARC	Ibrahim, S. R.	NSG 1459	3814
46	OLD DOMINION UNIV	Card, M. F.	LARC	Ibrahim, S. R.	NSG 1649	3836
46	PENN STATE U-UNIV PK	Marek, C. J.	LERC	Faeth, G. M.	NSG 3306	3409
46	PRINCETON UNIVRSITY	Cassidy, J. F.	LERC	Sirignano, W. A.	NSG 3178	2857
46	PURDUE UNIVERSITY	Haggard, J. B.	LERC	Shifstad, J. G.	NSG 3258	2169
46	RICE UNIVERSITY	Trevino, L. A.	JSC	Wierm, F. A.	NAS 9-15274	3548
46	SAN JOSE STATE UNIV	DuVal, R. W.	ARC	Wang, J. C.	NCA 2-675902	1274
46	SAN JOSE STATE UNIV	Mansfield, J. A.	ARC	Holmstrom, F.	NSG 2307	1297
46	SO UNIV-BATON ROUGE	Williamson, J. G.	MSFC	Tabony, J.	NSG 8025	2282
46	SO UNIV-BATON ROUGE	Owen, R. B.	MSFC	Scott, R. L., Jr.	NSG 8056	2284
46	STANFORD UNIVERSITY	Goldstein, H. E.	ARC	Bates, C. W.	NGR 05-020-710	1366
46	STANFORD UNIVERSITY	Fewell, L. L.	ARC	Baytes, C. W.	NSG 2346	1391
46	STANFORD UNIVERSITY	Gaugler, R. E.	LERC	Johnston, J. P.	NSG 3124	1398
46	TENNESSEE TECH U	Priem, R. J.	LERC	Ventrice, M. B.	NGR 43-003-015	3491
46	TRENTON STATE COL	Marek, C. J.	LERC	Feng, C. C.	NSG 3180	2880
46	TUSKEGEE INSTITUTE	French, B. O.	JSC	Sellers, J. P., Jr.	NAS 9-13844	1029
46	TUSKEGEE INSTITUTE	Brontley, L. W.	MSFC	Sellers, J. P., Jr.	NSG 8054	1036
46	UNIV ALA-HUNTSVILLE	Decher, R.	MSFC	Hendricks, J. B.	NAS 8-29316	1041
46	UNIV CALIF-BERKELEY	Marek, C. J.	LERC	Daily, J. W.	NSG 3028	1462
46	UNIV CALIF-DAVIS	Pollack, J. B.	ARC	White, B. R.	NCA 2-180903	1488
46	UNIV CALIF-L ANGELES	Spera, D. A.	LERC	Friedman, P. P.	NSG 3082	1532
46	UNIV CALIF-L ANGELES	Burkhart, J. A.	LERC	Frederking, T. H.	NSG 3153	1534
46	UNIV OF CINCINNATI	Monteith, J. H.	LARC	Brown, D. L.	NSG 1486	3249
46	UNIV OF CINCINNATI	Coy, J. J.	LERC	Huston, R. L.	NSG 3188	3255
46	UNIV OF CINCINNATI	Chubb, D. L.	LERC	Tabakoff, W.	NSG 3218	3256
46	UNIV OF CONNECTICUT	Goldman, L. J.	LERC	Langston, L. S.	NSG 3238	1816
46	UNIV OF DELAWARE	Deaton, J. W.	LARC	Pipes, R. B.	NSG 1304	1830
46	UNIV OF DENVER	Luczkowski, S. M.	JSC	Venditti, F. P.	NAS 9-15469	1800
46	UNIV ILLINOIS-URBANA	Scribber, H. W.	LERC	Conry, T. F.	NSG 3098	2126
46	UNIV OF KENTUCKY	Cochran, T. H.	LERC	Altenkirch, R. A.	NSG 3114	2263
46	UNIV OF LOUISVILLE	Fleming, D. P.	LERC	Childs, D. W.	NSG 3200	2267
46	UNIV OF MIAMI	Bland, R. A.	KSC	Lee, S. S.	NAS10-9410	1957
46	UNIV MICH-ANN ARBOR	Beam, L. W.	LERC	Bolt, J. A.	NSG 3161	2676
46	UNIV MO-COLUMBIA	Webbon, B. W.	ARC	Miles, J. B.	NCA 2-450802	2760
46	UNIV MO-ROLLA	Wedeven, L. D.	LERC	Medrow, R. A.	NSG 3113	2770
46	UNIV NEBRASKA-LINCLN	Tanner, J. A.	LARC	Baumgarten, J. R.	NSG 1506	2799
46	UNIV OF NEW ORLEANS	Humphries, W. R.	MSFC	Bankston, J. D., Jr.	NAS 8-33479	2289
46	UNIV OF SOUTHERN CAL	Diehl, L. A.	LERC	Gerstein, M.	NSG 3248	1702
46	UNIV TENNESSEE-KNOXV	Graham, R. W.	LERC	Reid, R. L.	NSG 3173	3514
46	UNIV TENNESSEE-KNOXV	Sloan, J.	MSFC	Frost, W.	NAS 8-29584	3495
46	UNIV TENNESSEE-KNOXV	Guttman, C. H.	MSFC	Hung, J. C.	NAS 8-33065	3502
46	UNIV OF TOLEDO	Cunningham, R. E.	LERC	Keith, T. G., Jr.	NSG 3156	3276
46	UNIV OF VIRGINIA	Kascak, A. F.	LERC	Barrett, L. E.	NSG 3177	3862
46	UNIV OF VIRGINIA	Winter, S. W.	MSFC	Gunter, E. J.	NAS 8-31951	3847
46	UNIV OF WASHINGTON	Valentine, H. H.	LERC	Martini, W. R.	NSG 3152	3941
46	UNIV OF WASHINGTON	Valentine, H. H.	LERC	Martini, W. R.	NSG 3194	3942
46	VIRGINIA POLY INST	Hoffman, E. L.	LARC	Stinchcomb, W. W.	NSG 1254	3889
46	VIRGINIA POLY INST	Miserentino, R.	LARC	Hallauer, W. L., Jr.	NSG 1526	3898

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47	ALABAMA A&M UNIV	Williams, J. R.	MSFC	Lal, R. B.	NAS 8-32945	1000
47	ARIZONA STATE UNIV	Reeves, F. A.	MSFC	Wagner, J. B.	NAS 8-32937	1074
47	BROWN UNIVERSITY	Herbell, T. P.	LERC	Richman, M. H.	NSG 3118	3458
47	CARNEGIE-MELLON UNIV	Witzke, W. R.	LERC	Bhat, G. K.	NAS 3-20370	3341
47	CASE WESTERN RESERVE	Glasgow, T. K.	LERC	Ebert, L. J.	NGL 36-007-094	3149
47	CASE WESTERN RESERVE	Fortini, A.	LERC	Dybbs, A.	NSG 3040	3156
47	CASE WESTERN RESERVE	Scheuermann, C. M.	LERC	Maier, R. D.	NSG 3246	3174
47	CASE WESTERN RESERVE	Gedwill, M. A.	LERC	Maier, R. D.	NSG 3252	3176
47	CASE WESTERN RESERVE	Tower, L. K.	LERC	Kamotani, Y.	NSG 3268	3177
47	CASE WESTERN RESERVE	Souey, J. S.	LERC	Geil, K. H.	NSG 3289	3184
47	CASE WESTERN RESERVE	Smialek, J. L.	LERC	Cooper, A. R.	NSG 3291	3185
47	CASE WESTERN RESERVE	Hirschberg, M. H.	LERC	Powell, N. L.	NSG 7035	3187
47	CLEVELAND STATE UNIV	Herbell, T. P.	LERC	Yeh, H. C.	NSG 3259	3197
47	COLUMBIA UNIVERSITY	Glasgow, T. K.	LERC	Tien, J. K.	NSG 3050	2936
47	CORNELL UNIVERSITY	Nelson, H. G.	ARC	Johnson, H. H.	NSG 2399	2975
47	CORNELL UNIVERSITY	Aron, P. R.	LERC	Ruoff, A. L.	NGR 33-010-189	2966
47	CORNELL UNIVERSITY	Lundholm, J. G., Jr.	HQ-RS	Ruoff, A. L.	NSG 7488	2988
47	DARTMOUTH COLLEGE	Bill, R. C.	LERC	Kennedy, F. E., Jr.	NSG 3253	2814
47	DREXEL UNIVERSITY	Poe, C. C., Jr.	LARC	Awerbuch, J.	NSG 1606	3352
47	DREXEL UNIVERSITY	Grimes, H. H.	LERC	Koczak, M. J.	NSG 3128	3355
47	GEORGE WASHINGTON U	Swann, R. T.	LARC	Liebowitz, H.	NSG 1155	1859
47	GEORGE WASHINGTON U	Roderick, G. L.	LARC	Liebowitz, H.	NSG 1289	1863
47	GEORGE WASHINGTON U	Crews, J. H., Jr.	LARC	Liebowitz, H.	NSG 1449	1864
47	GEORGE WASHINGTON U	O'Brien, T. K.	LARC	Yang, J. N.	NSG 1604	1870
47	GEORGIA INST OF TECH	Johnston, M. H.	MSFC	Brown, J. L.	NAS 8-33438	1988
47	KENT STATE UNIV-KENT	Wintucky, E. G.	LERC	Johnson, D. L.	NSG 3159	3201
47	LEHIGH UNIVERSITY	Sovey, J. S.	LERC	Micale, F. J.	NSG 3193	3371
47	MASS INST OF TECH	Kostiuk, T.	GSFC	Spears, D. L.	NAS 5-25717	2504
47	MASS INST OF TECH	Harris, J. W.	JSC	Uhlmann, D. R.	NGR 22-009-646	2535
47	MASS INST OF TECH	Byvik, C. E.	LARC	Gatos, H. C.	NSG 1190	2544
47	MASS INST OF TECH	Price, H. L.	LARC	McGarry, F. J.	NSG 1504	2551
47	MASS INST OF TECH	Weinberg, I.	LERC	Gatos, H. C.	NSG 3017	2569
47	MASS INST OF TECH	Scheuermann, C. M.	LERC	Flemings, M. C.	NSG 3046	2571
47	MASS INST OF TECH	Vary, A.	LERC	Williams, J. H., Jr.	NSG 3210	2578
47	MASS INST OF TECH	Davidson, M. C.	MSFC	Gatos, H. C.	NAS 8-30537	2507
47	MASS INST OF TECH	Reeves, F. A.	MSFC	Uhlmann, D. R.	NAS 8-31350	2509
47	MASS INST OF TECH	Reeves, F. A.	MSFC	Uhlmann, D. R.	NAS 8-31552	2510
47	MASS INST OF TECH	VonTiesenhausen, G. F.	MSFC	Miller, R. H.	NAS 8-32925	2511
47	MASS INST OF TECH	Vitale, J. A.	HQ-ET	Gatos, H. C.	NSG 7331	2597
47	MICHIGAN TECH UNIV	Barrett, C. A.	LERC	Heckel, R. W.	NSG 3215	2628
47	NO CAR A&T STATE U	Rhodes, M. D.	LARC	Sharma, A. V.	NSG 1296	3111
47	NO CAR A&T STATE U	Buckley, J. D.	LARC	Botros, B. M.	NSG 1516	3113
47	NO CAROLINA STATE U	Long, E. R., Jr.	LARC	Memory, J. D.	NSG 1463	3132
47	NORTHWESTERN UNIV	Ludwig, L. P.	LERC	Burton, R. A.	NSG 3039	2070
47	OHIO STATE UNIV	Gray, H. R.	LERC	Beck, F. H.	NGL 36-008-051	3216
47	OHIO STATE UNIV	Bill, R. C.	LERC	Black, J. T.	NSG 3164	3230
47	OHIO STATE UNIV	Vary, A.	LERC	Fu, L. S.	NSG 3269	3233
47	OLD DOMINION UNIV	Lisagor, W. B.	LARC	Cupschalk, S. G.	NSG 1521	3826
47	PENN STATE U-UNIV PK	Fripp, A. L.	LARC	White, W. B.	NSG 1387	3396
47	PENN STATE U-UNIV PK	Sanders, W. A.	LERC	Bradt, R. C.	NSG 3016	3400
47	RENSSELAER POLY-NY	Swann, R. T.	LARC	Ansell, G. S.	NSG 1510	3037
47	RENSSELAER POLY-NY	Davidson, M. C.	MSFC	Wiedmann, H.	NAS 8-26146	3027
47	RENSSELAER POLY-NY	Reeves, F. A.	MSFC	Glucksman, M. E.	NAS 8-32425	3028
47	RENSSELAER POLY-NY	Williams, J. R.	MSFC	Wiedemeier, H.	NAS 8-32936	3031
47	RENSSELAER POLY-NY	Gilstad, D. A.	HQ-RW	Wiberly, S. E.	NGL 33-018-003	3034
47	RICE UNIVERSITY	Oran, W. A.	MSFC	Margrave, J.	NAS 8-33199	3546
47	SAN JOSE STATE UNIV	Riccitiello, S. R.	ARC	Anderson, R. N.	NCC 2 3	1282
47	SAN JOSE STATE UNIV	Fish, R. H.	ARC	Anderson, R. N.	NSG 2332	1299

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47	STANFORD UNIVERSITY	Whiting, E. E.	ARC	Spicer, W. E.	NCA 2-745803	1327
47	STANFORD UNIVERSITY	Poppa, H. R.	ARC	Heineman, K. H.	NCA 2-745901	1328
47	STANFORD UNIVERSITY	Rubessin, M. W.	ARC	Reynolds, W. C.	NGR 05-020-622	1361
47	STANFORD UNIVERSITY	Stallcop, J. R.	ARC	Pound, G. M.	NSG 2251	1382
47	SYRACUSE UNIVERSITY	Hayes, P. J.	LARC	Schroder, K.	NSG 1654	3094
47	TEXAS A&M UNIVERSITY	Strouhal, G.	JSC	Norton, D.	NAS 9-15962	3588
47	TUSKEGEE INSTITUTE	Titran, R. H.	LERC	Ramirez, R. P.	NSG 3154	1033
47	UNIV ALA-HUNTSVILLE	Gause, R. L.	MSFC	Castle, J. G.	NAS 8-33377	1052
47	UNIV ALA-HUNTSVILLE	Aldrich, B. R.	MSFC	Hendricks, J. B.	NAS 8-33542	1055
47	UNIV ALA-HUNTSVILLE	Lacy, L. L.	MSFC	Davis, J. H.	NAS 8-33548	1056
47	UNIV CALIF-BERKELEY	Campbell, C. E.	GSFC	Price, P. B.	NAS 5-25453	1418
47	UNIV CALIF-L ANGELES	Goldstein, H. E.	ARC	MacKenzie, J. D.	NCA 2-390803	1511
47	UNIV CALIF-L ANGELES	Goldstein, H. E.	ARC	Ono, K.	NCA 2-390901	1512
47	UNIV CALIF-L ANGELES	Ricciello, S. R.	ARC	MacKenzie, J. D.	NCC 2 7	1514
47	UNIV CALIF-L ANGELES	Williams, J. R.	MSFC	Bunshah, R. F.	NAS 8-33115	1508
47	UNIV CALIF-SAN DIEGO	Flood, D. J.	LERC	Oesterreicher, H.	NSG 3034	1602
47	UNIV CALIF-S BARBARA	Nelson, H. G.	ARC	Shanabarger, M. R.	NSG 2222	1649
47	UNIV OF CENTRAL FLA	Bianca, C.	MSFC	Carroll, W. E.	NAS 8-32835	1922
47	UNIV OF CINCINNATI	Miner, R. V., Jr.	LERC	Antolovich, S. D.	NSG 3147	3254
47	UNIV OF CINCINNATI	Hirschberg, M. H.	LERC	Antolovich, S. D.	NSG 3263	3257
47	UNIV OF DAYTON	Stevenson, S. M.	LERC	Martino, J. P.	NAS 3-21355	3260
47	UNIV OF DELAWARE	Vernon, R. W.	LERC	Birchenall, C. E.	NSG 3184	1835
47	UNIV OF FLORIDA	Dutta, S.	LERC	Hench, L. L.	NSG 3254	1947
47	UNIV HOUSTON-HOUSTON	Uiegas, J. R.	ARC	Hussain, A. K.	NSG 2337	3625
47	UNIV OF IOWA	Rummier, D. R.	LARC	Wu, H. C.	NSG 1499	2213
47	UNIV OF KANSAS	Howell, W. E.	LARC	Reese, C. D.	NSG 1281	2236
47	UNIV OF MIAMI	Lisgor, W. B.	LARC	Poteat, L. E.	NSG 1283	1960
47	UNIV MICH-ANN ARBOR	Jones, J. L.	LARC	Felbeck, D. K.	NAS 1-15333	2630
47	UNIV MICH-ANN ARBOR	Fichter, W. B.	LARC	Felbeck, D. K.	NGR 23-005-528	2663
47	UNIV MICH-ANN ARBOR	Lauver, R. W.	LERC	Yeh, G. S.	NSG 3192	2678
47	UNIV MO-ROLLA	Geller, G.	MSFC	Summers, D. A.	NSG 8055	2774
47	UNIV OF NEW ORLEANS	Wood, G. M.	LARC	Ioup, G. E.	NSG 1460	2290
47	UNIV OF PITTSBURGH	Kohl, F. J.	LERC	Meier, G. H.	NSG 3214	3445
47	UNIV OF SOUTHERN CAL	Conway, E. J.	LARC	Kroger, F. A.	NSG 1536	1699
47	UNIV TEXAS-EL PASO	Brandhorst, H. W., Jr.	LERC	Brient, S. J.	NSG 3146	3712
47	UNIV OF TORONTO	Baker, D. J.	LARC	Tennyson, R. C.	NSG 7409	4024
47	UNIV OF UTAH	Fripp, A. L.	LARC	Rosenberger, F. E.	NSG 1534	3730
47	UNIV OF VIRGINIA	Fripp, A. L.	LARC	Jesser, W. A.	NSG 1652	3860
47	UNIV OF VIRGINIA	Behrendt, D. R.	LERC	Wawner, F. E., Jr.	NSG 3242	3863
47	UNIV OF WASHINGTON	Gangler, J. J.	HQ-RW	Mueller, J. I.	NGL 48-002-004	3930
47	UNIV OF WYOMING	DiCarlo, J. A.	LERC	Adams, D. F.	NSG 3217	4020
47	UNIV OF WYOMING	Reeves, F. A.	MSFC	Spunders, C.	NAS 8-32486	4017
47	VANDERBILT UNIVERSTY	Nichols, R. L.	MSFC	Kinser, D. L.	NAS 8-32695	3520
47	VIRGINIA POLY INST	Nelson, H. G.	ARC	Brinson, H. F.	NSG 2038	3909
47	VIRGINIA POLY INST	Tenney, D. R.	LARC	Louthan, M. R., Jr.	NSG 1382	3893
47	VIRGINIA POLY INST	Tenney, D. R.	LARC	Houska, C. R.	NSG 1470	3895
47	VIRGINIA POLY INST	Tenney, D. R.	LARC	Unnam, J.	NSG 1531	3900
47	VIRGINIA POLY INST	Everett, R. A., Jr.	LARC	Morris, D. H.	NSG 1571	3901
47	VIRGINIA POLY INST	Baker, D. J.	LARC	Hyer, M. W.	NSG 1621	3907
47	VIRGINIA POLY INST	Sovey, J. S.	LERC	Dwight, D. W.	NSG 3204	3912
47	YALE UNIVERSITY	Fryburg, G. C.	LERC	Rosner, D. E.	NSG 3107	1826
49	AUBURN UNIV-AUBURN	Decker, A. J.	LERC	Swinson, W. F.	NSG 3233	1026
49	AUBURN UNIV-AUBURN	Routh, D. E.	MSFC	Cook, K. B.	NAS 8-32633	1020
49	AUBURN UNIV-AUBURN	Routh, D. E.	MSFC	Kerns, D. V.	NAS 8-32634	1021
49	AUBURN UNIV-AUBURN	Daniel, C. C.	MSFC	Flood, C. A., Jr.	NSG 8047	1027
49	CALIF INST OF TECH	Carter, C. H.	HQ-LU	Albee, A. L.	NGT 05-003-790	1203
49	CARNEGIE-MELLON UNIV	Pohly, J. G.	HQ-LU	Cathie, W.	NGT 39-087-790	3342
49	CASE WESTERN RESERVE	Doolin, B. F.	ARC	Martin, C. F.	NSG 2384	3154

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49	CASE WESTERN RESERVE	Smetana, J.	LERC	Collin, R. E.	NAS 3-21365	3141
49	CASE WESTERN RESERVE	Wintucky, E. G.	LERC	Bahniuk, E.	NAS 3-21946	3142
49	CASE WESTERN RESERVE	Weigand, A. J.	LERC	Gibbons, D. F.	NSG 3126	3161
49	CASE WESTERN RESERVE	Carter, C. H.	HQ-LU	Prahe, J. M.	NGT 36-027-011	3152
49	CASE WESTERN RESERVE	Pohly, J. G.	HQ-LU	Chenelle, D. W.	NGT 36-027-790	3153
49	CITY COLLEGE OF N Y	Braun, W. H.	LERC	Weinstein, H.	NSG 3174	2912
49	CLEVELAND STATE UNIV	Beach, R. F.	LERC	Burghart, J. H.	NSG 3223	3195
49	CLEVELAND STATE UNIV	Pohly, J. G.	HQ-LU	Bennett, W. R.	NGT 36-025-780	3191
49	COLLEGE OF WM & MARY	Migneault, G. E.	LARC	Schaefer, M. K.	NSG 1625	3768
49	COLUMBIA UNIVERSITY	Stephens, D. G.	LARC	Galanter, E.	NSG 1550	2934
49	COLUMBIA UNIVERSITY	Stephens, D. G.	LARC	Borsky, P. N.	NSG 1616	2935
49	DUKE UNIVERSITY	Hayduk, R. J.	LARC	Melosh, R. J.	NSG 1647	3106
49	GEORGE WASHINGTON U	Morakis, J. C.	GSFC	Helgert, H. J.	NSG 5109	1872
49	GEORGE WASHINGTON U	Duberg, J. E.	LARC	Liebowitz, H.	NGL 09-010-053	1852
49	GEORGIA INST OF TECH	Vykukal, H. C.	ARC	Olson, L. H.	NSG 2356	1998
49	GEORGIA INST OF TECH	Reed, B.	MSFC	Pierce, A. D.	NAS 8-33093	1987
49	HAMPTON INSTITUTE	Cox, J. J.	LARC	Slaughter, L. H.	NCA 1-25	3781
49	HOWARD UNIVERSITY	Hui, P. S.	GSFC	Choudhury, A. K.	NAS 5-24251	1877
49	HOWARD UNIVERSITY	Chapman, J. W.	GSFC	Cox, E. L.	NCA 5-29	1880
49	HOWARD UNIVERSITY	Chapman, J. W.	GSFC	Cox, E. L.	NCA 5-91	1881
49	HOWARD UNIVERSITY	Hammer, H. A.	LARC	Bainum, P. M.	NSG 1414	1887
49	IOWA STATE UNIV	Pollack, J. B.	ARC	Iversen, J. D.	NCA 2-340802	2184
49	IOWA STATE UNIV	Fralich, R. W.	LARC	McDaniel, T. J.	NSG 1372	2191
49	LEHIGH UNIVERSITY	Chamis, C. C.	LERC	Sih, G. C.	NSG 3179	3370
49	MASS INST OF TECH	Doolin, B. F.	ARC	Athans, M.	NGL 22-009-124	2522
49	MASS INST OF TECH	Stewart, J. D.	ARC	Young, L. R.	NSG 2230	2562
49	MASS INST OF TECH	Chamis, C. C.	LERC	McGarry, F. J.	NSG 3044	2570
49	MASS INST OF TECH	Braun, W. H.	LERC	Kerrebrock, J. L.	NSG 3187	2576
49	MISSISSIPPI STATE U	Sims, J. L.	MSFC	Kassner, J. L., Jr.	NAS 8-32912	2736
49	MORGAN STATE UNIV	Friedman, D. S.	GSFC	Taylor, J. H.	NAS 5-23558	2329
49	MORGAN STATE UNIV	Mundy, J. R.	GSFC	Proctor, N. K.	NAS 5-23700	2331
49	NAVAJO COMMUNITY COL	Whitley, S. L.	NSTL	Isher, S. F.	NSG 737	1089
49	NEW MEX ST U-LAS CR	Pincus, B. R.	GSFC	Lawrence, H.	NAS 5-24241	2886
49	NEW YORK UNIVERSITY	Labus, T. L.	LERC	Keller, J. B.	NSG 3059	3008
49	NORTHWESTERN UNIV	Pohly, J. G.	HQ-LU	Ingersoll, D.	NGT 14-007-780	2067
49	OHIO STATE UNIV	Bowles, K. J.	LERC	Smith, E. E.	NSG 3235	3231
49	OHIO STATE UNIV	Pohly, J. G.	HQ-LU	Stranges, J.	NGT 36-008-735	3220
49	OKLAHOMA STATE UNIV	West, W. W.	WFC	Buck, R. F.	NAS 6-2970	3298
49	OKLAHOMA STATE UNIV	Carr, R. E.	WFC	Roth, L. O.	NSG 6018	3303
49	OLD DOMINION UNIV	Card, M. F.	LARC	Tweed, J.	NSG 1279	3802
49	OLD DOMINION UNIV	Wieting, A. R.	LARC	Thornton, E. A.	NSG 1321	3804
49	OLD DOMINION UNIV	Groom, N. J.	LARC	Roberts, A. S., Jr.	NSG 1473	3817
49	OLD DOMINION UNIV	Sutton, K.	LARC	Tiwari, S. N.	NSG 1500	3821
49	OLD DOMINION UNIV	Carter, C. H.	HQ-LU	McRee, G. J.	NGT 47-003-028	3794
49	OLD DOMINION UNIV	Carter, C. H.	HQ-LU	Goglia, G. L.	NGT 47-003-029	3795
49	PRINCETON UNIVERSITY	McPherson, W. B.	MSFC	Caveny, L. H.	NAS 8-33102	2842
49	PURDUE UNIVERSITY	Pohly, J. G.	HQ-LU	Holec, D. E.	NGT 15-005-790	2157
49	RENSSELAER POLY-NY	Gevarter, W. B.	HQ-RE	Yerazunis, S. W.	NSG 7369	3046
49	RICE UNIVERSITY	Brantley, W.	MSFC	Few, A. A.	NAS 8-33023	3545
49	SOUTHEASTN OKLA ST U	Bivins, R. G.	HQ-ET	Oliver, R.	NASW 3180	3306
49	STANFORD UNIVERSITY	Erzberger, H.	ARC	Bryson, A. E., Jr.	NGI 05-020-007	1345
49	STANFORD UNIVERSITY	Billingham, J.	ARC	Peterson, A. M.	NSG 2121	1375
49	STANFORD UNIVERSITY	Lorell, K. R.	ARC	Powell, J. D.	NSG 2246	1380
49	STANFORD UNIVERSITY	Carter, C. H.	HQ-LU	Adams, J. L.	NGT 05-020-409	1367
49	STANFORD UNIVRSITY	Carter, C. H.	HQ-LU	Bershader, D.	NGT 05-020-412	1368
49	TENNESSEE STATE UNIV	Pohly, J. G.	HQ-LU	Malkani, M. J.	NGT 43-014-750	3488
49	TENNESSEE STATE UNIV	Pohly, J. G.	HQ-LU	Malkani, M. J.	NGT 43-014-790	3489
49	TUSKIGEE INSTITUTE	Pohly, J. G.	HQ-LU	Dybczak, Z. W.	NGT 01-005-750	1031

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49	TUSKEGEE INSTITUTE	Pohly, J. G.	HQ-LU	Dybczak, Z. W.	NGT 01-005-780	1032
49	UNIV ALA-HUNTSVILLE	Carter, C. H.	HQ-LU	Karr, G. R.	NGT 01-008-021	1057
49	UNIV ALA-UNIVERSITY	Carter, C. H.	HQ-LU	Barfield, B. F.	NGT 01-002-099	1061
49	UNIV CALIF-BERKELEY	Chang, T. C.	GSFC	Angelakos, D. J.	NSG 093	1464
49	UNIV CALIF-L ANGELES	Sobieski, J.	LARC	Schmit, L. A., Jr.	NSG 1490	1528
49	UNIV CALIF-SAN DIEGO	Schaefer, D. H.	GSFC	Lee, S. H.	NGR 05-009-264	1598
49	UNIV OF CENTRAL FLA	Springer, D. A.	KSC	Riad, S. M.	NAS10-9455	1925
49	UNIV OF CINCINNATI	Mikulas, M. M., Jr.	LARC	Nayfeh, A. H.	NSG 1185	3248
49	UNIV COLORADO-BOLDR	Loendorf, D. D.	LARC	Jordan, H. F.	NSG 1489	1760
49	UNIV OF FLORIDA	Heath, D. F.	GSFC	Green, A. E.	NAS 5-22908	1927
49	UNIV HOUSTON-HOUSTON	Kennedy, M. G.	JSC	Lee, W. B.	NAS 9-15680	3615
49	UNIV HOUSTON-HOUSTON	Carter, C. H.	HQ-LU	Huang, C. J.	NGT 44-005-114	3621
49	UNIV HOUSTON-HOUSTON	Carter, C. H.	HQ-LU	Huang, C. J.	NGT 44-005-115	3622
49	UNIV ILLINOIS-CHICGO	Pollack, J. B.	ARC	Cogley, A. C.	NCA 2-330901	2109
49	UNIV OF KANSAS	Saltzman, E. J.	DFRC	Muirhead, V. U.	NSG 4021	2247
49	UNIV OF KANSAS	Saltzman, E. J.	DFRC	Muirhead, V. U.	NSG 4023	2248
49	UNIV MARYLAND-COL PK	Caudill, L. O.	GSFC	McIlrath, T. J.	NAS 5-25132	2340
49	UNIV MARYLAND-COL PK	Mundy, J. R.	GSFC	Wockenfuss, W. A.	NCA 5-28	2359
49	UNIV MARYLAND-COL PK	Degnan, J. J.	GSFC	Hochuli, U. E.	NSG 5042	2385
49	UNIV MARYLAND-COL PK	McGarry, F. E.	GSFC	Basili, V. R.	NSG 5123	2387
49	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-LU	Emad, F. P.	NGT 21-002-254	2379
49	UNIV MICH-ANN ARBOR	Fish, R. H.	ARC	Springer, G. S.	NSG 2333	2674
49	UNIV OF NEW MEXICO	Pohly, J. G.	HQ-LU	Etter, D. M.	NGT 32-004-770	2901
49	UNIV OF NOTRE DAME	Doolin, B. F.	ARC	Sain, M. K.	NSG 2388	2177
49	UNIV OKLAHOMA-NORMAN	Pohly, J. G.	HQ-LU	Thomas, G.	NGT 37-003-760	3313
49	UNIV OF PERU	Christie, C. J.	GSFC	Unavailable	NASW 7	4034
49	UNIV OF SANTA CLARA	Carter, C. H.	HQ-LU	Healy, T. J.	NGT 05-017-998	1685
49	UNIV SO MISSISSIPPI	Hegwood, R. B.	NSTL	Brundage, W. G.	NAS13-95	2752
49	UNIV TENNESSEE-KNOXV	Staiger, P. J.	LERC	Dicks, J. B.	NSG 3224	3515
49	UNIV TEXAS-ARLINGTON	Smith, J. M.	LERC	Wilson, D. R.	NSG 3255	3638
49	UNIV TEXAS-AUSTIN	Richard, R. R.	JSC	Hartwig, W. H.	NAS 9-14491	3647
49	UNIV TEXAS-AUSTIN	Pels, G. F.	JSC	Tucker, A. J.	NAS 9-15217	3649
49	UNIV OF TOLEDO	Finnegan, P. M.	LERC	Keith, T. G., Jr.	NCC 3 5	3271
49	UNIV OF TOLEDO	Labus, T. L.	LERC	Dewitt, K. J.	NSG 3121	3274
49	UNIV OF UTAH	Card, M. F.	LARC	Resch, R. D.	NSG 1313	3729
49	UNIV OF VIRGINIA	Lamb, G. M.	GSFC	Mattauch, R. J.	NAS 5-24218	3845
49	UNIV OF VIRGINIA	Conner, D. W.	LARC	Kuhlthau, A. R.	NAS 1-14908	3842
49	UNIV OF VIRGINIA	Tapscott, R. J.	LARC	Jacobson, I. D.	NSG 1399	3854
49	VIRGINIA POLY INST	Davis, J. G., Jr.	LARC	Herakovich, C. T.	NCC 1 15	3870
49	VIRGINIA POLY INST	Davis, J. G., Jr.	LARC	Herakovich, C. T.	NGR 47-004-129	3883
49	VIRGINIA POLY INST	Hoffman, E. L.	LARC	Herakovich, C. T.	NSG 1250	3888
49	VIRGINIA POLY INST	Sobieski, J.	LARC	Anderson, L. R.	NSG 1627	3908
49	WASHINGTON UNIVERSTY	Giles, G. L.	LARC	Szabo, B. A.	NSG 1640	2784
51	ALABAMA A&M UNIV	Nerren, B. H.	MSFC	Sharma, G. C.	NSG 8067	1013
51	ALCORN STATE UNIV	Wolverton, B. C.	NSTL	Latif, A.	NSG 8036	2730
51	CALIF INST OF TECH	Young, R. S.	HQ-SB	Horowitz, N. H.	NGR 05-002-121	1196
51	CALIF INST OF TECH	Winter, D. L.	HQ-SB	Strumwasser, F.	NSG 7387	1225
51	CAL STATE U-L ANGLS	Hochstein, L. I.	ARC	Andreoli, A. J.	NSG 2199	1246
51	COLORADO STATE UNIV	Holton, E. M.	ARC	Jordan, J. P.	NSG 2232	1723
51	CORNELL UNIVERSITY	Young, R. S.	HQ-SB	MacDonald, R. E.	NSG 7235	2982
51	CORNELL UNIVERSITY	Young, R. S.	HQ-SB	Gibson, J.	NSG 7529	2990
51	EMORY UNIVERSITY	Holton, E. M.	ARC	Popovic, V. P.	NGL 11-001-009	1971
51	FLORIDA A&M UNIV	Klein, H. P.	ARC	Tolbert, M. E.	NSG 2311	1912
51	GEORGIA INST OF TECH	Young, R. S.	HQ-SB	Hubbard, J. S.	NSG 7069	2010
51	HARDIN-SIMMONS UNIV	Young, R. S.	HQ-SB	Foster, T. L.	NGR 44-095-001	3536
51	HARVARD UNIVERSITY	Nolte, R. W.	JSC	Newton, R. W.	NAS 9-15326	2449
51	MASS INST OF TECH	MacElroy, R. D.	ARC	Rich, A.	NCA 2-425 01	2516
51	MASS INST OF TECH	Daunton, N. G.	ARC	Bizzi, E.	NGR 22-009-798	2540

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51	MASS INST OF TECH	Daunton, N. G.	ARC	Nauta, W. J.	NGR 22-009-826	2541
51	MASS INST OF TECH	Young, R. S.	HQ-SB	Biemann, K.	NGR 22-009-005	2528
51	NORTH GEORGIA COL	Downs, S. W., Jr.	MSFC	Biesbrock, J. A.	NAS 8-30619	2016
51	OHIO STATE UNIV	Mehler, W. R.	ARC	Lim, D. J.	NSG 2220	3228
51	OHIO UNIVERSITY	Halstead, T. W.	HQ-SB	Jaffe, M. J.	NSG 7352	3243
51	PENN STATE U-UNIV PK	Morrison, D. R.	JSC	Hymer, W. C.	NAS 9-15566	3383
51	PENN STATE U-UNIV PK	Young, R. S.	HQ-SB	Casida, I. E., Jr.	NGR 39-009-180	3394
51	PRINCETON UNIVERSITY	Halstead, T. W.	HQ-SB	Jacobs, J. P.	NSG 7280	2865
51	PURDUE UNIVERSITY	Halstead, T. W.	HQ-SB	Mitchell, C. A.	NSG 7278	2174
51	RENSSELAER POLY-NY	Young, R. S.	HQ-SB	Wedler, F. C.	NSG 7065	3043
51	RENSSELAER POLY-NY	Young, R. S.	HQ-SB	Pope, D. H.	NSG 7345	3045
51	RICE UNIVERSITY	Halstead, T. W.	HQ-SB	Ward, C. H.	NASW 3164	3551
51	ROCKEFELLER UNIV	Daunton, N. G.	ARC	Wilson, V. J.	NSG 2380	3047
51	SAN FRAN STATE UNIV	Young, R. S.	HQ-SB	Orenberg, J. B.	NSG 7512	1268
51	SAN JOSE STATE UNIV	Winget, C. M.	ARC	Holley, D. C.	NCA 2-675903	1275
51	SAN JOSE STATE UNIV	Miquel, J.	ARC	Ballard, R. C.	NCA 2-675906	1277
51	SAN JOSE STATE UNIV	Deal, P. H.	ARC	Haight, R. D.	NCA 2-675907	1278
51	SAN JOSE STATE UNIV	Klein, H. P.	ARC	Weaver, E. C.	NCA 2-675910	1280
51	SO ILL UNIV-CARBONDL	Young, R. S.	HQ-SB	Yopp, J. H.	NSG 7394	2073
51	STANFORD UNIVERSITY	MacElroy, R. D.	ARC	Loew, G. H.	NCA 2-745905	1331
51	STANFORD UNIVERSITY	Goldwater, D.	ARC	Debusk, R. F.	NCA 2-745911	1337
51	STANFORD UNIVERSITY	Young, R. S.	HQ-SB	Lederberg, J.	NGR 05-020-004	1355
51	STATE U NY-STONY BRK	Souza, K. A.	ARC	Krikorian, A. D.	NAS 2-10150	3065
51	STATE U NY-STONY BRK	Halstead, T. W.	HQ-SB	Krikorian, A. D.	NSG 7270	3084
51	TEXAS A&M UNIVERSITY	Fricks, D.	JSC	Morgan, P. W.	NAS 9-15873	3587
51	TULANE UNIVERSITY	MacElroy, R. D.	ARC	Johnson, E. J.	NCA 2-800801	2286
51	UNIV CALIF-BERKELEY	Lanyi, J. K.	ARC	Packer, L.	NCA 2-50801	1432
51	UNIV CALIF-BERKELEY	Geib, D. S.	HQ-SB	Pace, N.	NSG 7262	1473
51	UNIV CALIF-BERKELEY	Halstead, T. W.	HQ-SB	Pace, N.	NSG 7336	1475
51	UNIV CALIF-DAVIS	Winget, C. M.	ARC	Chapman, L. F.	NCA 2-180905	1489
51	UNIV CALIF-DAVIS	Merek, E. L.	ARC	Huffaker, R. C.	NSG 2406	1493
51	UNIV CALIF-DAVIS	Halstead, T. W.	HQ-SB	Smith, A. H.	NSG 7493	1495
51	UNIV CALIF-SAN FRAN	Souza, K. A.	ARC	Arnaud, C. D.	NAS 2-10162	1624
51	UNIV CALIF-SAN FRAN	Souza, K. A.	ARC	Arnaud, C. D.	NAS 2-10164	1625
51	UNIV CALIF-SAN FRAN	Mehler, W. R.	ARC	Snyder, R. L.	NCA 2-665802	1629
51	UNIV CALIF-SAN FRAN	Ellis, S.	ARC	Riley, D. A.	NCA 2-665901	1634
51	UNIV CALIF-SAN FRAN	Holton, E. M.	ARC	Arnaud, C. D.	NCA 2-665902	1635
51	UNIV CALIF-SAN FRAN	Ellis, S.	ARC	Riley, D. A.	NCA 2-665903	1636
51	UNIV CALIF-SAN FRAN	Young, R. S.	HQ-SB	Stoerkenius, W.	NSG 7151	1639
51	UNIV OF CHICAGO	Daunton, N. G.	ARC	Goldberg, J. M.	NGR 14-001-225	2094
51	UNIV OF CHICAGO	Larson, C. A.	HQ-SB	Moran, H. F.	NSG 7303	2103
51	UNIV OF CONNECTICUT	Young, R. S.	HQ-SB	Leadbetter, F. R.	NSG 7450	1819
51	UNIV OF HAWAII-MANOA	Young, R. S.	HQ-SB	Siegel, S. M.	NGL 12-001-042	2035
51	UNIV HOUSTON-HOUSTON	Schneider, H. J.	JSC	Zlatkis, A.	NAS 9-15682	3617
51	UNIV HOUSTON-HOUSTON	Halstead, T. W.	HQ-SB	Hendrix, D. H.	NSG 7300	3628
51	UNIV HOUSTON-HOUSTON	Young, R. S.	HQ-SB	Fox, G. L.	NSG 7440	3630
51	UNIV HOUSTON-HOUSTON	Halstead, T. W.	HQ-SB	Coules, J. R.	NSG 9042	3634
51	UNIV OF LOUISVILLE	Holton, E. M.	ARC	Musacchia, X. J.	NSG 2325	2266
51	UNIV OF LOUISVILLE	Halstead, T. W.	HQ-SB	Fuller, P. M.	NSG 7441	2268
51	UNIV MD-EASTRN SHORE	Trafford, G. H.	WFC	Albino, M.	NSG 6033	2423
51	UNIV OF MIAMI	Miquel, J.	ARC	Ono, K.	NCA 2-438801	1958
51	UNIV MICH-ANN ARBOR	Young, R. S.	HQ-SB	Rich, A.	NSG 7452	2689
51	UNIV MICH-ANN ARBOR	Halstead, T. W.	HQ-SB	Ross, M. D.	NSG 9047	2693
51	UNIV OKLAHOMA-NORMAN	Sandler, H.	ARC	Stone, H. L.	NCA 2-580901	3312
51	UNIV ORGEON-HLTH CTR	Reeves, F. A.	MSFC	Brooks, D. L.	NAS 8-32353	3337
51	UNIV OF PENNSYLVANIA	Halstead, T. W.	HQ-SB	Brown, A. H.	NGR 39-010-149	3429
51	UNIV OF PITTSBURGH	Daunton, N. G.	ARC	Tomko, D. L.	NCA 2-592901	3435
51	UNIV SAN FRANCISCO	Young, D. R.	ARC	Furst, A.	NCA 2-670902	1669



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51	UNIV SAN FRANCISCO	Miquel, J.	ARC	Benton, E. V.	NSG 2063	1670
51	UNIV SAN FRANCISCO	Kraft, L. M.	ARC	Benton, E. V.	NSG 2304	1671
51	UNIV OF SANTA CLARA	Hochstein, L. I.	ARC	Tomlinson, G. A.	NCA 2-685808	1675
51	UNIV OF SANTA CLARA	Grindeland R.	ARC	Fast, T.	NCA 2-685812	1676
51	UNIV OF SANTA CLARA	Mandel, A. D.	ARC	Caren, L. D.	NCA 2-685813	1677
51	UNIV SO CAROLINA-COL	Young, R. S.	HQ-SB	Rohlfing, D. L.	NSG 7096	3475
51	UNIV OF SOUTHERN CAL	Young, R. S.	HQ-SB	Strehler, B. L.	NSG 7367	1705
51	UNIV TEXAS-AUSTIN	Halstead, T. W.	HQ-SB	Roux, S. J.	NSG 7480	3687
51	U TEX PUB HLTH-HUS	Smith, M. A.	JSC	Booth, F.	NAS 9-15388	3719
51	UNIV OF TOLEDO	Geib, D. S.	HQ-SB	Diehn, B.	NSG 7424	3287
51	UNIV OF UTAH	Souza, K. A.	ARC	Jee, W. S.	NAS 2-10308	3724
51	UNIV OF VIRGINIA	Holton, E. M.	ARC	Pitts, G. C.	NSG 2225	3861
51	UNIV WISC-MADISON	Holton, E. M.	ARC	DeLuca, H. F.	NCA 2-865701	3988
51	UNIV WISC-MADISON	Zill, L. P.	ARC	Tibbitts, T. W.	NSG 2405	3996
51	UNIV WISC-MADISON	Young, R. S.	HQ-SB	Fitch, W. M.	NSG 7521	4009
51	UTAH STATE UNIV	Halstead, T. W.	HQ-SB	Salisbury, F. B.	NSG 7567	3749
51	WASHINGTON UNIVERSTY	Souza, K. A.	ARC	Simmons, D.	NAS 2-10177	2778
51	WORCESTER POLY INST	Young, R. S.	HQ-SB	Danielli, J. F.	NSG 7154	2623
51	XAVIER UNIV-LA	Winget, C. M.	ARC	Ashman, P. U.	NGR 19 007-004	2292
51	YALE UNIVERSITY	Halstead, T. W.	HQ-SB	Galston, A. W.	NSG 7290	1828
54	BOSTON UNIVERSITY	Young, R. S.	HQ-SB	Golubic, S.	NSG 7588	2437
54	CENTRAL ST UNIV-OHIO	Fordyce, J. S.	LERC	Craft, T. J., Sr.	NGR 36-033-003	3188
54	FLORIDA STATE UNIV	Young, R. S.	HQ-SB	Friedmann, E. I.	NSG 7337	1918
54	OREGON STATE UNIV	Nachtwey, D. S.	JSC	Worrest, R. C.	NAS 9-14860	3320
54	SAN JOSE STATE UNIV	Klein, H. P.	ARC	Neptune, J. A.	NCC 2 14	1286
54	TUSKEGEE INSTITUTE	Philpott, D. E.	ARC	Sapp, W. J.	NCC 2 12	1030
54	UNIV CALIF-L ANGELES	Daunton, N. G.	ARC	Markham, C. H.	NGR 05-007-418	1527
54	UNIV MARYLAND-COL PK	Scott, F. E.	MSFC	Colwell, R. R.	NAS 8-32148	2347
54	UTAH STATE UNIV	Nachtwey, D. S.	JSC	Caldwell, M. M.	NAS 9-14871	3740
55	ALABAMA A&M UNIV	Downs, S. W., Jr.	MSFC	Montgomery, O. L.	NGR 01-001-023	1002
55	TEXAS A&M UNIVERSITY	Toll, D.	GSFC	Miller, E. D.	NAS 5-25846	3573
55	UNIV MD-EASTRN SHORE	Young, R. S.	HQ-SB	Joshi, J. M.	NSG 7470	2425
56	BAYLOR COL OF MED	Souza, K. A.	ARC	Matthews, J. L.	NAS 2-10354	3526
56	BAYLOR COL OF MED	Altchuler, S. I.	JSC	Johnson, P. C.	NAS 9-13737	3527
56	BAYLOR COL OF MED	Rippstein, W. J.	JSC	Duncan, W. C.	NAS 9-14407	3528
56	BAYLOR COL OF MED	Homick, J. L.	JSC	Igarashi, M.	NAS 9-14546	3529
56	BAYLOR COL OF MED	Kimzey, S. L.	JSC	Johnson, P. C.	NAS 9-14662	3530
56	BAYLOR COL OF MED	Kimzey, S. L.	JSC	Criswell, B. S.	NAS 9-15457	3531
56	BAYLOR COL OF MED	Leach, C. S.	JSC	Diferrante, N.	NAS 9-15478	3532
56	CASE WESTERN RESERVE	Weigand, A. J.	LERC	Gibbons, D. F.	NSG 3151	3165
56	CASE WESTERN RESERVE	Weigand, A. J.	LERC	Gibbons, D. F.	NSG 3282	3182
56	CLEMSON UNIV-CLEMSON	Weigand, A. J.	LERC	Park, J. B.	NSG 3225	3469
56	DREXEL UNIVERSITY	Altchuler, S. I.	JSC	Kamel, I. L.	NAS 9-15915	3349
56	EMORY UNIVERSITY	Sandler, H.	ARC	King, F. A.	NGR 11-001-016	1972
56	FLORIDA A&M UNIV	Alterescu, S.	GSFC	Fresh, F. A.	NAS 5-25165	1907
56	HARVARD UNIVERSITY	Leach, C. S.	JSC	Moore-Ede, M. C.	NSG 9054	2484
56	HOWARD UNIVERSITY	Sandler, H.	ARC	Cothran, L. N.	NGL 09-011-017	1882
56	HOWARD UNIVERSITY	Alterescu, S.	GSFC	Chang, P.	NAS 5-23799	1875
56	HOWARD UNIVERSITY	Friedman, D. S.	GSFC	Fischmann, E. J.	NSG 5127	1889
56	HOWARD UNIVERSITY	Yin, L. I.	GSFC	Ferguson, G. A.	NSG 5268	1892
56	HOWARD UNIVERSITY	Yin, L. I.	GSFC	Press, H. C., Jr.	NSG 5378	1895
56	JOHNS HOPKINS UNIV	Friedman, D. S.	GSFC	Long, D.	NAS 5-23732	2304
56	LINCOLN UNIV-PA	Alterescu, S.	GSFC	Frankowsky, J. W.	NAS 5-23800	3373
56	LA STATE U-SHREVEPT	Altchuler, S. I.	JSC	Albright, J. A.	NAS 9-15950	2273
56	MASS INST OF TECH	Winget, C. M.	ARC	Wurtman, R. J.	NGR 22-009-627	2534
56	MEHARRY MEDICAL COL	Alterescu, S.	GSFC	Braun, G.	NAS 5-23801	3486
56	MOREHOUSE COLLEGE	Alterescu, S.	GSFC	Margolis, S.	NAS 5-23571	2011
56	OHIO STATE UNIV	Nicogossian, A. E.	HQ-LU	Keller, M. D.	NGT 36-008-007	3219

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56	PA ST U-HERSHEY MED	Keil, L. C.	ARC	Severs, W. B.	NSG 2122	3374
56	PENN STATE U-UNIV PK	Morrison, D. R.	JSC	Todd, P. W.	NAS 9-15584	3384
56	QUEENSBOROUGH COMM C	Goldwater, D.	ARC	Yuster, R.	NCA 2-625902	3026
56	STANFORD UNIVERSITY	Holton, E. M.	ARC	Feldman, D.	NCA 2-745709	1325
56	STANFORD UNIVERSITY	Holton, E. M.	ARC	Feldman, D.	NCA 2-745802	1326
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Popp, R.	NCC 2 1	1339
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NGL 05-020-305	1352
56	STANFORD UNIVERSITY	Keil, L. C.	ARC	Luetscher, J. A.	NGR 05-020-456	1358
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Meindl, J. D.	NGR 05-020-615	1360
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NGR 05-020-634	1362
56	STANFORD UNIVERSITY	Carle, G. C.	ARC	Angell, J.	NGR 05-020-690	1365
56	STANFORD UNIVERSITY	Young, D. R.	ARC	Steele, C. R.	NSG 2092	1373
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NSG 2294	1388
56	ST U NY-UPST MED CTR	Leon, H. A.	ARC	Landaw, S. A.	NCA 2-765801	3090
56	SWARTHMORE COLLEGE	Goldwater, D.	ARC	Aburdene, M. F.	NCA 2-769901	3421
56	TEMPLE UNIVERSITY	Nachtwey, D. S.	JSC	Urback, F.	NAS 9-14979	3422
56	TEXAS TECH UNIV	Holton, E. M.	ARC	Kenny, A. D.	NSG 2137	3608
56	TULANE UNIVERSITY	Weigand, A. J.	LERC	Weinstein, A. M.	NSG 3209	2288
56	UNIV OF ARIZONA	Mandel, A. D.	ARC	Meinke, W. J.	NSG 2381	1128
56	UNIV CALIF-DAVIS	Greenleaf, J. E.	ARC	Rizza, J. P.	NCA 2-180703	1485
56	UNIV CALIF-DAVIS	Rambaut, P. C.	JSC	Vogel, J. M.	NAS 9-15203	1484
56	UNIV CALIF-IRVINE	Mandel, A. D.	ARC	Tilles, J. G.	NGR 05-041-012	1497
56	UNIV CALIF-IRVINE	Sater, B. L.	LERC	Foltz, E. L.	NAS 3-21963	1496
56	UNIV CALIF-SAN DIEGO	Greenleaf, J. E.	ARC	West, J. B.	NGL 05-009-109	1589
56	UNIV CALIF-SAN DIEGO	Sandler, H.	ARC	Baily, N. A.	NGR 05-009-157	1597
56	UNIV CALIF-SAN DIEGO	Homick, J. L.	JSC	Bullock, T. H.	NSG 9048	1622
56	UNIV CALIF-SAN DIEGO	Alexander, W. C.	JSC	West, J. B.	NSG 9075	1623
56	UNIV CALIF-SAN FRAN	Callahan, P. X.	ARC	Asling, C. W.	NCA 2-665803	1630
56	UNIV CALIF-SAN FRAN	Keil, L. C.	ARC	Ramsay, D. J.	NCA 2-665807	1632
56	UNIV CALIF-SAN FRAN	Sandler, H.	ARC	Glantz, S. A.	NCA 2-665905	1638
56	UNIV CALIF-SAN FRAN	Altchuler, S. I.	JSC	Genant, H. K.	NAS 9-15887	1627
56	UNIV OF FLORIDA	Nachtwey, D. S.	JSC	Green, A. E.	NAS 9-15114	1929
56	UNIV OF FLORIDA	Sater, B. L.	LERC	Hench, L. L.	NSG 3273	1948
56	UNIV HOUSTON-HOUSTON	Alexander, W. C.	JSC	Lacy, J. L.	NAS 9-15767	3616
56	UNIV HOUSTON-CL LAKE	Alexander, W. C.	JSC	Coleman, A. E.	NAS 9-15642	3636
56	UNIV OF IOWA	Hull, W. E.	JSC	Abboud, F. M.	NSG 9060	2221
56	UNIV OF KENTUCKY	Sandler, H.	ARC	Knapp, C. F.	NSG 2318	2262
56	UNIV OF KENTUCKY	Alexander, C.	JSC	Bhagat, P. K.	NAS 9-15452	2259
56	UNIV OF LOUISVILLE	Mandel, A. D.	ARC	Sonnenfeld, G.	NCA 2-400901	2265
56	UNIV MARYLAND-COL PK	Mandel, A. D.	ARC	Goldsby, R. A.	NSG 2378	2383
56	UNIV OF MIAMI	Huntoon, C. L.	JSC	Epstein, M.	NAS 9-15473	1956
56	UNIV MICH-ANN ARBOR	Homick, J. L.	JSC	Anderson, D. J.	NAS 9-15244	2654
56	UNIV MICH-ANN ARBOR	Reschke, M. F.	JSC	Anderson, D. J.	NAS 9-15663	2656
56	U OKLA-HLTH SCI CTR	Sandler, H.	ARC	Stone, H. L.	NSG 2282	3307
56	UNIV SAN FRANCISCO	Rundel, R.	JSC	Benton, E. V.	NAS 9-15152	1667
56	UNIV TENNESSEE-KNOXV	Kimzey, S. L.	JSC	Dunn, C. D.	NAS 9-15164	3508
56	U TENNESSEE-MEMPHIS	Schneider, H. J.	JSC	Autian, J.	NAS 9-15670	3518
56	UNIV TEXAS-AUSTIN	Sheibley, D. W.	LERC	Lagow, R. J.	NSG 3190	3668
56	U TEX HEALTH CTR-DAL	Hull, W. E.	JSC	Blomquist, C. G.	NSG 9026	3717
56	UNIV WISC-MADISON	Young, D. R.	ARC	Mazess, R. B.	NAS 2-10359	3970
56	UNIV WISC-MADISON	Young, D. R.	ARC	Mazess, R. B.	NGR 50-002-051	3992
56	UNIV WISC-MADISON	Mandel, A. D.	ARC	Dick, E. C.	NSG 2104	3995
56	UNIV WISC-MADISON	Friedman, D. S.	GSFC	Siedbank, M. P.	N. S 5-24385	3977
56	UNIV WISC-MADISON	Cintron, N. M.	JSC	Schnoes, H. K.	NAS 9-15580	3987
56	VIRGINIA COMNWLTH U	Hull, W. E.	JSC	Eckberg, D. L.	NSG 9063	3867
56	VIRGINIA POLY INST	Day, J. L.	JSC	Rivers, D. B.	NAS 9-15287	3876
56	WAYNE STATE UNIV	Young, D. R.	ARC	Orne, D.	NSG 2098	2695
56	YALE UNIVERSITY	Souza, K. A.	ARC	Baron, R.	NAS 2-10338	1820

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56	YALE UNIVERSITY	Mandel, A. D.	ARC	Evans, A. S.	NSG 2185	1825
59	ALABAMA A&M UNIV	Allen, R. E.	MSFC	Savage, J.	NSG 8042	1006
59	ALABAMA A&M UNIV	Snyder, R. S.	MSFC	Gibson, W. L.	NSG 8051	1007
59	ALABAMA A&M UNIV	Snyder, R. S.	MSFC	Savage, J.	NSG 8064	1010
59	BAYLOR COL OF MED	Morrison, D. R.	JSC	Twomey, J. J.	NAS 9-15669	3533
59	BAYLOR COL OF MED	Leach, C. S.	JSC	Suki, W. N.	NAS 9-15891	3534
59	BOSTON UNIVERSITY	Larson, C. A.	HQ-SB	Fulton, G. P.	NGR 22-004-018	2430
59	BRANDEIS UNIVERSITY	Homick, J. L.	JSC	Lackner, J. R.	NAS 9-15147	2440
59	CAL STATE U-HAYWARD	Greenleaf, J. E.	ARC	Brown, C. H.	NCA 2-290801	1244
59	COLORADO STATE UNIV	Hoffman, R. A.	JSC	Lett, J. T.	NSG 9045	1739
59	CORNELL UNIV-MED CTR	Keil, L. C.	ARC	Reis, D. J.	NSG 2259	2996
59	DREXEL UNIVERSITY	Larson, C. A.	HQ-SB	Dubin, S.	NSG 7494	3361
59	EMORY UNIVERSITY	Daunton, N. G.	ARC	Perachio, A. A.	NGR 11-001-045	1973
59	FLORIDA A&M UNIV	Winget, C. M.	ARC	Stronach, C. E.	NSG 2029	1910
59	FLORIDA A&M UNIV	Winget, C. M.	ARC	Soliman, K. F.	NSG 2183	1911
59	GEORGE WASHINGTON U	Halstead, T. W.	HQ-SB	Waters, E.	NASW 3165	1846
59	GEORGIA INST OF TECH	MacElroy, R. D.	ARC	Carden, J. L.	NSG 2323	1997
59	JOHNS HOPKINS UNIV	Sebesta, P. D.	ARC	Ray, G. C.	NAS 2-9300	2302
59	KENTUCKY STATE UNIV	Morrison, J. D.	KSC	Klock, G.	NSG 801	2258
59	MARQUETTE UNIVERSITY	Smith, M. C., Jr.	JSC	Fitts, R. H.	NAS 9-15711	3967
59	MASS INST OF TECH	Daunton, N. G.	ARC	Vogel, F. L.	NSG 2032	2556
59	MASS INST OF TECH	Quattrone, P. D.	ARC	Karel, M.	NSG 2334	2565
59	MASS INST OF TECH	Quattrone, P. D.	ARC	Meissner, H. P.	NSG 2335	2566
59	MASS INST OF TECH	Quattrone, P. D.	ARC	Modell, M.	NSG 2403	2568
59	MASS INST OF TECH	Luczkowski, S. M.	JSC	Young, L. R.	NAS 9-15343	2515
59	MIAMI UNIVERSITY	Homick, J. L.	JSC	Parker, D. E.	NAS 9-14538	3202
59	NEW YORK UNIVERSITY	Reeves, F. A.	MSFC	Johnson, A. J.	NAS 8-33099	2998
59	PURDUE UNIVERSITY	Zeitman, B. B.	ARC	Hoff, J. E.	NSG 2401	2160
59	PURDUE UNIVERSITY	Zill, L. P.	ARC	Mitchell, C. A.	NSG 2404	2161
59	SAN FRAN STATE UNIV	Oyama, J.	ARC	Kakahana, R.	NSG 2281	1267
59	SAN JOSE STATE UNIV	Dalton, B. P.	ARC	Ballard, R. C.	NSG 2213	1292
59	SO DAKOTA SCHL MINES	Hull, W. E.	JSC	Gowen, R. J.	NAS 9-15522	3477
59	SO UNIV-BATON ROUGE	Sandler, H.	ARC	Ray, G.	NSG 2041	2281
59	STANFORD UNIVERSITY	Lawless, J. G.	ARC	Loew, G. H.	NCA 2-745902	1329
59	STANFORD UNIVERSITY	Silverman, M. P.	ARC	Young, L. Y.	NCA 2-745907	1333
59	STANFORD UNIVERSITY	Mehler, W. R.	ARC	Chow, K. L.	NGR 05-020-435	1356
59	STANFORD UNIVERSITY	Williams, T. S., Jr.	LARC	Lederberg, J.	NAS 1-9692	1305
59	STANFORD UNIVERSITY	Carter, C. H.	HQ-LU	Beard, R. R.	NGT 05-020-777	1369
59	STANFORD UNIVERSITY	Young, R. S.	HQ-SB	Bonner, W. A.	NGL 05-020-582	1353
59	STATE UNIV NY-ALBANY	Horrigan, D. J.	JSC	Farhi, L. E.	NAS 9-15802	3052
59	STATE UNIV NY-ALBANY	Williams, J. R.	MSFC	VanOss, C. J.	NAS 8-32947	3050
59	TEXAS A&M UNIVERSITY	Stonesifer, G. R.	GSFC	Rouse, J. W., Jr.	NAS 5-20796	3569
59	TEXAS A&M UNIVERSITY	Smith, M. C., Jr.	JSC	Burns, E. E.	NAS 9-12434	3577
59	TULANE UNIVERSITY	Mehler, W. R.	ARC	Brizzee, K. R.	NSG 2139	2287
59	UNIV ALA-BIRMINGHAM	Rhodes, P. H.	MSFC	Sachs, G.	NAS 8-32923	1037
59	UNIV ALA-BIRMINGHAM	Bannister, T.	MSFC	Chioveti, R., Jr.	NAS 8-33014	1038
59	UNIV OF ARIZONA	Kimzey, S. L.	JSC	Bartels, P. H.	NAS 9-14692	1104
59	UNIV OF ARIZONA	Snyder, R. S.	MSFC	Bartels, P. H.	NAS 8-31948	1101
59	UNIV OF ARIZONA	Williams, J. R.	MSFC	Bier, M.	NAS 8-32950	1102
59	UNIV OF ARIZONA	Vitale, J. A.	HQ-ET	Bier, M.	NSG 7333	1145
59	UNIV CALIF-BERKELEY	MacElroy, R. D.	ARC	Spear, R.	NCA 2-50710	1431
59	UNIV CALIF-BERKELEY	Stull, M. A.	ARC	Welch, W. J.	NSG 2271	1460
59	UNIV CALIF-SAN FRAN	Souza, K. A.	ARC	Cann, C. E.	NAS 2-10350	1626
59	UNIV CALIF-SAN FRAN	Feller, D. D.	ARC	Searle, G. L.	NCA 2-665801	1628
59	UNIV CALIF-SAN FRAN	Keil, L. C.	ARC	Dallman, M. F.	NCA 2-665806	1631
59	UNIV HOUSTON-HOUSTON	Tremor, J. W.	ARC	Cowles, J. R.	NAS 2-10087	3610
59	UNIV HOUSTON-HOUSTON	Sauer, R. L.	JSC	Cox, J. E.	NAS 9-11676	3611
59	UNIV ILLINOIS-URBANA	Chassay, C. E.	JSC	Voss, E. W.	NAS 9-15328	2115

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59	UNIV MD-EASTRN SHORE	Trafford, G. H.	WFC	Lynk, W. L.	NSG 6017	2421
59	UNIV MICH-ANN ARBOR	Reschke, M. F.	JSC	Anderson, D. J.	NAS 9-15375	2655
59	U MINN-MNPLS-ST PAUL	Smith, M. C., Jr.	JSC	Mitchell, J. R.	NAS 9-12560	2705
59	UNIV MO-COLUMBIA	Quattrone, P. D.	ARC	Winnick, J.	NSG 2193	2762
59	UNIV NEVADA-DRI	Johnson, R. D.	ARC	Hall, M. R.	NCC 2 6	2807
59	UNIV ORGEON-HLTH CTR	Scott, F. E.	MSFC	Knox, R. J.	NAS 8-32162	3336
59	UNIV ORGEON-HLTH CTR	Reeves, F. A.	MSFC	Seaman, G. V.	NAS 8-32609	3338
59	UNIV ORGEON-HLTH CTR	Nerrin, B. N.	MSFC	Brooks, D. E.	NAS 8-32817	3339
59	UNIV OF PENNSYLVANIA	Lintott, J. E.	JSC	Brown, A. H.	NAS 9-15531	3427
59	UNIV SAN FRANCISCO	Philpott, D. E.	ARC	Benton, E. V.	NAS 2-9845	1664
59	UNIV SAN FRANCISCO	Souza, K. A.	ARC	Benton, E. V.	NAS 2-10161	1665
59	UNIV OF SANTA CLARA	Greenleaf, J. E.	ARC	Pefley, R. K.	NAS 2-9967	1672
59	UNIV TEXAS-GALVESTON	Leach, C. S.	JSC	Ziegler, M. G.	NAS 9-15565	3715
59	UNIV OF VIRGINIA	Souza, K. A.	ARC	Pitts, G. C.	NAS 2-10195	3843
59	UNIV OF WASHINGTON	Holton, E. M.	ARC	Carter, D. R.	NSG 2385	3940
59	UNIV OF WEST FLORIDA	Barnes, C. M.	JSC	Schaefer, H. J.	NAS 9-15417	1967
59	WRIGHT STATE UNIV	Daunton, N. G.	ARC	Crampton, G. H.	NCA 2-875801	3292
59	WRIGHT STATE UNIV	Nicogossian, A. E.	HQ-SB	Mohler, S. R.	NGT 36-024-790	3293
61	FLORIDA A&M UNIV	Winget, C. A.	ARC	Walker, C. A.	NCA 2-230701	1908
61	SAN JOSE STATE UNIV	Daunton, N. G.	ARC	Fox, R. A.	NCA 2-675801	1269
61	SAN JOSE STATE UNIV	Daunton, N. G.	ARC	Banks, P. M.	NCA 2-675808	1270
61	SAN JOSE STATE UNIV	Suri, K. P.	ARC	Fox, R. A.	NSG 2339	1300
61	UNIV CALIF-BERKELEY	Cowings, P. S.	ARC	Strohman, R. C.	NCA 2-50803	1433
61	UNIV CALIF-L ANGELES	Ellis, S.	ARC	Parlow, A.	NCA 2-390801	1510
61	UNIV CALIF-SAN FRAN	Cowings, P. S.	ARC	Kamiya, J.	NCA 2-665810	1633
61	UNIV OF UTAH	Sharp, J. C.	ARC	Nielson, H. C.	NSG 2350	3731
62	JOHNS HOPKINS UNIV	Patton, R. M.	ARC	Brady, J. V.	NGR 21-001-111	2315
62	TENNESSEE STATE UNIV	Kochner, J.	JSC	Sampson, C.	NAS 9-15862	3487
62	UNIV OF SANTA CLARA	Connors, M. M.	ARC	Akins, F.	NCA 2-685805	1673
69	BOSTON UNIVERSITY	Powell, C. A.	LARC	Hellman, R. D.	NSG 1644	2433
69	CAL MARITIME ACADEMY	Patton, R. M.	ARC	Rizza, J. P.	NCA 2-100901	1233
69	MASS INST OF TECH	Daunton, N. G.	ARC	Held, R. M.	NGL 22-009-308	2523
69	NO CAROLINA STATE U	Mayes, W. H.	LARC	Horvath, J. J.	NGL 34-002-095	3123
69	OHIO STATE UNIV	Lauber, J. K.	ARC	Rockwell, T. H.	NAS 2-10047	3210
69	OHIO STATE UNIV	Dunn, R. S.	ARC	Jagacinski, R. J.	NSG 2179	3227
69	SAN JOSE STATE UNIV	Stewart, J. D.	ARC	Clark, B.	NSG 2269	1294
69	STANFORD UNIVERSITY	Mosher, M.	ARC	Karamcheti, K.	NSG 2393	1396
69	TUFTS UNIVERSITY	Palmer, E. A.	ARC	Chechile, R. A.	NCA 2-785801	2609
69	UNIV CALIF-SAN FRAN	Cowings, P. S.	ARC	Kamiya, J.	NCA 2-665904	1637
69	UNIV N CAR-GRNSBORO	Curry, R. E.	ARC	Regan, J. E.	NSG 2390	3138
69	UNIV OREGON-EUGENE	Wright, R. H.	ARC	Murray, R. J.	NCA 2-587801	3330
69	UNIV TEXAS-AUSTIN	Patton, R. M.	ARC	Frey, J.	NSG 2065	3664
69	UNIV TEXAS-GALVESTON	Reschke, M. F.	JSC	Correia, M. J.	NAS 9-14641	3714
69	UNIV OF VIRGINIA	DeLoach, R.	LARC	Jacobson, I. D.	NSG 1509	3857
72	ARIZONA STATE UNIV	Bifano, W. J.	LERC	Bahr, D. M.	DEN 3 50	1070
72	GEORGIA INST OF TECH	Scudder, L. R.	LERC	Jacobson, J. E.	NSG 3297	2005
72	UNIV OF VIRGINIA	Rollins, R. H.	HQ-RX	Kuhlthau, A. R.	NSG 7266	3864
75	STANFORD UNIVERSITY	Barnett, R. M.	ARC	Pederson, C. A.	NAS 2-8898	1306
79	UNIV CALIF-BERKELEY	Tanner, T. A.	ARC	LaPorte, T. R.	NGR 05-003-471	1451
79	UNIV CALIF-BERKELEY	Tuyahov, A. J.	HQ-ET	Colwell, R. N.	NSG 7522	1478
79	UNIV CALIF-DAVIS	Connors, M. M.	ARC	Harrison, A. A.	NCA 2-180803	1486
99	BOWIE STATE COLLEGE	Bailey, E.	GSFC	Kirksey, C. H.	NSG 5416	7300
99	BOWIE STATE COLLEGE	Pohly, J. G.	HQ-LU	Kirksey, C. H.	NGT 21-027-012	2298
99	CAL STATE U-CHICO	Rich, W. B.	HQ-LF	Unavailable	NASW 2835	1239
99	CHICAGO STATE UNIV	Young, S. G.	LERC	Treptow, R. S.	NSG 3030	2059
99	COLLEGE OF WM & MARY	Anderson, A. F.	LARC	Aceto, H., Jr.	NAS 1-14972	3757
99	COLLEGE OF WM & MARY	Greene, R. F., Jr.	LARC	Barnes, C. H., Jr.	NAS 1-15899	3758
99	COLLEGE OF WM & MARY	Anderson, A. F.	LARC	Rublein, G. T.	NGL 47-006-058	3762

**NASA'S UNIVERSITY PROGRAM**  
**APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING**

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
99	COLUMBIA UNIVERSITY	Jennings, N.	GSFC	Yavarkovsky, J.	NAS 5-25422	2921
99	CORNELL UNIVERSITY	Williams, T. S., Jr.	LARC	Sagan, C. E.	NAS 1-9683	2950
99	ESTRN SHORE CITY COL	Milliner, J. B.	WFC	Layman, P.	NAS 6-2964	3772
99	GEORGE WASHINGTON U	Jackson, H. D.	LERC	Wood, F. B.	NSG 3130	1877
99	GEORGETOWN UNIV	Puttkamer, J.	HQ-MT	Cheston, P. S.	NASW 3152	1874
99	GEORGI INST OF TECH	Hall, J. B., Jr.	LARC	Wilkins, R. D.	NAS 1-14947	1978
99	HOWARD UNIVERSITY	Carter, C. H.	HQ-LU	Fan, D. N.	NGT 09-011-060	1885
99	MASS INST OF TECH	Wempe, T. E.	ARC	Sheridan, T. B.	NSG 2118	2557
99	MASS INST OF TECH	Wempe, T. E.	ARC	Athans, M.	NSG 2180	2560
99	MASS INST OF TECH	Tate, F.	HQ-SP	Bridge, H. S.	NGL 22-009-638	2526
99	MOREHOUSE COLLEGE	Pohly, J. G.	HQ-LU	Hall, J. H.	NGT 11-008-004	2012
99	NM HIGHLANDS UNIV	Pohly, J. G.	HQ-LU	Zenick, H.	NGT 32-010-001	2881
99	NEW YORK UNIVERSITY	Roberson, F. I.	HQ-ET	Fusfeld, H. I.	NSG 7636	3014
99	OKLAHOMA STATE UNIV	Miller, S. A.	ARC	Wiggins, K. E.	NAS 2-9877	3297
99	OLD DOMINION UNIV	Anderson, A. F.	LARC	Maygarden, E. M.	NAS 1-14193	3789
99	PENN STATE U UNIV PK	Golden, T. S.	GSFC	Feller, I. R.	NAS 5-24329	3377
99	PRINCETON UNIVERSITY	Gilbreath, W. P.	ARC	O'Neill, G. K.	NSG 2062	2852
99	PURDUE UNIVERSITY	Gordon, F., Jr	GSFC	Swain, P. H.	NSG 5414	2172
99	SAN FRAN STATE UNIV	Tomberlin, K. A.	ARC	Eisenberg, L.	NCA 2-660901	1264
99	SAN FRAN STATE UNIV	Stull, M. A.	ARC	Seeger, C. S.	NSG 2210	1266
99	SO DAKOTA STATE UNIV	Gordon, F., Jr.	GSFC	Moore, D. G.	NAS 5-24206	3478
99	SOUTHEASTN OKLA ST U	Bivins, R. G.	HQ-ET	Gold, C. H.	NASW 3007	3305
99	SPELMAN COLLEGE	Pohly, J. G.	HQ-LU	Falconer, E.	NGT 11-013-001	2019
99	ST UNIV SYSTM OF FLA	Dolby, W.	HQ-ET	Unavailable	NASW 3060	1921
99	TEXAS A&M UNIVERSITY	Amsbury, D. L.	JSC	Whitehorn, N.	NAS 9-15468	3586
99	TUFTS UNIVERSITY	Wempe, T. E.	ARC	Kreifeldt, J. G.	NSG 2156	2610
99	UNIV CALIF-BERKELEY	Tate, F.	HQ-SP	Tole, J. R.	NGL 05-003-497	1444
99	HASTINGS COL OF LAW	Glazer, J. H.	ARC	Wolcott, T.	NCA 2-280801	1257
99	UNIV OF CHICAGO	Tate, F.	HQ-SP	Simpson, J. A.	NGL 14-001-258	2089
99	UNIV OF CHILE	Force, C. A.	GSFC	Diaz, E.	NAS 5-1925	4027
99	UNIV OF CONNECTICUT	Bivins, R. G.	HQ-ET	Unavailable	NASW 3191	1815
99	UNIV OF DENVER	Ault, L. A.	HQ-ET	Johnson, F. D.	NASW 3113	1801
99	UNIV OF GEORGIA	Harrison, J. O.	HQ-ET	Unavailable	NASW 2948	2020
99	UNIV HOUSTON-HOUSTON	Smith, M. C., Jr.	JSC	Bell, L.	NAS 9-15944	3618
99	UNIV ILLINOIS-URBANA	Palmer, E. A.	ARC	Rouse, W. B.	NSG 2119	2124
99	UNIV OF KENTUCKY	Dolby, W.	HQ-ET	Unavailable	NASW 3039	2260
99	UNIV MARYLAND-COL PK	Desjardins, R.	GSFC	Rieger, C. S.	NAS 5-25764	2345
99	UNIV MD-EASTRN SHORE	Floyd, J. C.	WFC	Smith, J. C.	NAS 6-2855	2417
99	UNIV MD-EASTRN SHORE	Oberholtzer, J. D.	WFC	Wutoh, J. G.	NSG 6006	2419
99	UNIV OF NEW MEXICO	Bivins, R. G.	HQ-ET	Unavailable	NASW 2936	2894
99	UNIV OF PITTSBURGH	Bivins, R. G.	HQ-KT	Unavailable	NASW 3042	3434
99	UNIV OF SANTA CLARA	Margozzi, A. P.	ARC	Greeley, R.	NSG 2286	1687
99	UNIV OF SOUTHERN CAL	Gilbert, R.	HQ-ET	Unavailable	NASW 3009	1692
99	UNIV OF SOUTHERN CAL	Bivins, R. G.	HQ-ET	Mixer, R.	NASW 3235	1693
99	UNIV TEXAS-DALLAS	Tate, F.	HQ-SP	Johnson, F. S.	NGL 44-004-130	3702
99	VIRGINIA POLY INST	Anderson, A. F.	LARC	Unavailable	NAS 1-15080	3870
99	VIRGINIA POLY INST	DeLoach, R.	LARC	Frair, L.	NSG 1598	3905

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CROSS INDEX BY FIRST TECHNICAL OFFICER LOCATION**

Technical Officers are usually located at the NASA installation funding a particular agreement. There may be a second technical officer, shown in the citation, at the same or a different installation. Abbreviations used for locations are: ARC, Ames Research Center; DFRC, Dryden Flight Research Center; GSFC, Goddard Space Flight Center; KSC, Kennedy Space Center, JSC, Johnson Space Center; LARC, Langley Research Center; LERC, Lewis Research Center; MSFC, Marshall Space Flight Center; NSTL, National Space Technology Laboratories; WFC, Wallops Flight Center and HQ, Headquarters. The HQ designator carries suffixed letters identifying individual Headquarters offices; an explanation of these identifiers and full addresses for all installations may be found in the prefatory pages. The key for the "Field Code" column is in Appendix B.

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	AGREEMENT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
ARC	Buell, D. A.	ADELPHI UNIVERSITY	NSG 2088	Steinmetz, W. J.	12	2903
ARC	Black, D. C.	ARIZONA STATE UNIV	NCA 2-35802	Greeley, R.	32	1075
ARC	Pollack, J. B.	ARIZONA STATE UNIV	NCA 2-35901	Krinsley, D.	32	1076
ARC	Pollack, J. B.	ARIZONA STATE UNIV	NCA 2-35902	Krinsley, D.	32	1077
ARC	Black, D. C.	ARIZONA STATE UNIV	NSG 2284	Greeley, R.	19	1079
ARC	Souza, K. A.	BAYLOR COL OF MED	NAS 2-10354	Matthews, J. L.	56	3526
ARC	Hall, C. F.	BRIGHAM YOUNG UNIV	NAS 2-7358	Jones, D. E.	13	3722
ARC	Patton, R. M.	CAL MARITIME ACADEMY	NCA 2-100901	Rizza, J. P.	69	1233
ARC	Hall, C. F.	CALIF INST OF TECH	NAS 2-6556	Ingersoll, A. P.	11	1169
ARC	Haughney, L. C.	CALIF INST OF TECH	NGR 05-002-281	Werner, M. W.	11	1199
ARC	Pollack, J. B.	CALIF INST OF TECH	NSG 2283	Yung, Y. L.	31	1205
ARC	Magee, J. P.	CAL POLY ST U-S LUIS	NAS 2-10364	Grimes, J. E.	41	1234
ARC	Koenig, D. G.	CAL POLY ST U-S LUIS	NSG 2391	Hoffmann, J. A.	41	1235
ARC	Tobias, L.	CAL STATE U-FULLERTN	NCA 2-253801	Dear, R. G.	22	1240
ARC	Boese, R. W.	CAL STATE U-FULLERTN	NCA 2-253901	Nanes, R.	13	1241
ARC	Greenleaf, J. E.	CAL STATE U-HAYWARD	NCA 2-290801	Brown, C. H.	59	1244
ARC	Hochstein, L. I.	CAL STATE U-L ANGLES	NSG 2199	Andreoli, A. J.	51	1246
ARC	Quattrone, P. D.	CASE WESTERN RESERVE	NGR 36-027-050	Yeager, E.	12	3150
ARC	Doolin, B. F.	CASE WESTERN RESERVE	NSG 2384	Martin, C. F.	49	3154
ARC	Black, D. C.	CITY COLLEGE OF N Y	NSG 2348	Yuan, C.	11	2911
ARC	Whitten, R. C.	CLARK COLLEGE	NSG 2143	Veluri, V. R.	12	1969
ARC	Murphy, J. D.	COLORADO STATE UNIV	NCA 2-165901	Prenter, P. M.	21	1716
ARC	Holton, E. M.	COLORADO STATE UNIV	NSG 2232	Jordan, J. P.	51	1723
ARC	McKenzie, R. L.	COLORADO STATE UNIV	NSG 2287	She, C. Y.	13	1724
ARC	Pollack, J. B.	CORNELL UNIVERSITY	NCA 2-175801	Burns, J. A.	11	2953
ARC	Haughney, L. C.	CORNELL UNIVERSITY	NGR 33-010-081	Houck, J. R.	11	2959
ARC	Cameron, R. M.	CORNELL UNIVERSITY	NGR 33-010-146	Harwit, M. O.	11	2962
ARC	Cameron, R. M.	CORNELL UNIVERSITY	NGR 33-010-182	Houck, J. R.	11	2964
ARC	Yu, Y. H.	CORNELL UNIVERSITY	NSG 2331	George, A. R.	41	2970
ARC	Haughney, L. C.	CORNELL UNIVERSITY	NSG 2347	Harwit, M. O.	11	2971
ARC	Schmitz, F. H.	CORNELL UNIVERSITY	NSG 2360	George, A. R.	41	2972
ARC	Chapman, G. T.	CORNELL UNIVERSITY	NSG 2382	Lumley, J. L.	41	2973
ARC	McCreight, C. R.	CORNELL UNIVERSITY	NSG 2389	Lee, C. A.	45	2974
ARC	Nelson, H. G.	CORNELL UNIVERSITY	NSG 2399	Johnson, H. H.	47	2975
ARC	Wydeven, T. J.	CORNELL UNIVERSITY	NSG 2408	Shuler, M. L.	39	2976
ARC	Keil, L. C.	CORNELL UNIV-MED CTR	NSG 2259	Reis, D. J.	59	2996
ARC	Cooper, D. M.	DARTMOUTH COLLEGE	NSG 2397	Christy, R. W.	13	2813
ARC	Brooks, W. F.	DREXEL UNIVERSITY	NSG 2357	Acquista, C. A.	13	3353
ARC	Holton, E. M.	EMORY UNIVERSITY	NGL 11-001-009	Popovic, V. P.	51	1971
ARC	Sandler, H.	EMORY UNIVERSITY	NGR 11-001-016	King, F. A.	56	1972

APPENDIX C

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	AGREEMENT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
ARC	Daunton, N. G.	EMORY UNIVERSITY	NGR 11-001-045	Perachio, A. A.	59	1973
ARC	Winget, C. M.	FLORIDA A&M UNIV	NCA 2-230701	Walker, C. A.	61	1908
ARC	Winget, C. M.	FLORIDA A&M UNIV	NSG 2029	Stronach, C. E.	59	1910
ARC	Winget, C. M.	FLORIDA A&M UNIV	NSG 2183	Soliman, K. F.	59	1911
ARC	Klein, H. P.	FLORIDA A&M UNIV	NSG 2311	Tolbert, M. E.	51	1912
ARC	Young, R. E.	GEORGIA INST OF TECH	NCC 2 9	Alyea, F. N.	31	1991
ARC	Ragent, B.	GEORGIA INST OF TECH	NSG 2306	Grams, G. W.	31	1996
ARC	MacElroy, R. D.	GEORGIA INST OF TECH	NSG 2323	Carden, J. L.	59	1997
ARC	Vykukal, H. C.	GEORGIA INST OF TECH	NSG 2356	Olson, L. H.	49	1998
ARC	Pollack, J. B.	GEORGIA INST OF TECH	NSG 2363	Grams, G. W.	31	1999
ARC	Hall, C. F.	HARVARD UNIVERSITY	NAS 2-9127	Goody, R. M.	11	2442
ARC	Hall, C. F.	HARVARD UNIVERSITY	NAS 2-10249	McElroy, M. B.	42	2443
ARC	Doolin, B. F.	HARVARD UNIVERSITY	NSG 2265	Brockett, R. W.	41	2461
ARC	Luebs, A. B.	HARVEY MUDD COLLEGE	NCA 2-283801	Williams, H.	41	1256
ARC	Sandler, H.	HOWARD UNIVERSITY	NGL 09-011-017	Cothran, L. N.	56	1882
ARC	Norman, S. M.	HUMBOLDT STATE UNIV	NSG 2341	Fox, L.	39	1258
ARC	Pollack, J. B.	IOWA STATE UNIV	NCA 2-340802	Iversen, J. D.	49	2184
ARC	Presley, L. L.	IOWA STATE UNIV	NCA 2-340901	Cook, W. J.	46	2185
ARC	Pollack, J. B.	IOWA STATE UNIV	NCA 2-340902	Grossman, A. S.	13	2186
ARC	Hicks, R. M.	IOWA STATE UNIV	NCC 2 19	Vogel, J. M.	41	2188
ARC	Rakich, J. V.	IOWA STATE UNIV	NGR 16-002-038	Tannehill, J. C.	41	2190
ARC	Malcolm, G. N.	IOWA STATE UNIV	NSG 2091	James, W. D.	41	2196
ARC	Olson, L. E.	IOWA STATE UNIV	NSG 2257	James, W. D.	41	2197
ARC	Sebesta, P. D.	JOHNS HOPKINS UNIV	NAS 2-9300	Ray, G. C.	59	2302
ARC	Patton, R. M.	JOHNS HOPKINS UNIV	NGR 21-001-111	Brady, J. V.	62	2315
ARC	Rubesin, M. W.	JOHNS HOPKINS UNIV	NSG 2303	Corrsin, S.	41	2317
ARC	Quattrone, P. D.	KENT STATE UNIV-KENT	NSG 2013	Madey, R.	12	3200
ARC	Boese, R. W.	LEHIGH UNIVERSITY	NCA 2-380901	Lovejoy, R. W.	12	3363
ARC	Hall, C. F.	MASS INST OF TECH	NAS 2-9473	Pettingill, G. H.	11	2489
ARC	Hall, C. F.	MASS INST OF TECH	NAS 2-9476	Counselman, C. C., III	11	2490
ARC	Hall, C. F.	MASS INST OF TECH	NAS 2-9483	Shapiro, I. I.	11	2491
ARC	MacElroy, R. D.	MASS INST OF TECH	NCA 2-425801	Rich, A.	51	2516
ARC	Doolin, B. F.	MASS INST OF TECH	NGL 22-009-124	Athans, M.	49	2522
ARC	Daunton, N. G.	MASS INST OF TECH	NGL 22-009-308	Held, R. M.	69	2523
ARC	Winget, C. M.	MASS INST OF TECH	NGR 22-009-627	Wurtman, R. J.	56	2534
ARC	Quattrone, P. D.	MASS INST OF TECH	NGR 22-009-723	Reid, R. C.	12	2537
ARC	Daunton, N. G.	MASS INST OF TECH	NGR 22-009-798	Bizzi, E.	51	2540
ARC	Daunton, N. G.	MASS INST OF TECH	NGR 22-009-826	Nauta, W. J.	51	2541
ARC	Poppoff, L. G.	MASS INST OF TECH	NSG 2010	Prinn, R. G.	31	2555
ARC	Daunton, N. G.	MASS INST OF TECH	NSG 2032	Vogel, F. L.	59	2556
ARC	Wempe, T. E.	MASS INST OF TECH	NSG 2118	Sheridan, T. B.	99	2557
ARC	Johnson, W. R.	MASS INST OF TECH	NSG 2142	Widnall, S. E.	41	2558
ARC	Haughney, L. C.	MASS INST OF TECH	NSG 2172	Kleinman, S. G.	11	2559
ARC	Wempe, T. E.	MASS INST OF TECH	NSG 2180	Athans, M.	99	2560
ARC	Poppoff, L. G.	MASS INST OF TECH	NSG 2196	Alyea, F. N.	31	2561
ARC	Stewart, J. D.	MASS INST OF TECH	NSG 2230	Young, L. R.	49	2562
ARC	Haughney, L. C.	MASS INST OF TECH	NSG 2263	Wright, E. L.	11	2563
ARC	Johnson, W. R.	MASS INST OF TECH	NSG 2266	Ham, N. D.	41	2564
ARC	Quattrone, P. D.	MASS INST OF TECH	NSG 2334	Karel, M.	59	2565
ARC	Quattrone, P. D.	MASS INST OF TECH	NSG 2335	Meissner, H. P.	59	2566
ARC	Haughney, L. C.	MASS INST OF TECH	NSG 2342	Elliot, J. L.	11	2567
ARC	Quattrone, P. D.	MASS INST OF TECH	NSG 2403	Modell, M.	59	2568
ARC	Warming, R. F.	NEW YORK UNIVERSITY	NCA 2-525901	Harten, A.	21	2999
ARC	Hicks, R. M.	NEW YORK UNIVERSITY	NGR 33-016-201	Garabedian, P. R.	41	3002
ARC	Anderson, J. L.	NORTHWESTERN UNIV	NSG 2149	Spencer, F. A.	41	2068
ARC	Anderson, J. L.	NORTHWESTERN UNIV	NSG 2328	Spencer, F. A.	41	2069
ARC	Lauber, J. K.	OHIO STATE UNIV	NAS 2-10047	Rockwell, T. H.	69	3210
ARC	Holst, T. L.	OHIO STATE UNIV	NCA 2-565901	Nakamura, S.	41	3215

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	AGREEMENT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
ARC	Billingham, J.	OHIO STATE UNIV	NSG 2162	Kraus, J. D.	45	3225
ARC	Boese, R. W.	OHIO STATE UNIV	NSG 2175	Rao, K. N.	13	3226
ARC	Dunn, R. S.	OHIO STATE UNIV	NSG 2179	Jagacinski, R. J.	69	3227
ARC	Mehler, W. R.	OHIO STATE UNIV	NSG 2220	Lim, D. J.	51	3228
ARC	McDevitt, J. B.	OHIO STATE UNIV	NSG 2298	Petrie, S. L.	41	3229
ARC	Miller, S. A.	OKLAHOMA STATE UNIV	NAS 2-9877	Wiggins, K. E.	99	3297
ARC	Steinle, F. W., Jr.	OKLAHOMA STATE UNIV	NSG 2396	Moretti, P. M.	41	3301
ARC	Wilson, D. E.	OREGON STATE UNIV	NCA 2-586901	Murray, R. J.	21	3321
ARC	Keil, L. C.	PA ST U-HERSHEY MED	NSG 2122	Severs, W. B.	56	3374
ARC	Fewell, L. L.	PENN STATE U-UNIV PK	NSG 2364	Allcock, H. R.	12	3398
ARC	Fohlen, G. M.	POLY INST OF NY	NSG 2147	Pearce, E. M.	12	3020
ARC	Fohlen, G. M.	POLY INST OF NY	NSG 2361	Pearce, E. M.	12	3021
ARC	Schmitz, F. H.	POLY INST OF NY	NSG 2368	Isom, M.	41	3022
ARC	Gilbreath, W. P.	PRINCETON UNIVERSITY	NSG 2062	O'Neill, G. K.	99	2852
ARC	Davis, S. S.	PRINCETON UNIVERSITY	NSG 2194	Dowell, E. H.	41	2853
ARC	Horstman, C. C.	PRINCETON UNIVERSITY	NSG 2299	Bogdonoff, S. M.	41	2854
ARC	McKenzie, R. L.	PRINCETON UNIVERSITY	NSG 2366	Miles, R. B.	13	2855
ARC	Gregory, T. J.	PURDUE UNIVERSITY	NSG 2192	Anderson, D. C.	41	2159
ARC	Zeitman, B. B.	PURDUE UNIVERSITY	NSG 2401	Hoff, J. E.	59	2160
ARC	Goldwater, D.	QUEENSBOROUGH COMM C	NCA 2-625902	Yuster, R.	56	3026
ARC	Daunton, N. G.	ROCKEFELLER UNIV	NSG 2380	Wilson, V. J.	51	3047
ARC	Barnes, A.	SAN FRAN STATE UNIV	NCA 2-660806	Kilpatrick, T.	13	1263
ARC	Tomberlin, K. A.	SAN FRAN STATE UNIV	NCA 2-660901	Eisenberg, J.	99	1264
ARC	Lawless, J. G.	SAN FRAN STATE UNIV	NCA 2-660902	Orenberg, J. B.	12	1265
ARC	Stull, M. A.	SAN FRAN STATE UNIV	NSG 2210	Seeger, C. S.	99	1266
ARC	Oyama, J.	SAN FRAN STATE UNIV	NSG 2281	Kakihana, R.	59	1267
ARC	Daunton, N. G.	SAN JOSE STATE UNIV	NCA 2-675801	Fox, R. A.	61	1269
ARC	Daunton, N. G.	SAN JOSE STATE UNIV	NCA 2-675808	Banks, P. M.	61	1270
ARC	Whitten, R. C.	SAN JOSE STATE UNIV	NCA 2-675809	Riegel, C. A.	31	1271
ARC	Oyama, V. I.	SAN JOSE STATE UNIV	NCA 2-675810	Ling, A. C.	12	1272
ARC	Chyu, W. J.	SAN JOSE STATE UNIV	NCA 2-675901	Mitchem, J.	22	1273
ARC	DuVal, R. W.	SAN JOSE STATE UNIV	NCA 2-675902	Wang, J. C.	46	1274
ARC	Winget, C. M.	SAN JOSE STATE UNIV	NCA 2-675903	Holley, D. C.	51	1275
ARC	Webbon, B. W.	SAN JOSE STATE UNIV	NCA 2-675904	Kurzweil, J.	45	1276
ARC	Miquel, J.	SAN JOSE STATE UNIV	NCA 2-675906	Ballard, R. C.	51	1277
ARC	Deal, P. H.	SAN JOSE STATE UNIV	NCA 2-675907	Haight, R. D.	51	1278
ARC	Polaski, L. J.	SAN JOSE STATE UNIV	NCA 2-675908	Goodman, J. K.	12	1279
ARC	Klein, H. P.	SAN JOSE STATE UNIV	NCA 2-675910	Weaver, E. C.	51	1280
ARC	Pollack, J. B.	SAN JOSE STATE UNIV	NCC 2 2	Riegel, C. A.	31	1281
ARC	Riccitiello, S. R.	SAN JOSE STATE UNIV	NCC 2 3	Anderson, R. N.	47	1282
ARC	Cagliostro, D. E.	SAN JOSE STATE UNIV	NCC 2 4	Ballard, R. C.	12	1283
ARC	San, P. R.	SAN JOSE STATE UNIV	NCC 2 5	Bornstein, R. D.	31	1284
ARC	Wydeven, T. J.	SAN JOSE STATE UNIV	NCC 2 8	Spitze, L. A.	12	1285
ARC	Klein, H. P.	SAN JOSE STATE UNIV	NCC 2 14	Neptune, J. A.	54	1286
ARC	Young, R. E.	SAN JOSE STATE UNIV	NCC 2 17	Riegel, C. A.	31	1287
ARC	Wydeven, T. J.	SAN JOSE STATE UNIV	NGR 05-046-011	Spitze, L. A.	12	1288
ARC	Whitten, R. C.	SAN JOSE STATE UNIV	NSG 2130	Riegel, C. A.	31	1289
ARC	Rosser, R. W.	SAN JOSE STATE UNIV	NSG 2186	Hyer, M. W.	12	1290
ARC	Fohlen, G. M.	SAN JOSE STATE UNIV	NSG 2209	Ling, A. C.	12	1291
ARC	Dalton, B. P.	SAN JOSE STATE UNIV	NSG 2213	Ballard, R. C.	59	1292
ARC	Wrigley, R. C.	SAN JOSE STATE UNIV	NSG 2239	Broenkow, W. W.	33	1293
ARC	Stewart, J. D.	SAN JOSE STATE UNIV	NSG 2269	Clark, B.	69	1294
ARC	Heimbuch, A. H.	SAN JOSE STATE UNIV	NSG 2274	Hsu, M. T.	12	1295
ARC	Nishioka, K.	SAN JOSE STATE UNIV	NSG 2305	Ling, A. C.	39	1296
ARC	Mansfield, J. A.	SAN JOSE STATE UNIV	NSG 2307	Holmstrom, F.	46	1297
ARC	Hoeller, F. H.	SAN JOSE STATE UNIV	NSG 2315	Mayer, L. A.	31	1298
ARC	Fish, R. H.	SAN JOSE STATE UNIV	NSG 2332	Anderson, R. N.	47	1299
ARC	Suri, K. P.	SAN JOSE STATE UNIV	NSG 2339	Fox, R. A.	61	1300



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ARC	Golub, M. A.	SAN JOSE STATE UNIV	NSG 2353	Ling, A. C.	12	1301
ARC	Wydeven, T. J.	SAN JOSE STATE UNIV	NSG 2355	Sree Horsha, K. S.	12	1302
ARC	Fish, R. H.	SAN JOSE STATE UNIV	NSG 2371	Mayer, L. A.	12	1303
ARC	Johnson, R. D.	SAN JOSE STATE UNIV	NSG 2398	Funk, G. A.	39	1304
ARC	Marvin, J. G.	SOUTHERN METHODIST U	NSG 2354	Simpson, R. L.	42	3567
ARC	Sandler, H.	SO UNIV-BATON ROUGE	NSG 2041	Ray, G.	59	2281
ARC	Barnett, R. M.	STANFORD UNIVERSITY	NAS 2-8898	Pederson, C. A.	75	1306
ARC	Lomax, H.	STANFORD UNIVERSITY	NCA 2-745001	Shevell, R. S.	41	1324
ARC	Holton, E. M.	STANFORD UNIVERSITY	NCA 2-745709	Feldman, D.	56	1325
ARC	Holton, E. M.	STANFORD UNIVERSITY	NCA 2-745802	Feldman, D.	56	1326
ARC	Whiting, E. E.	STANFORD UNIVERSITY	NCA 2-745803	Spicer, W. E.	47	1327
ARC	Poppa, H. R.	STANFORD UNIVERSITY	NCA 2-745901	Heinemann, K. H.	47	1328
ARC	Lawless, J. G.	STANFORD UNIVERSITY	NCA 2-745902	Loew, G. H.	59	1329
ARC	Romiez, M. P.	STANFORD UNIVERSITY	NCA 2-745903	VanCleemput, W. M.	21	1330
ARC	MacElroy, R. D.	STANFORD UNIVERSITY	NCA 2-745905	Loew, G. H.	51	1331
ARC	Leonard, A.	STANFORD UNIVERSITY	NCA 2-745906	Buneman, O.	45	1332
ARC	Silverman, M. P.	STANFORD UNIVERSITY	NCA 2-745907	Young, L. Y.	59	1333
ARC	Poppa, H. R.	STANFORD UNIVERSITY	NCA 2-745908	Boudart, M.	43	1334
ARC	Lomax, H.	STANFORD UNIVERSITY	NCA 2-745909	VanDyke, M. D.	21	1335
ARC	Hofman, L. B.	STANFORD UNIVERSITY	NCA 2-745910	Peterson, A. M.	39	1336
ARC	Goldwater, D.	STANFORD UNIVERSITY	NCA 2-745911	Debusk, R. F.	51	1337
ARC	Lomax, H.	STANFORD UNIVERSITY	NCA 2-745912	Golub, G. H.	21	1338
ARC	Sandler, H.	STANFORD UNIVERSITY	NCC 2 1	Popp, R.	56	1339
ARC	Park, C. G.	STANFORD UNIVERSITY	NCC 2 10	Bershader, D.	42	1340
ARC	Hickey, D. H.	STANFORD UNIVERSITY	NCC 2 13	Karamcheti, K.	41	1341
ARC	Rubetin, M. W.	STANFORD UNIVERSITY	NCC 2 15	Reynolds, W. C.	19	1342
ARC	Hickey, D. H.	STANFORD UNIVERSITY	NCC 2 18	Karamcheti, K.	41	1343
ARC	Carr, L. W.	STANFORD UNIVERSITY	NCC 2 21	Reynolds, W. C.	41	1344
ARC	Erzberger, H.	STANFORD UNIVERSITY	NGL 05-020-007	Bryson, A. E., Jr.	49	1345
ARC	Sandler, H.	STANFORD UNIVERSITY	NGL 05-020-305	Harrison, D. C.	56	1352
ARC	Mehler, W. R.	STANFORD UNIVERSITY	NGR 05-020-435	Chow, K. L.	59	1356
ARC	Keil, L. C.	STANFORD UNIVERSITY	NGR 05-020-456	Luetscher, J. A.	56	1358
ARC	Sandler, H.	STANFORD UNIVERSITY	NGR 05-020-615	Meindl, J. D.	56	1360
ARC	Rubetin, M. W.	STANFORD UNIVERSITY	NGR 05-020-622	Reynolds, W. C.	47	1361
ARC	Sandler, H.	STANFORD UNIVERSITY	NGR 05-020-634	Harrison, D. C.	56	1362
ARC	Carle, G. C.	STANFORD UNIVERSITY	NGR 05-020-690	Angell, J.	56	1365
ARC	Goldstein, H. E.	STANFORD UNIVERSITY	NGR 05-020-710	Bates, C. W.	46	1366
ARC	Snyder, C. T.	STANFORD UNIVERSITY	NSG 2007	Karamcheti, K.	19	1371
ARC	Howe, J. T.	STANFORD UNIVERSITY	NSG 2085	Rana, D. S.	42	1372
ARC	Young, D. R.	STANFORD UNIVERSITY	NSG 2092	Steele, C. R.	56	1373
ARC	Franklin, J. A.	STANFORD UNIVERSITY	NSG 2100	Debra, D. B.	41	1374
ARC	Billingham, J.	STANFORD UNIVERSITY	NSG 2121	Peterson, A. M.	49	1375
ARC	Galloway, T. L.	STANFORD UNIVERSITY	NSG 2190	Shevell, R. S.	41	1376
ARC	Belsley, S. E.	STANFORD UNIVERSITY	NSG 2203	Dajani, J. R.	41	1377
ARC	Hickey, D. H.	STANFORD UNIVERSITY	NSG 2215	Karamcheti, K.	41	1378
ARC	Davis, S. S.	STANFORD UNIVERSITY	NSG 2233	Karamcheti, K.	41	1379
ARC	Lorell, K. R.	STANFORD UNIVERSITY	NSG 2246	Powell, J. D.	49	1380
ARC	Whiting, E. E.	STANFORD UNIVERSITY	NSG 2249	Heinemann, K. H.	13	1381
ARC	Stallcop, J. R.	STANFORD UNIVERSITY	NSG 2251	Pound, G. M.	47	1382
ARC	Schmitz, F. H.	STANFORD UNIVERSITY	NSG 2254	Karamcheti, K.	39	1382
ARC	McCroskey, W. J.	STANFORD UNIVERSITY	NSG 2258	Reynolds, W. C.	41	1384
ARC	Whiting, E. E.	STANFORD UNIVERSITY	NSG 2285	Heinemann, K. H.	13	1385
ARC	McKenzie, R. L.	STANFORD UNIVERSITY	NSG 2289	Byer, R. L.	13	1386
ARC	Billman, K. W.	STANFORD UNIVERSITY	NSG 2292	Pantell, R. H.	13	1387
ARC	Sandler, H.	STANFORD UNIVERSITY	NSG 2294	Harrison, D. C.	56	1388
ARC	Nagel, D. C.	STANFORD UNIVERSITY	NSG 2297	Karamcheti, K.	41	1389
ARC	Chapman, G.	STANFORD UNIVERSITY	NSG 2308	Karamcheti, K.	41	1390
ARC	Fewell, L. L.	STANFORD UNIVERSITY	NSG 2346	Baytes, C. W.	46	1391

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ARC	Ciffone, D. L.	STANFORD UNIVERSITY	NSG 2359	Ashley, H.	41	1392
ARC	Tauber, M.	STANFORD UNIVERSITY	NSG 2370	Karamcheti, K.	41	1393
ARC	Chackerian, C., Jr.	STANFORD UNIVERSITY	NSG 2372	Byer, R. I.	13	1394
ARC	Chapman, G. T.	STANFORD UNIVERSITY	NSG 2392	Cantwell, B.	41	1395
ARC	Mosher, M.	STANFORD UNIVERSITY	NSG 2393	Karamcheti, K.	69	1396
ARC	Franklin, J. A.	STANFORD UNIVERSITY	NSG 2400	Debra, D. B.	41	1397
ARC	Page, W. A.	STATE UNIV NY-ALBANY	NSG 2386	Lazrus, A. L.	31	3053
ARC	Souza, K. A.	STATE U NY-STONY BRK	NAS 2-10150	Krikorian, A. D.	51	3065
ARC	Boese, R. W.	STATE U NY-STONY BRK	NCA 2-760801	Boudart, M.	19	3067
ARC	Chang, S.	STATE U NY-STONY BRK	NCA 2-760901	Owen, T.	12	3068
ARC	Leon, H. A.	ST U NY-UPST MED CTR	NCA 2-765801	Landaw, S. A.	56	3090
ARC	Goldwater, D.	SWARTHMORE COLLEGE	NCA 2-769901	Aburdene, M. F.	56	3421
ARC	Whitten, R. C.	TALLADEGA COLLEGE	NSG 2217	Morrison, R. A.	13	1028
ARC	Gambucci, B. J.	TEXAS A&M UNIVERSITY	NAS 2-10272	Brusse, J. C.	41	3568
ARC	Wong, J. T.	TEXAS A&M UNIVERSITY	NSG 2226	Phillips, D. T.	41	3597
ARC	Holton, E. M.	TEXAS TECH UNIV	NSG 2137	Kenny, A. D.	56	3608
ARC	Palmer, F. A.	TUFTS UNIVERSITY	NCA 2-785801	Chechile, R. A.	69	2609
ARC	Wempe, T. E.	TUFTS UNIVERSITY	NSG 2156	Kreifeldt, J. G.	99	2610
ARC	MacElroy, R. D.	TULANE UNIVERSITY	NCA 2-800801	Johnson, E. J.	51	2286
ARC	Mehler, W. R.	TULANE UNIVERSITY	NSG 2139	Brizzee, K. R.	59	2287
ARC	Philpott, D. E.	TUSKEGEE INSTITUTE	NCC 2 12	Sapp, W. J.	54	1030
ARC	Lumb, D. R.	UNIV ALASKA-FAIRBNKS	NCA 2-20901	Krebs, P. V.	39	1062
ARC	Hall, C. F.	UNIV OF ARIZONA	NAS 2-6265	Gehrels, A. M.	11	1092
ARC	Hall, C. F.	UNIV OF ARIZONA	NAS 2-9486	Tomasko, M. G.	11	1093
ARC	Hall, C. F.	UNIV OF ARIZONA	NAS 2-9487	Barnes, C. H., Jr.	31	1094
ARC	Hall, C. F.	UNIV OF ARIZONA	NAS 2-10089	Baker, L. R.	22	1095
ARC	McCraith, C. R.	UNIV OF ARIZONA	NAS 2-10227	Piekie, G. H.	11	1096
ARC	Haughney, L. C.	UNIV OF ARIZONA	NGR 03-002-332	Larson, H. P.	11	1120
ARC	Haughney, L. C.	UNIV OF ARIZONA	NGR 03-002-390	Harvey, P. M.	11	1124
ARC	Ballhaus, W. F.	UNIV OF ARIZONA	NSG 2112	Seebass, A. R.	41	1125
ARC	Black, D. C.	UNIV OF ARIZONA	NSG 2205	Serkowski, K. M.	11	1126
ARC	Murphy, J. P.	UNIV OF ARIZONA	NSG 2349	Fink, U. W.	31	1127
ARC	Mandel, A. D.	UNIV OF ARIZONA	NSG 2381	Meinke, W. J.	56	1128
ARC	Regent, B.	UNIV ARKANSAS-FAYETV	NGL 04-001-007	Broecker, W. S.	41	1165
ARC	Altman, R. L.	UNIV CALIF-BERKELEY	NCA 2-50001	Goren, S. L.	12	1428
ARC	Linlor, W. I.	UNIV CALIF-BERKELEY	NCA 2-50704	Angelakos, D. J.	39	1429
ARC	Poppa, H. R.	UNIV CALIF-BERKELEY	NCA 2-50705	Angelakos, D. J.	13	1430
ARC	MacElroy, R. D.	UNIV CALIF-BERKELEY	NCA 2-50710	Spear, R.	59	1431
ARC	Lanyi, J. K.	UNIV CALIF-BERKELEY	NCA 2-50801	Packer, L.	51	1432
ARC	Cowings, P. S.	UNIV CALIF-BERKELEY	NCA 2-50803	Strohman, R. C.	61	1433
ARC	Lomax, H.	UNIV CALIF-BERKELEY	NCA 2-50901	Miller, K.	21	1434
ARC	Norman, S. M.	UNIV CALIF-BERKELEY	NCA 2-50903	Colwell, R. N.	39	1435
ARC	Erickson, E. F.	UNIV CALIF-BERKELEY	NCA 2-50904	Silk, J. I.	11	1436
ARC	Altman, R. L.	UNIV CALIF-BERKELEY	NCA 2-50905	Williams, M. C.	12	1437
ARC	Lee, G.	UNIV CALIF-BERKELEY	NGR 05-003-451	Holt, M.	41	1448
ARC	Tanner, T. A.	UNIV CALIF-BERKELEY	NGR 05-003-471	LaPorte, T. R.	79	1451
ARC	Haughney, L. C.	UNIV CALIF-BERKELEY	NGR 05-003-511	Townes, C. H.	11	1452
ARC	Williams, L. J.	UNIV CALIF-BERKELEY	NSG 2127	Kanafani, A.	41	1457
ARC	Billman, K. W.	UNIV CALIF-BERKELEY	NSG 2151	Gustafson, K. T.	13	1458
ARC	Bauer, E.	UNIV CALIF-BERKELEY	NSG 2207	Colwell, R. N.	39	1459
ARC	Stull, M. A.	UNIV CALIF-BERKELEY	NSG 2271	Welch, W. J.	59	1460
ARC	Haughney, L. C.	UNIV CALIF-BERKELEY	NSG 2344	Smoot, G. F.	11	1461
ARC	Hansen, C. F.	UNIV CALIF-DAVIS	NAS 2-10258	Fong, C. Y.	13	1482
ARC	Greenleaf, J. E.	UNIV CALIF-DAVIS	NCA 2-180703	Rizza, J. P.	56	1485
ARC	Connors, M. M.	UNIV CALIF-DAVIS	NCA 2-180803	Harrison, A. A.	79	1486
ARC	Millard, J. P.	UNIV CALIF-DAVIS	NCA 2-180901	Hatfield, J. L.	31	1487
ARC	Pollack, J. B.	UNIV CALIF-DAVIS	NCA 2-180903	White, B. R.	46	1488
ARC	Winget, C. M.	UNIV CALIF-DAVIS	NCA 2-180905	Chapman, L. F.	51	1489

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ARC	Cagliostro, D. E.	UNIV CALIF-DAVIS	NCC 2 20	Needles, H. L.	12	1490
ARC	Marvin, J. G.	UNIV CALIF-DAVIS	NSG 2256	Launder, B.	41	1491
ARC	Arnold, J. O.	UNIV CALIF-DAVIS	NSG 2383	Fong, C. Y.	13	1492
ARC	Merek, E. L.	UNIV CALIF-DAVIS	NSG 2406	Huffaker, R. C.	51	1493
ARC	Glazer, J. H.	HASTINGS COL OF LAW	NCA 2-280801	Wolcott, T.	99	1257
ARC	Mandel, A. D.	UNIV CALIF-IRVINE	NGR 05-041-012	Tilles, J. G.	56	1497
ARC	Hall, C. F.	UNIV CALIF-L ANGELES	NAS 2-9128	Kaula, W. H.	11	1501
ARC	Hall, C. F.	UNIV CALIF-L ANGELES	NAS 2-9131	Schubert, G.	11	1502
ARC	Hall, C. F.	UNIV CALIF-L ANGELES	NAS 2-9491	Russell, C. T.	31	1503
ARC	Ellis, S.	UNIV CALIF-L ANGELES	NCA 2-390801	Parlow, A.	61	1510
ARC	Goldstein, H. E.	UNIV CALIF-L ANGELES	NCA 2-390803	MacKenzie, J. D.	47	1511
ARC	Goldstein, H. E.	UNIV CALIF-L ANGELES	NCA 2-390901	Ono, K.	47	1512
ARC	Altman, R. L.	UNIV CALIF-L ANGELES	NCA 2-390903	Knuth, E. L.	12	1513
ARC	Riccitiello, S. R.	UNIV CALIF-L ANGELES	NCC 2 7	MacKenzie, J. D.	47	1514
ARC	Daunton, N. G.	UNIV CALIF-L ANGELES	NGR 05-007-418	Markham, C. H.	54	1527
ARC	Ahtye, W. F.	UNIV CALIF-L ANGELES	NSG 2290	Meecham, W. C.	41	1530
ARC	Riccitiello, S. R.	UNIV CALIF-L ANGELES	NSG 2321	MacKenzie, J. D.	19	1531
ARC	Hall, C. F.	UNIV CALIF-SAN DIEGO	NAS 2-6552	Fillius, R. W.	11	1568
ARC	Greenleaf, J. E.	UNIV CALIF-SAN DIEGO	NGL 05-009-109	West, J. B.	56	1589
ARC	Haughney, L. C.	UNIV CALIF-SAN DIEGO	NGR 05-005-055	Willner, S. P.	11	1593
ARC	Sandler, H.	UNIV CALIF-SAN DIEGO	NGR 05-009-257	Baily, N. A.	56	1597
ARC	Rubesin, M. W.	UNIV CALIF-SAN DIEGO	NSG 2376	Rosenblatt, M.	19	1601
ARC	Souza, K. A.	UNIV CALIF-SAN FRAN	NAS 2-10162	Arnaud, C. D.	51	1624
ARC	Souza, K. A.	UNIV CALIF-SAN FRAN	NAS 2-10164	Arnaud, C. D.	51	1625
ARC	Souza, K. A.	UNIV CALIF-SAN FRAN	NAS 2-10350	Cann, C. E.	59	1626
ARC	Feller, D. D.	UNIV CALIF-SAN FRAN	NCA 2-665801	Searle, G. L.	59	1628
ARC	Mehler, W. R.	UNIV CALIF-SAN FRAN	NCA 2-665802	Snyder, R. L.	51	1629
ARC	Callahan, P. X.	UNIV CALIF-SAN FRAN	NCA 2-665803	Asling, C. W.	56	1630
ARC	Keil, L. C.	UNIV CALIF-SAN FRAN	NCA 2-665806	Dallman, M. F.	59	1631
ARC	Keil, L. C.	UNIV CALIF-SAN FRAN	NCA 2-665807	Ramsay, D. J.	56	1632
ARC	Cowings, P. S.	UNIV CALIF-SAN FRAN	NCA 2-665810	Kamiya, J.	61	1633
ARC	Ellis, S.	UNIV CALIF-SAN FRAN	NCA 2-665901	Riley, D. A.	51	1634
ARC	Holton, E. M.	UNIV CALIF-SAN FRAN	NCA 2-665902	Arnaud, C. D.	51	1635
ARC	Ellis, S.	UNIV CALIF-SAN FRAN	NCA 2-665903	Riley, D. A.	51	1636
ARC	Cowings, P. S.	UNIV CALIF-SAN FRAN	NCA 2-665904	Kamiya, J.	69	1637
ARC	Sandler, H.	UNIV CALIF-SAN FRAN	NCA 2-665905	Glantz, S. A.	56	1638
ARC	Cassen, P.	UNIV CALIF-S BARBARA	NCA 2-680805	Glantz, S. A.	13	1641
ARC	Norman, S. M.	UNIV CALIF-S BARBARA	NCA 2-680901	Estes, J. E.	39	1642
ARC	Norman, S. M.	UNIV CALIF-S BARBARA	NCA 2-680902	Estes, J. E.	39	1643
ARC	Jones, H.	UNIV CALIF-S BARBARA	NCA 2-680903	Estes, J. E.	39	1644
ARC	Brooks, W. F.	UNIV CALIF-S BARBARA	NCC 2 11	Vanyo, J. P.	13	1645
ARC	Nelson, H. G.	UNIV CALIF-S BARBARA	NSG 2222	Shanabarger, M. R.	47	1649
ARC	Jones, H.	UNIV CALIF-S BARBARA	NSG 2358	Estes, J. E.	39	1650
ARC	Peterson, D.	UNIV CALIF-S BARBARA	NSG 2377	Estes, J. E.	39	1651
ARC	Hall, C. F.	UNIV OF CHICAGO	NAS 2-6551	Simpson, J. A.	11	2074
ARC	Erickson, E. F.	UNIV OF CHICAGO	NCA 2-108901	Harper, D. A., Jr.	11	2080
ARC	Smith, B. F.	UNIV OF CHICAGO	NCA 2-108902	Miller, R. H.	11	2081
ARC	Daunton, N. G.	UNIV OF CHICAGO	NGR 14-001-225	Goldberg, J. M.	51	2094
ARC	Haughney, L. C.	UNIV OF CHICAGO	NGR 14-001-227	Harper, D. A., Jr.	11	2095
ARC	Erzberger, H.	UNIV OF CINCINNATI	NCA 2-130801	Slater, G. L.	41	3246
ARC	Rakich, J. V.	UNIV OF CINCINNATI	NCA 2-130901	Davis, R. T.	41	3247
ARC	Hall, C. F.	UNIV COLORADO-BOLDR	NAS 2-9477	Stewart, I. A.	19	1741
ARC	Whitten, R. C.	UNIV COLORADO-BOLDR	NSG 2248	Castleman, A. W.	12	1762
ARC	Kourtides, D. A.	UNIV OF DAYTON	NSG 2373	Salyer, I. O.	12	3267
ARC	Kourtides, D. A.	UNIV OF DAYTON	NSG 2374	Salyer, I. O.	12	3268
ARC	Munoz, R. M.	UNIV OF DENVER	NAS 2-10158	Murcraay, D. G.	31	1797
ARC	Valero, F. P.	UNIV OF DENVER	NCA 2-205901	Bonomo, F.	12	1802
ARC	Wilhelmi, A. J.	UNIV OF FLORIDA	NAS 2-9976	Lanzerotti, L. J.	31	1926

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ARC	Malcolm, G. N.	UNIV OF FLORIDA	NSG 2120	Clarkson, M. H.	41	1944
ARC	Aoyagi, K.	UNIV OF FLORIDA	NSG 2288	Fearn, R. L.	41	1945
ARC	Tremor, J. W.	UNIV HOUSTON-HOUSTON	NAS 2-10087	Cowles, J. R.	59	3610
ARC	Uiegas, J. R.	UNIV HOUSTON-HOUSTON	NSG 2337	Hussain, A. K.	47	3625
ARC	Rosser, R. W.	UNIV OF IDAHO	NSG 2367	Korus, R. A.	12	2058
ARC	Pollack, J. B.	UNIV ILLINOIS-CHICGO	NCA 2-330901	Cogley, A. C.	49	2109
ARC	Palmer, E. A.	UNIV ILLINOIS-URBANA	NSG 2119	Rouse, W. B.	99	2124
ARC	Hall, C. F.	UNIV OF IOWA	NAS 2-6553	VanAllen, J. A.	11	2200
ARC	Marvin, J. G.	UNIV OF IOWA	NSG 2300	Ramaprian, B. R.	41	2214
ARC	Stallcop, J. R.	UNIV OF IOWA	NSG 2327	Swalley, W. C.	13	2215
ARC	Sandler, H.	UNIV OF KENTUCKY	NSG 2318	Knapp, C. F.	56	2262
ARC	Mandel, A. D.	UNIV OF LOUISVILLE	NCA 2-400901	Sonnenfeld, G.	56	2265
ARC	Holton, E. M.	UNIV OF LOUISVILLE	NSG 2325	Musacchia, X. J.	51	2266
ARC	Mandel, A. D.	UNIV MARYLAND-COL PK	NCA 2-420901	Goldsby, R. A.	12	2353
ARC	Giver, L. P.	UNIV MARYLAND-COL PK	NCA 2-420902	Khanna, R. K.	12	2354
ARC	Mandel, A. D.	UNIV MARYLAND-COL PK	NSG 2378	Goldsby, R. A.	56	2383
ARC	Hall, C. F.	UNIV OF MASS AMHERST	NAS 2-9129	McGill, G. E.	11	2612
ARC	Miquel, J.	UNIV OF MIAMI	NCA 2-438801	Ono, K.	51	1958
ARC	Hall, C. F.	UNIV MICH-ANN ARBOR	NAS 2-9126	Donahue, T. M.	11	2631
ARC	Hall, C. F.	UNIV MICH-ANN ARBOR	NAS 2-9130	Nagy, A. F.	11	2632
ARC	Feistel, T. W.	UNIV MICH-ANN ARBOR	NSG 2018	Kroeger, R. A.	41	2672
ARC	Anderson, S. B.	UNIV MICH-ANN ARBOR	NSG 2113	Kroeger, R. A.	41	2673
ARC	Fish, R. H.	UNIV MICH-ANN ARBOR	NSG 2333	Springer, G. S.	49	2674
ARC	Hall, C. F.	U MINN-MNPLS-ST PAUL	NAS 2-8812	Nier, A. O.	31	2697
ARC	Webbon, B. W.	UNIV MO-COLUMBIA	NCA 2-450802	Miles, J. B.	46	2760
ARC	Quattrone, P. D.	UNIV MO-COLUMBIA	NSG 2193	Winnick, J.	59	2762
ARC	Coe, C. F.	UNIV MO-ROLLA	NCA 2-450801	Cronin, D. L.	41	2766
ARC	Shockey, G. A.	UNIV MO-ROLLA	NSG 2375	Selberg, B. P.	41	2769
ARC	Johnson, R. D.	UNIV NEVADA-DRI	NCC 2 6	Hall, M. R.	59	2807
ARC	Davis, S. S.	UNIV NEVADA-L VEGAS	NSG 2140	Fromme, J. A.	41	2808
ARC	Presley, L. L.	UNIV OF NEVADA-RENO	NSG 2291	Rose, W. C.	41	2811
ARC	Johnson, D. A.	UNIV OF NEVADA-RENO	NSG 2395	Rose, W. C.	41	2812
ARC	MacElroy, R. D.	UNIV NEW HAMP-DURHAM	NCA 2-512901	Moore, B.	21	2824
ARC	Curry, R. E.	UNIV N CAR-GRNSBORO	NSG 2390	Regan, J. E.	69	3138
ARC	Doolin, B. F.	UNIV OF NOTRE DAME	NSG 2388	Sain, M. K.	49	2177
ARC	Sandler, H.	U OKLA-HLTH SCI CTR	NSG 2282	Stone, H. L.	56	3307
ARC	Sandler, H.	UNIV OKLAHOMA-NORMAN	NCA 2-580901	Stone, H. L.	51	3312
ARC	Wright, R. H.	UNIV OREGON-EUGENE	NCA 2-587801	Murray, R. J.	69	3330
ARC	Hansen, C. F.	UNIV OF PENNSYLVANIA	NAS 2-10070	Rabii, S.	13	3423
ARC	Daunton, N. G.	UNIV OF PITTSBURGH	NCA 2-592901	Tomko, D. L.	51	3435
ARC	Black, D. C.	UNIV OF PITTSBURGH	NSG 2117	Goglia, G. L.	11	3441
ARC	Cooper, D. M.	UNIV OF PITTSBURGH	NSG 2407	Jordan, K. D.	13	3442
ARC	Stallcop, J. R.	UNIV OF ROCHESTER	NSG 2198	George, T. F.	13	3097
ARC	Haughney, L. C.	UNIV OF ROCHESTER	NSG 2343	Pipher, J. L.	11	3098
ARC	Souza, K. A.	UNIV SAN FRANCISCO	NAS 2-9504	Benton, E. V.	13	1663
ARC	Philpott, D. E.	UNIV SAN FRANCISCO	NAS 2-9845	Benton, E. V.	59	1664
ARC	Souza, K. A.	UNIV SAN FRANCISCO	NAS 2-10161	Benton, E. V.	59	1665
ARC	Young, D. R.	UNIV SAN FRANCISCO	NCA 2-670902	Furst, A.	51	1669
ARC	Miquel, J.	UNIV SAN FRANCISCO	NSG 2063	Benton, E. V.	51	1670
ARC	Kraft, L. M.	UNIV SAN FRANCISCO	NSG 2304	Benton, E. V.	51	1671
ARC	Greenleaf, J. E.	UNIV OF SANTA CLARA	NAS 2-9967	Pefley, R. K.	59	1672
ARC	Connors, M. M.	UNIV OF SANTA CLARA	NCA 2-685805	Akins, F.	62	1673
ARC	Chang, S.	UNIV OF SANTA CLARA	NCA 2-685806	White, D. H.	12	1674
ARC	Hochstein, L. I.	UNIV OF SANTA CLARA	NCA 2-685808	Tomlinson, G. A.	51	1675
ARC	Grindeland, R.	UNIV OF SANTA CLARA	NCA 2-685812	Fast, T.	51	1676
ARC	Mandel, A. D.	UNIV OF SANTA CLARA	NCA 2-685813	Caren, L. D.	51	1677
ARC	Lawless, J. G.	UNIV OF SANTA CLARA	NCA 2-685903	Sweeney, M. A.	12	1678
ARC	Knauer, S. C.	UNIV OF SANTA CLARA	NCA 2-685905	Danielson, R. L.	22	1679

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ARC	Whitten, R. C.	UNIV OF SANTA CLARA	NCA 2-685906	McCormick, P. T.	13	1680
ARC	Hofman, L. B.	UNIV OF SANTA CLARA	NCA 2-685907	Danielson, R. L.	21	1681
ARC	Erickson, E. F.	UNIV OF SANTA CLARA	NCA 2-685908	Fraser, G.	11	1682
ARC	Dyal, P.	UNIV OF SANTA CLARA	NCA 2-685909	Barker, W. A.	11	1683
ARC	Lomax, H.	UNIV OF SANTA CLARA	NCC 2 16	Vinokur, M.	41	1684
ARC	Oberbeck, V. R.	UNIV OF SANTA CLARA	NSG 2275	Aggarwal, H. R.	32	1686
ARC	Margozzi, A. P.	UNIV OF SANTA CLARA	NSG 2286	Greeley, R.	99	1687
ARC	Hall, C. F.	UNIV OF SOUTHERN CAL	NAS 2-6553	Judge, D. L.	11	1689
ARC	Hall, C. F.	UNIV OF SOUTHERN CAL	NAS 2-7969	Intriligator, D. S.	11	1690
ARC	Hall, C. F.	UNIV OF SOUTHERN CAL	NAS 2-9478	Intriligator, D. S.	11	1691
ARC	Jaffee, R. L.	UNIV OF SOUTHERN CAL	NSG 2351	Segal, G. A.		1700
ARC	Hruby, R. J.	UNIV STHN COLORADO	NSG 2048	Jenkins, R.		311
ARC	Steinle, F. W., Jr.	UNIV TENNESSEE-KNOXV	NCA 2-772901	Tirres, C.		509
ARC	Steinle, F. W., Jr.	UNIV TENNESSEE-KNOXV	NSG 2379	Wu, J. M.	4	13
ARC	Patton, R. M.	UNIV TEXAS-AUSTIN	NSG 2065	Frey, J.	09	3664
ARC	Ballhaus, W. F.	UNIV TEXAS-AUSTIN	NSG 2338	Carey, G. F.	41	3665
ARC	Haughney, L. C.	UNIV TEXAS-AUSTIN	NSG 2345	Evans, N. J., II	11	3666
ARC	Hall, C. F.	UNIV TEXAS-DALLAS	NAS 2-9485	Hoffman, J. H.	31	3691
ARC	Kourtides, D. A.	UNIV OF UTAH	NAS 2-10064	Hughes, B. M.	19	3723
ARC	Souza, K. A.	UNIV OF UTAH	NAS 2-10308	Jee, W. S.	51	3724
ARC	Sharp, J. C.	UNIV OF UTAH	NSG 2350	Nielson, H. C.	61	3731
ARC	Souza, K. A.	UNIV OF VIRGINIA	NAS 2-10195	Pitts, G. C.	59	3843
ARC	Holton, E. M.	UNIV OF VIRGINIA	NSG 2225	Pitts, G. C.	51	3861
ARC	Chapman, G. T.	UNIV OF WASHINGTON	NGL 48-002-047	Childs, M. E.	41	3932
ARC	Lee, G.	UNIV OF WASHINGTON	NGR 48-002-141	Childs, M. E.	41	3933
ARC	Creer, B. Y.	UNIV OF WASHINGTON	NSG 2176	Joppa, R. G.	41	3935
ARC	Young, R. E.	UNIV OF WASHINGTON	NSG 2228	Holton, J. R.	31	3936
ARC	Corsiglia, V. R.	UNIV OF WASHINGTON	NSG 2260	Joppa, R. G.	41	3937
ARC	Pollack, J. B.	UNIV OF WASHINGTON	NSG 2362	Charlson, R. J.	31	3938
ARC	Langhoff, S. R.	UNIV OF WASHINGTON	NSG 2365	Davidson, E. R.	12	3939
ARC	Holton, E. M.	UNIV OF WASHINGTON	NSG 2385	Carter, D. R.	59	3940
ARC	Hall, C. F.	UNIV WISC-MADISON	NAS 2-9480	Suomi, D. V.	31	3969
ARC	Young, D. R.	UNIV WISC-MADISON	NAS 2-10359	Mazess, R. B.	56	3970
ARC	Holton, E. M.	UNIV WISC-MADISON	NCA 2-865701	DeLuca, H. F.	51	3988
ARC	Young, D. R.	UNIV WISC-MADISON	NGR 50-002-051	Mazess, R. B.	56	3992
ARC	Mandel, A. D.	UNIV WISC-MADISON	NSG 2104	Dick, E. C.	56	3995
ARC	Zill, L. P.	UNIV WISC-MADISON	NSG 2405	Tibbitts, T. W.	51	3996
ARC	Lowenstein, M.	UTAH STATE UNIV	NAS 2-9557	Jeppesen, H.	31	3735
ARC	Nelson, H. G.	VIRGINIA POLY INST	NSG 2038	Brinson, H. F.	47	3909
ARC	Marvin, J. G.	VIRGINIA POLY INST	NSG 2301	Pierce, F. J.	41	3910
ARC	Poppa, H. R.	WASHINGTON ST UNIV	NCA 2-840801	Dickinson, J. T.	13	3961
ARC	Poppa, H. R.	WASHINGTON ST UNIV	NCA 2-840901	Dickinson, J. T.	13	3962
ARC	Souza, K. A.	WASHINGTON UNIVERSTY	NAS 2-10177	Simmons, D.	51	2778
ARC	Young, D. R.	WAYNE STATE UNIV	NSG 2008	Orne, D.	56	2695
ARC	Daunton, N. G.	WRIGHT STATE UNIV	NCA 2-875801	Crampton, G. H.	59	3292
ARC	Winget, C. M.	XAVIER UNIV-LA	NGR 19-007-004	Ashman, P. U.	51	2292
ARC	Souza, K. A.	YALE UNIVERSITY	NAS 2-10338	Baron, R.	56	1820
ARC	Mandel, A. D.	YALE UNIVERSITY	NSG 2185	Evans, A. S.	56	1825
ARC	Cooper, D. M.	YORK UNIVERSITY	NSG 7223	Nicholls, R. W.	31	4026
ARC	McKenzie, R. L.	OREGON GRADUATE CTR	NSG 2387	Elliott, R. A.	13	3316
DFRC	Ayers, T. G.	CAL POLY ST U-S LUIS	NSG 4014	Sandlin, D. R.	41	1236
DFRC	Gee, S. W.	CAL POLY ST U-S LUIS	NSG 4020	Sandlin, D. R.	41	1237
DFRC	Gee, S. W.	CAL POLY ST U-S LUIS	NSG 4022	Sandlin, D. R.	41	1238
DFRC	Kurtenbach, F. J.	NO CAROLINA STATE U	NSG 4025	Smetana, F. O.	41	3137
DFRC	Gilyard, G. B.	OKLAHOMA STATE UNIV	NSG 4018	Swain, R. L.	41	3302
DFRC	Hliff, K. W.	OREGON STATE UNIV	NSG 4013	Ruzicka, J.	41	3325
DFRC	Berry, D. T.	PURDUE UNIVERSITY	NSG 4003	Laver, J. A.	41	2171
DFRC	Edwards, J. W.	STANFORD UNIVERSITY	NSG 4002	Debra, D. B.	41	1399

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DFRC	Ehernberger, I. J.	UNIV CALIF-L ANGELES	NSG 4001	Wurtele, M. G.	31	1536
DFRC	Edwards, J. W.	UNIV CALIF-L ANGELES	NSG 4015	Seidel, B. S.	41	1537
DFRC	Ehernberger, L. J.	UNIV CALIF-L ANGELES	NSG 4024	Wurtele, M. G.	31	1538
DFRC	Jenkins, J. M.	UNIV OF KANSAS	NSG 4008	Lenzen, K. H.	41	2244
DFRC	Edwards, J. W.	UNIV OF KANSAS	NSG 4017	Kotsabasis, A.	41	2245
DFRC	Kordes, E. E.	UNIV OF KANSAS	NSG 4019	Roskam, J.	41	2246
DFRC	Saltzman, E. J.	UNIV OF KANSAS	NSG 4021	Muirhead, V. U.	49	2247
DFRC	Saltzman, E. J.	UNIV OF KANSAS	NSG 4023	Muirhead, V. U.	49	2248
DFRC	Szalai, K. J.	UNIV OF KANSAS	NSG 4026	Kelley, G. L.	45	2249
GSFC	Grebowsky, J.	ALCORN STATE UNIV	NGR 25-012-001	Paul, M. P.	31	2729
GSFC	Spencer, N. W.	AUGSBURG COLLEGE	NSG 5285	Engelbrecht, M. J.	31	2696
GSFC	Boggess, A.	BOSTON UNIVERSITY	NAS 5-25445	Kamp, L. W.	11	2428
GSFC	Leckronz, D. S.	BOSTON UNIVERSITY	NSG 5389	Kamp, L. W.	11	2434
GSFC	Corrigan, J. P.	BOSTON UNIVERSITY	NSG 5407	Hughes, W. J.	11	2435
GSFC	Kniffen, D. A.	BOWIE STATE COLLEGE	NGR 21-027-001	Walker, R. P.	11	2295
GSFC	Lefferts, E. J.	BOWIE STATE COLLEGE	NGR 21-027-004	Srivastava, S.	21	2296
GSFC	Caruso, A. J.	BOWIE STATE COLLEGE	NGR 21-027-010	Bhatia, M. S.	13	2297
GSFC	Gross, F. C.	BOWIE STATE COLLEGE	NSG 5009	Rock, M.	12	2299
GSFC	Bailey, E.	BOWIE STATE COLLEGE	NSG 5416	Kirksey, C. H.	99	2300
GSFC	Gemmell, J. D.	CALIF INST OF TECH	NAS 5-11066	Stone, E. C.	13	1170
GSFC	Davis, M. A.	CALIF INST OF TECH	NAS 5-20721	Stone, E. C.	13	1171
GSFC	Neupert, W. M.	CALIF INST OF TECH	NAS 5-22939	Zirin, H.	11	1172
GSFC	Nelsen, E. D.	CALIF INST OF TECH	NAS 5-22965	Ingersoll, A. P.	31	1173
GSFC	Wende, C. D.	CALIF INST OF TECH	NAS 5-23315	Garmire, G. P.	11	1174
GSFC	Stouffer, C. G.	CALIF INST OF TECH	NAS 5-24339	Garmire, G. P.	13	1175
GSFC	Wende, C. D.	CALIF INST OF TECH	NAS 5-25049	Garmire, G. P.	13	1176
GSFC	White, R. A.	CALIF INST OF TECH	NAS 5-25451	Westphal, J.	11	1177
GSFC	Cohen, S. C.	CALIF INST OF TECH	NCC 5 17	Melosh, H. J.	32	1184
GSFC	Bissell, E. E.	CALIF INST OF TECH	NGR 05-002-284	Garmire, G. P.	11	1200
GSFC	Kupperian, J. E., Jr.	CALIF INST OF TECH	NSG 5197	Garmire, G. P.	11	1206
GSFC	Kupperian, J. E., Jr.	CALIF INST OF TECH	NSG 5208	Neugebauer, G.	11	1207
GSFC	Allenby, R. J.	CALIF INST OF TECH	NSG 5224	Whitcomb, J. H.	32	1208
GSFC	Boggess, A.	CALIF INST OF TECH	NSG 5243	Greenstein, J. L.	11	1209
GSFC	Boggess, A.	CALIF INST OF TECH	NSG 5244	Schmidt, M.	11	1210
GSFC	Allenby, R. J.	CALIF INST OF TECH	NSG 5267	Melosh, H. J.	32	1211
GSFC	Hansen, J. E.	CALIF INST OF TECH	NSG 5301	Yung, Y. L.	31	1212
GSFC	Donley, J. L.	CALIF INST OF TECH	NSG 5314	Zirin, H.	31	1213
GSFC	Donley, J. L.	CALIF INST OF TECH	NSG 5327	Zirin, H.	31	1214
GSFC	Boggess, A.	CALIF INST OF TECH	NSG 5369	Sargent, W. L.	11	1215
GSFC	Boggess, A.	CALIF INST OF TECH	NSG 5381	Greenstein, J. L.	11	1216
GSFC	Boggess, A.	CALIF INST OF TECH	NSG 5384	Meier, D. L.	11	1217
GSFC	Boggess, A.	CALIF INST OF TECH	NSG 5385	Green, R. F.	11	1218
GSFC	Greene, E. P.	CAL STATE U-NRTHRDGE	NAS 5-24436	Nathanson, W. I.	22	1249
GSFC	Donley, J. L.	CAL STATE U-NRTHRDGE	NSG 5324	Martin, S. F.	31	1251
GSFC	Donley, J. L.	CAL STATE U-NRTHRDGE	NSG 5330	Chapman, G. A.	31	1252
GSFC	Donley, J. L.	CAL STATE U-NRTHRDGE	NSG 5333	Chapman, G. A.	31	1253
GSFC	Ollendorf, S.	CASE WESTERN RESERVE	NAS 5-24144	Kamotani, Y.	46	3145
GSFC	Donn, B. D.	CASE WESTERN RESERVE	NSG 5392	Anderson, A. B.	12	3186
GSFC	Dennis, B. R.	CATHOLIC UNIVERSITY	NSG 5066	Wernitz, C.	13	1840
GSFC	McAvoy, N.	CATHOLIC UNIVERSITY	NSG 5111	Kelley, G. L.	13	1841
GSFC	Payne, W. A.	CATHOLIC UNIVERSITY	NSG 5173	Hunt, J. B.	12	1842
GSFC	Canuto, V.	CITY COLLEGE OF N Y	NGL 33-013-040	Erlbach, E.	11	2908
GSFC	Hansen, J. E.	CITY COLLEGE OF N Y	NGR 33-013-086	Spar, J.	31	2909
GSFC	Kahle, D. R.	CITY COLLEGE OF N Y	NSG 5013	Schilling, D. L.	45	2913
GSFC	Temkin, A.	CITY U N Y-GRAD SCHL	NSG 5334	Mittleman, M. H.	13	2914
GSFC	Rodgers, E. B.	CLEMSON UNIV-CLEMSON	NSG 5349	Centry, R. C.	31	3470
GSFC	Wexler, R.	CLEMSON UNIV-CLEMSON	NSG 5350	Centry, R. C.	31	3471
GSFC	Nelsen, E. D.	COLORADO STATE UNIV	NAS 5-22959	VonderHaar, T. H.	39	1711

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GSFC	Tucker, C. J.	COLORADO STATE UNIV	NAS 5-25081	Maxwell, E. L.	39	1712
GSFC	Toll, D.	COLORADO STATE UNIV	NAS 5-25696	Maxwell, E. L.	39	1713
GSFC	Schnetzler, C. C.	COLORADO STATE UNIV	NAS 5-25760	McIver, J. L.	31	1714
GSFC	Theon, J. S.	COLORADO STATE UNIV	NGR 06-002-098	Reiter, W. R.	31	1718
GSFC	Carpenter, L. H.	COLORADO STATE UNIV	NGR 06-002-191	Thompson, E. G.	32	1721
GSFC	Neil, E. A.	COLORADO STATE UNIV	NSG 5073	Marlatt, W. E.	31	1732
GSFC	Rodgers, E. B.	COLORADO STATE UNIV	NSG 5258	VonderHaar, T. H.	31	1733
GSFC	Arking, A.	COLORADO STATE UNIV	NSG 5259	VonderHaar, T. H.	31	1734
GSFC	Arking, A.	COLORADO STATE UNIV	NSG 5340	Reiter, E. R.	31	1735
GSFC	Heymfield, G. M.	COLORADO STATE UNIV	NSG 5341	Cotton, W. R.	31	1736
GSFC	Taylor, R. E.	COLORADO STATE UNIV	NSG 5352	Parkenson, B. W.	45	1737
GSFC	Curran, R. J.	COLORADO STATE UNIV	NSG 5357	Cox, S. K.	31	1738
GSFC	Gemmell, J. D.	COLUMBIA UNIVERSITY	NAS 5-24152	Novick, R.	11	2919
GSFC	Eiband, A. M.	COLUMBIA UNIVERSITY	NAS 5-24457	Novick, R.	11	2920
GSFC	Jennings, N.	COLUMBIA UNIVERSITY	NAS 5-25422	Yavarkovsky, J.	99	2921
GSFC	Wagner, C. A.	COLUMBIA UNIVERSITY	NCC 5 3	Watts, A. B.	32	2927
GSFC	Thaddeus, P.	COLUMBIA UNIVERSITY	NCC 5 16	Broecker, W. S.	31	2928
GSFC	Bissell, E. E.	COLUMBIA UNIVERSITY	NGR 33-008-102	Novick, R.	11	2929
GSFC	Smith, D. E.	COLUMBIA UNIVERSITY	NGR 33-008-146	Scholz, C. H.	19	2930
GSFC	Allenby, R. J.	COLUMBIA UNIVERSITY	NSG 5072	Bilham, R. G.	32	2937
GSFC	Ungar, S. G.	COLUMBIA UNIVERSITY	NSG 5080	High, C. J.	32	2938
GSFC	Thaddeus, P.	COLUMBIA UNIVERSITY	NSG 5163	Happner, W.	11	2939
GSFC	Kupperian, J. E., Jr.	COLUMBIA UNIVERSITY	NSG 5168	Hayes, D. P.	11	2940
GSFC	Kupperian, J. E., Jr.	COLUMBIA UNIVERSITY	NSG 5200	Novick, R.	11	2941
GSFC	Labovitz, M.	COLUMBIA UNIVERSITY	NSG 5222	Kuo, J. T.	32	2942
GSFC	Smith, D. E.	COLUMBIA UNIVERSITY	NSG 5273	Talwani, M.	32	2943
GSFC	Ford, F. E.	COPPIN STATE COLLEGE	NSG 5051	McDermott, P. P.	12	2301
GSFC	Conrath, B. J.	CORNELL UNIVERSITY	NAS 5-23236	Gierasch, P. J.	13	2951
GSFC	Pirraglia, J. A.	CORNELL UNIVERSITY	NAS 5-23785	Gierasch, P. J.	31	2952
GSFC	Cohen, S. C.	CORNELL UNIVERSITY	NCC 5 2	Turcotte, D. L.	11	2954
GSFC	Allenby, R. J.	CORNELL UNIVERSITY	NCC 5 4	Oliver, J.	32	2955
GSFC	Cohen, S. C.	CORNELL UNIVERSITY	NSG 5060	Turcotte, D. L.	32	2978
GSFC	Ongar, S. G.	DARTMOUTH COLLEGE	NSG 5014	Stoiber, R. E.	39	2815
GSFC	Hansen, J. E.	DARTMOUTH COLLEGE	NSG 5145	Self, S.	31	2816
GSFC	Kupperian, J. E., Jr.	DARTMOUTH COLLEGE	NSG 5348	Sonnerup, B. U.	32	2817
GSFC	Nelsen, E. D.	DREXEL UNIVERSITY	NAS 5-22946	House, F. B.	13	3347
GSFC	Ucellini, L. W.	DREXEL UNIVERSITY	NSG 5162	Kreitzberg, C.	31	3356
GSFC	Rodriguez, G. E.	DUKE UNIVERSITY	NAS 5-25351	Wilson, T. G.	45	3104
GSFC	Rodriguez, G. E.	DUKE UNIVERSITY	NGL 34-001-001	Wilson, T. G.	45	3105
GSFC	Heath, D. F.	FAIRFIELD UNIVERSITY	NCC 5 6	McElaney, J. H.	31	1813
GSFC	Heath, D. F.	FAIRFIELD UNIVERSITY	NGR 07-010-002	McElaney, J. H.	31	1814
GSFC	Heaney, J. B.	FAIRLEIGH-DICKINSON U	NAS 5-25483	Moeller, K. D.	11	2832
GSFC	Stecker, F. W.	FISK UNIVERSITY	NSG 5297	Mickens, R. E.	13	3482
GSFC	Alterescu, S.	FLORIDA A&M UNIV	NAS 5-25165	Fresh, F. A.	56	1907
GSFC	Temkin, A.	FLORIDA A&M UNIV	NSG 5307	Jones, H. W.	13	1913
GSFC	Hobbs, R. W.	GEORGE MASON UNIV	NCA 5-92	Kafotos, M.	11	3773
GSFC	Hobbs, R. W.	GEORGE MASON UNIV	NSG 5305	Kafotos, M.	11	3774
GSFC	Bogges, A.	GEORGE MASON UNIV	NSG 5371	Kafotos, M.	11	3775
GSFC	Gull, T. R.	GEORGE MASON UNIV	NSG 5403	Kafotos, M.	11	3776
GSFC	Rende, J. V.	GEORGE WASHINGTON U	NAS 5-24431	Helgert, H. J.	45	1845
GSFC	Morakis, J. C.	GEORGE WASHINGTON U	NSG 5109	Helgert, H. J.	49	1872
GSFC	LeVine, D. M.	GEORGE WASHINGTON U	NSG 5288	Lang, R. H.	45	1873
GSFC	King, J. L.	GEORGIA INST OF TECH	NAS 5-23710	Schuchardt, J. M.	45	1982
GSFC	LeVine, D. M.	GEORGIA INST OF TECH	NAS 5-24148	Wilson, C. S.	31	1983
GSFC	Slajna, E. F.	GEORGIA INST OF TECH	NAS 5-25817	Cunnold, D. M.	39	1984
GSFC	King, J. L.	GEORGIA INST OF TECH	NSG 5012	Forsythe, R. E.	45	2007
GSFC	King, J. L.	GEORGIA INST OF TECH	NSG 5082	Dees, J. W.	31	2008
GSFC	Atlas, D.	GEORGIA INST OF TECH	NSG 5220	Metcalf, J. I.	31	2009

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GSFC	Ungar, S. G.	HUNTER COLLEGE	NSG 5325	Coiner, J. C.	32	2997
GSFC	Donley, J. L.	HARVARD UNIVERSITY	NAS 5-23494	Reeves, E. M.	31	2445
GSFC	Rice, C. F.	HARVARD UNIVERSITY	NAS 5-24134	McElroy, M. B.	31	2446
GSFC	Kupperian, J. E., Jr.	HARVARD UNIVERSITY	NSG 5143	Flannery, B. P.	11	2463
GSFC	Halem, M.	HARVARD UNIVERSITY	NSG 5160	Lindzen, R. S.	31	2464
GSFC	Reed, E. I.	HARVARD UNIVERSITY	NSG 5176	Parkinson, W. H.	13	2465
GSFC	Kupperian, J. E., Jr.	HARVARD UNIVERSITY	NSG 5191	Dupree, A. K.	11	2466
GSFC	Kupperian, J. E., Jr.	HARVARD UNIVERSITY	NSG 5226	Dupree, A. K.	11	2467
GSFC	Halem, M.	HARVARD UNIVERSITY	NSG 5228	Robinson, A. R.	33	2468
GSFC	Bogges, A.	HARVARD UNIVERSITY	NSG 5229	Dupree, A. K.	11	2469
GSFC	Bogges, A.	HARVARD UNIVERSITY	NSG 5239	Dupree, A. K.	11	2470
GSFC	Kupperian, J. E., Jr.	HARVARD UNIVERSITY	NSG 5293	Dupree, A. K.	11	2471
GSFC	Kupperian, J. E., Jr.	HARVARD UNIVERSITY	NSG 5312	Dupree, A. K.	11	2472
GSFC	Bogges, A.	HARVARD UNIVERSITY	NSG 5370	Dupree, A. K.	11	2473
GSFC	Bogges, A.	HARVARD UNIVERSITY	NSG 5380	Dupree, A. K.	11	2474
GSFC	Alterescu, S.	HOWARD UNIVERSITY	NAS 5-23799	Chang, P.	56	1875
GSFC	Barrowman, J. S.	HOWARD UNIVERSITY	NAS 5-24242	McElroy, M. B.	41	1876
GSFC	Hui, P. S.	HOWARD UNIVERSITY	NAS 5-24251	Choudhury, A. K.	49	1877
GSFC	Hayes, J. M.	HOWARD UNIVERSITY	NAS 5-24422	Bords, G.	46	1878
GSFC	O'Keefe, J. A.	HOWARD UNIVERSITY	NAS 5-25185	Thorpe, A. M.	39	1879
GSFC	Chapman, J. W.	HOWARD UNIVERSITY	NCA 5-29	Cox, E. L.	49	1880
GSFC	Chapman, J. W.	HOWARD UNIVERSITY	NCA 5-91	Cox, E. L.	49	1881
GSFC	Nava, D. F.	HOWARD UNIVERSITY	NGR 09-011-057	Tsang, T.	13	1884
GSFC	Friedman, D. S.	HOWARD UNIVERSITY	NSG 5127	Fischmann, E. J.	56	1889
GSFC	Alcorn, G. E.	HOWARD UNIVERSITY	NSG 5158	Cooper, A. R.	13	1890
GSFC	O'Keefe, J. A.	HOWARD UNIVERSITY	NSG 5186	Wallace, W. J.	13	1891
GSFC	Yin, L. I.	HOWARD UNIVERSITY	NSG 5268	Ferguson, G. A.	56	1892
GSFC	Laughlin, C. R.	HOWARD UNIVERSITY	NSG 5295	Gill, T. L.	21	1893
GSFC	Taylor, R. E.	HOWARD UNIVERSITY	NSG 5336	Sennott, J. W.	45	1894
GSFC	Yin, L. I.	HOWARD UNIVERSITY	NSG 5378	Press, H. C., Jr.	56	1895
GSFC	Hobbs, R. W.	INDIANA U-BLOOMINGTN	NAS 5-22987	Burkhead, M. S.	11	2136
GSFC	Kupperian, J. E., Jr.	IOWA STATE UNIV	NSG 5199	Lamb, R. C.	11	2198
GSFC	Halem, M.	IOWA STATE UNIV	NSG 5339	Chen, T.	31	2199
GSFC	Rice, C. F.	JOHNS HOPKINS UNIV	NAS 5-11415	Doering, J. P.	31	2303
GSFC	Friedman, D. S.	JOHNS HOPKINS UNIV	NAS 5-23732	Long, D.	56	2304
GSFC	Fowler, W. S.	JOHNS HOPKINS UNIV	NAS 5-25358	Fastie, W. G.	13	2305
GSFC	Marsh, J. G.	JOHNS HOPKINS UNIV	NCC 5 1	Marsh, B. D.	32	2311
GSFC	Taylor, P. T.	JOHNS HOPKINS UNIV	NCC 5 13	Marsh, B. D.	32	2312
GSFC	Langel, R. A.	JOHNS HOPKINS UNIV	NCC 5 18	Marsh, B. D.	32	2313
GSFC	Bissell, E. E.	JOHNS HOPKINS UNIV	NGR 21-001-001	Fastie, W. G.	11	2314
GSFC	Smith, D. E.	JOHNS HOPKINS UNIV	NSG 5090	Marsh, B. D.	32	2318
GSFC	Kupperian, J. E., Jr.	JOHNS HOPKINS UNIV	NSG 5184	Moos, H. W.	11	2319
GSFC	Kupperian, J. E., Jr.	JOHNS HOPKINS UNIV	NSG 5230	Moos, H. W.	11	2320
GSFC	Bogges, A.	JOHNS HOPKINS UNIV	NSG 5255	Moos, H. W.	11	2321
GSFC	Langel, R. A.	JOHNS HOPKINS UNIV	NSG 5269	Marsh, B. D.	32	2322
GSFC	Kupperian, J. E., Jr.	JOHNS HOPKINS UNIV	NSG 5310	Moos, H. W.	11	2323
GSFC	Bogges, A.	JOHNS HOPKINS UNIV	NSG 5393	Moos, H. W.	11	2324
GSFC	Bogges, A.	LEHIGH UNIVERSITY	NSG 5386	McCluskey, G. E., Jr.	11	3372
GSFC	Alterescu, S.	LINCOLN UNIV-PA	NAS 5-23800	Frankowsky, J. W.	56	3373
GSFC	Davis, M. A.	MASS INST OF TECH	NAS 5-11062	Bridge, H. S.	13	2493
GSFC	Rice, C. F.	MASS INST OF TECH	NAS 5-11450	Clark, G. W.	11	2494
GSFC	Theon, J. S.	MASS INST OF TECH	NAS 5-21980	Staelin, D. H.	31	2495
GSFC	Heath, D. F.	MASS INST OF TECH	NAS 5-22915	Cunnold, D. M.	41	2496
GSFC	Gloersen, P.	MASS INST OF TECH	NAS 5-22929	Staelin, D. H.	41	2497
GSFC	Shiue, J. C.	MASS INST OF TECH	NAS 5-23677	Staelin, D. H.	11	2498
GSFC	Shiue, J. C.	MASS INST OF TECH	NAS 5-24139	Kong, J. A.	45	2499
GSFC	Corrigan, J. P.	MASS INST OF TECH	NAS 5-24441	Clark, G. W.	11	2500
GSFC	Nacc, D. A.	MASS INST OF TECH	NAS 5-24493	Weiss, R.	11	2501



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GSFC	Ippolitto, L.	MASS INST OF TECH	NAS 5-25091	Staelin, D. H.	45	2502
GSFC	Clark, T. C.	MASS INST OF TECH	NAS 5-25543	Burke, B. F.	11	2503
GSFC	Kostiuk, T.	MASS INST OF TECH	NAS 5-25717	Spears, D. L.	47	2504
GSFC	Mead, G. D.	MASS INST OF TECH	NCC 5 8	Molnar, P.	32	2519
GSFC	Mead, G. D.	MASS INST OF TECH	NCC 5 14	Solomon, S. C.	32	2520
GSFC	Halem, M.	MASS INST OF TECH	NGR 22-009-727	Charney, J. G.	31	2538
GSFC	Bissell, E. E.	MASS INST OF TECH	NGR 22-009-730	Rappaport, S. A.	11	2539
GSFC	Clark, T. A.	MASS INST OF TECH	NGR 22-009-839	Counselman, C. C., III	32	2542
GSFC	Hansen, J. E.	MASS INST OF TECH	NSG 5076	Rivas, F. K.	11	2583
GSFC	Hansen, J. E.	MASS INST OF TECH	NSG 5113	Stone, P. H.	31	2584
GSFC	Schaefer, D. H.	MASS INST OF TECH	NSG 5157	McClellan, J. H.	45	2585
GSFC	Halem, M.	MASS INST OF TECH	NSG 5166	Charney, J. G.	31	2586
GSFC	Smith, D. E.	MASS INST OF TECH	NSG 5253	Sclater, J. G.	32	2587
GSFC	Frey, H. V.	MASS INST OF TECH	NSG 5260	Molnar, P.	32	2588
GSFC	Halem, M.	MASS INST OF TECH	NSG 5306	Eagleson, P. S.	32	2589
GSFC	Alterescu, S.	MEHARRY MEDICAL COL	NAS 5-23801	Braun, G.	56	3486
GSFC	Kupperian, J. E., Jr.	MIDDLEBURY COLLEGE	NSG 5198	Winkler, P. F., Jr.	11	3752
GSFC	Fischel, D.	MONTGOMERY COLLEGE	NAS 5-25120	Fahey, P. P.	11	2328
GSFC	Alterescu, S.	MOREHOUSE COLLEGE	NAS 5-23571	Margolis, S.	56	2011
GSFC	Friedman, D. S.	MORGAN STATE UNIV	NAS 5-23558	Taylor, J. H.	49	2329
GSFC	Chapman, J. W.	MORGAN STATE UNIV	NAS 5-25533	Jerkins, K.	45	2330
GSFC	Mundy, J. R.	MORGAN STATE UNIV	NAS 5-25700	Proctor, N. K.	49	2331
GSFC	Baker, G. R.	MORGAN STATE UNIV	NSG 5074	Hammond, E. C., Jr.	11	2333
GSFC	Duncan, C. H.	MORGAN STATE UNIV	NSG 5401	Oliver, F. W.	31	2334
GSFC	Hobbs, R. W.	NEW MEX INST MINING	NCA 5-64	Moore, E. P.	11	2883
GSFC	Hobbs, R. W.	NEW MEX INST MINING	NCA 5-69	Moore, E. P.	11	2884
GSFC	Hobbs, R. W.	NEW MEX INST MINING	NCA 5-71	Moore, E. P.	11	2885
GSFC	Pincus, B. R.	NEW MEX ST U-LAS CR	NAS 5-24241	Lawrence, H.	49	2886
GSFC	Halem, M.	NEW YORK UNIVERSITY	NSG 5034	Isaacson, E.	31	3009
GSFC	Halem, M.	NEW YORK UNIVERSITY	NSG 5130	Isaacson, E.	31	3010
GSFC	Halem, M.	NEW YORK UNIVERSITY	NSG 5133	Hoffert, M. I.	39	3011
GSFC	Bogges, A.	NEW YORK UNIVERSITY	NSG 5411	Huggins, P. J.	11	3012
GSFC	Henry, V.	NO CAR A&T STATE U	NAS 5-24101	Williams, L. J.	45	3110
GSFC	Ramapriyan, H. K.	NO CAR A&T STATE U	NSG 5406	Alexander, W. E.	21	3115
GSFC	McAvoy, N.	N CAR CENTRAL UNIV	NSG 5120	Dutta, J. M.	13	3117
GSFC	Heppner, J. P.	NO CAROLINA STATE U	NAS 5-25751	Manring, E. R.	31	3118
GSFC	Hirschmann, E.	OHIO STATE UNIV	NAS 5-22575	Hodge, D. B.	45	3211
GSFC	Stephanides, C. C.	OHIO STATE UNIV	NAS 5-25888	Mueller, I. I.	32	3212
GSFC	Marsh, J. G.	OHIO STATE UNIV	NGR 36-008-161	Rapp, R. H.	32	3217
GSFC	Kupperian, J. E., Jr.	OHIO STATE UNIV	NSG 5141	Slettebak, A. E.	11	3235
GSFC	Bogges, A.	OHIO STATE UNIV	NSG 5247	Wing, R. F.	11	3236
GSFC	Smith, D. E.	OHIO STATE UNIV	NSG 5265	Mueller, I. I.	32	3237
GSFC	Smith, D. E.	OHIO STATE UNIV	NSG 5275	Schmidt, E. G.	32	3238
GSFC	Kupperian, J. E., Jr.	OHIO STATE UNIV	NSG 5299	Slettebak, A. E.	11	3239
GSFC	Bogges, A.	OHIO STATE UNIV	NSG 5368	Wing, R. F.	11	3240
GSFC	Fowler, W. B.	OLD DOMINION UNIV	NSG 5053	Becher, J.	19	3839
GSFC	Fowler, W. B.	OLD DOMINION UNIV	NSG 5289	Becher, J.	13	3840
GSFC	Mueller, J. L.	OREGON STATE UNIV	NAS 5-23738	Zaneveld, R. V.	39	3318
GSFC	Halem, M.	OREGON STATE UNIV	NSG 5308	Esbensen, S.	31	3326
GSFC	Adler, R. F.	OREGON STATE UNIV	NSG 5343	Decker, F. W.	31	3327
GSFC	Halem, M.	OREGON STATE UNIV	NSG 5353	Gates, W. L.	31	3328
GSFC	Alford, W. L.	PENN STATE U-UNIV PK	NAS 5-23859	McMurtry, G. J.	39	3375
GSFC	Oseroff, H.	PENN STATE U-UNIV PK	NAS 5-24264	Carlson, T. N.	31	3376
GSFC	Golden, T. S.	PENN STATE U-UNIV PK	NAS 5-24329	Feller, I. R.	99	3377
GSFC	Irons, J.	PENN STATE U-UNIV PK	NAS 5-25667	Petersen, G. W.	39	3378
GSFC	Labovitz, M.	PENN STATE U-UNIV PK	NAS 5-25702	McMurtry, G. J.	21	3379
GSFC	Allenby, R. J.	PENN STATE U-UNIV PK	NCC 5 12	Alexander, S. S.	32	3387
GSFC	Allenby, R. J.	PENN STATE U-UNIV PK	NCC 5 19	Alexander, S. S.	32	3388

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GSFC	Allenby, R. J.	PENN STATE U-UNIV PK	NSG 5185	Alexander, S. S.	32	3410
GSFC	Ucellini, L. W.	PENN STATE U-UNIV PK	NSG 5205	Anthes, R. A.	31	3411
GSFC	Spencer, N. W.	PENN STATE U-UNIV PK	NSG 5212	Nisbet, J. S.	13	3412
GSFC	Allenby, R. J.	PENN STATE U-UNIV PK	NSG 5276	Alexander, S. S.	32	3413
GSFC	Greaves, J. R.	PENN STATE U-UNIV PK	NSG 5347	Clark, J. H.	31	3414
GSFC	Pirraglia, J. A.	POLY INST OF NY	NAS 5-25076	Gross, S. H.	31	3015
GSFC	Spencer, N. W.	POLY INST OF NY	NSG 5284	Gross, S. H.	31	3024
GSFC	Wilson, L.	PRINCETON UNIVERSITY	NAS 5-22360	Jenkins, E. B.	32	2837
GSFC	Corrigan, J. P.	PRINCETON UNIVERSITY	NAS 5-23576	Spitzer, L., Jr.	11	2838
GSFC	Nace, D. A.	PRINCETON UNIVERSITY	NAS 5-24486	Wilkinson, D. T.	11	2839
GSFC	Hobbs, R. W.	PRINCETON UNIVERSITY	NAS 5-25084	Groth, E. J.	11	2840
GSFC	Boggess, A.	PRINCETON UNIVERSITY	NSG 5248	Jenkins, E. B.	11	2859
GSFC	Williams, J. T.	PRINCETON UNIVERSITY	NSG 5277	Lowrance, J. L.	13	2860
GSFC	Boggess, A.	PRINCETON UNIVERSITY	NSG 5382	York, D. G.	11	2861
GSFC	Corrigan, J. P.	PRINCETON UNIVERSITY	NSG 5415	Turners, E. L.	11	2862
GSFC	Langel, R. A.	PURDUE UNIVERSITY	NAS 5-22816	Hinze, A. J.	32	2145
GSFC	Gordon, F., Jr.	PURDUE UNIVERSITY	NAS 5-24462	Phillips, T. L.	22	2146
GSFC	Langel, R. A.	PURDUE UNIVERSITY	NAS 5-25030	Hinze, W. J.	32	2147
GSFC	Allenby, R. J.	PURDUE UNIVERSITY	NCC 5 21	Braile, L. W.	32	2154
GSFC	Gordon, F., Jr.	PURDUE UNIVERSITY	NSG 5414	Swain, P. H.	99	2172
GSFC	Taylor, H. A., Jr.	RICE UNIVERSITY	NAS 5-23338	Cloutier, P. A.	13	3542
GSFC	Teegarden, B. J.	RICE UNIVERSITY	NAS 5-25032	Haymes, R. C.	31	3543
GSFC	Spencer, N. W.	RICE UNIVERSITY	NSG 5286	Reiff, P. H.	31	3556
GSFC	Boggess, A.	RICE UNIVERSITY	NSG 5364	DuFour, R. J.	11	3557
GSFC	Kupperian, J. E., Jr.	RUTGERS U-N BRUNSWK	NSG 5195	Matilsky, T. A.	11	2875
GSFC	Halem, M.	ST U NY COL-PURCHASE	NSG 5077	Tenenbaum, J.	31	3091
GSFC	Gordon, F., Jr.	SO DAKOTA STATE UNIV	NAS 5-24206	Moore, D. G.	99	3478
GSFC	Schmugge, T. J.	SO DAKOTA STATE UNIV	NSG 5396	Heilman, J. L.	39	3481
GSFC	Davis, M. A.	STANFORD UNIVERSITY	NAS 5-20871	Helliwell, R. A.	13	1307
GSFC	Kant, S.	STANFORD UNIVERSITY	NAS 5-21960	Debra, D. B.	42	1308
GSFC	Broderick, J. C.	STANFORD UNIVERSITY	NAS 5-24232	Lyon, R. J.	32	1309
GSFC	Fellerman, K. D.	STANFORD UNIVERSITY	NAS 5-24409	Helliwell, R. A.	13	1310
GSFC	Davis, M. A.	STANFORD UNIVERSITY	NAS 5-24420	Wilcox, J. M.	13	1311
GSFC	Broderick, J. C.	STANFORD UNIVERSITY	NAS 5-24479	Rich, E. I.	32	1312
GSFC	Ostrow, H.	STANFORD UNIVERSITY	NAS 5-25043	MacOvski, A.	19	1313
GSFC	Fichtel, C.	STANFORD UNIVERSITY	NAS 5-25544	Hofstadter, R.	11	1314
GSFC	Bissell, E. E.	STANFORD UNIVERSITY	NSG 5131	Walker, A. B., Jr.	13	1400
GSFC	Halem, M.	STANFORD UNIVERSITY	NSG 5254	Spreiter, J. R.	31	1401
GSFC	Frey, H. V.	STATE UNIV NY-ALBANY	NSG 5274	Burke, K.	32	3056
GSFC	Stewart, R. W.	STATE U NY-STONY BRK	NCC 5 7	Hogan, J. S.	31	3070
GSFC	Hansen, J. E.	STATE U NY-STONY BRK	NGR 33-015-165	Owen, T.	31	3075
GSFC	Stewart, R. W.	STATE U NY-STONY BRK	NSG 5102	Hogan, J. S.	31	3079
GSFC	Kerr, A. R.	STATE U NY-STONY BRK	NSG 5125	Kao, Y. H.	11	3080
GSFC	Boggess, A.	STATE U NY-STONY BRK	NSG 5250	Caldwell, J. J.	11	3081
GSFC	Adler, R. F.	STATE U NY-STONY BRK	NSG 5271	Atlas, R. M.	31	3082
GSFC	Stonesifer, G. R.	TEX A&M UNIVERSITY	NAS 5-20796	Rouse, J. W. Jr.	59	3569
GSFC	Nelsen, E. D.	TEXAS A&M UNIVERSITY	NAS 5-22966	El-Sayed, S. Z.	41	3570
GSFC	Stonesifer, G. R.	TEXAS A&M UNIVERSITY	NAS 5-24383	Harlan, J. C.	19	3571
GSFC	Deering, D. W.	TEXAS A&M UNIVERSITY	NAS 5-25715	Haos, R. H.	39	3572
GSFC	Toll, D.	TEXAS A&M UNIVERSITY	NAS 5-25846	Miller, E. D.	55	3573
GSFC	Taylor, P. T.	TEXAS A&M UNIVERSITY	NCC 5 11	Jones, G. M.	32	3589
GSFC	Schmugge, T. J.	TEXAS A&M UNIVERSITY	NCC 5 15	Miller, L. D.	39	3590
GSFC	Chang, A. T.	TEXAS A&M UNIVERSITY	NSG 5134	Blanchard, B. J.	32	3599
GSFC	Chang, A. T.	TEXAS A&M UNIVERSITY	NSG 5156	Blanchard, B. J.	32	3600
GSFC	Schmugge, T. J.	TEXAS A&M UNIVERSITY	NSG 5193	McFarland, M. J.	31	3601
GSFC	Wang, J. R.	TEXAS A&M UNIVERSITY	NSG 5266	Newton, R. R.	39	3602
GSFC	McAvoy, N.	UNION COLLEGE	NGR 33-032-004	Galantowicz, A.	13	3095
GSFC	Spencer, N. W.	UNIV ALASKA-FAIRBNKS	NSG 5219	Rees, M. H.	13	1064

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GSFC	Wainscott, F. H.	UNIV OF ARIZONA	NAS 5-24308	Smith, B. A.	11	1097
GSFC	Sours, W. T.	UNIV OF ARIZONA	NAS 5-25484	Smith, B. A.	31	1098
GSFC	Liberatore, F. J.	UNIV OF ARIZONA	NAS 5-25733	Weymann, R. J.	11	1099
GSFC	Dunkelman, L.	UNIV OF ARIZONA	NCA 5-76	Martineck, S.	31	1107
GSFC	Donn, B.	UNIV OF ARIZONA	NCA 5-93	Martineck, S.	31	1108
GSFC	Pearl, J. C.	UNIV OF ARIZONA	NCA 5-94	Fink, U. W.	13	1109
GSFC	LeVine, D. M.	UNIV OF ARIZONA	NSG 5023	Krider, E. P.	31	1129
GSFC	Bogges, A.	UNIV OF ARIZONA	NSG 5235	Imhoff, C. L.	11	1130
GSFC	Bogges, A.	UNIV OF ARIZONA	NSG 5249	Tomasko, M. G.	11	1131
GSFC	Schmugge, T. J.	UNIV OF ARIZONA	NSC 5279	Evans, D. D.	31	1132
GSFC	McAvoy, N.	UNIV OF ARIZONA	NSG 5302	Lamb, W. E., Jr.	13	1133
GSFC	Kowalski, G. E.	UNIV CALIF-BERKELEY	NAS 5-20079	Anderson, K. A.	13	1410
GSFC	Davis, M. A.	UNIV CALIF-BERKELEY	NAS 5-20080	Mozer, F. S.	13	1411
GSFC	Gallagher, V. F.	UNIV CALIF-BERKELEY	NAS 5-20995	Heckman, H. K.	13	1412
GSFC	Davis, M. A.	UNIV CALIF-BERKELEY	NAS 5-22307	Anderson, K. A.	32	1413
GSFC	Willis, S. E.	UNIV CALIF-BERKELEY	NAS 5-24189	Bowyer, C. S.	11	1414
GSFC	Willis, S. E.	UNIV CALIF-BERKELEY	NAS 5-24445	Bowyer, C. S.	11	1415
GSFC	Nice, D. A.	UNIV CALIF-BERKELEY	NAS 5-25007	Smoot, G.	11	1416
GSFC	Hobbs, R. W.	UNIV CALIF-BERKELEY	NAS 5-25070	King, I.	11	1417
GSFC	Campbell, C. E.	UNIV CALIF-BERKELEY	NAS 5-25453	Price, P. B.	47	1418
GSFC	Porreca, G.	UNIV CALIF-BERKELEY	NAS 5-25876	Anderson, D. A.	11	1419
GSFC	Porreca, G.	UNIV CALIF-BERKELEY	NAS 5-25892	Anderson, D. A.	11	1420
GSFC	Bissell, E. E.	UNIV CALIF-BERKELEY	NGR 05-003-239	Mozer, F. S.	13	1445
GSFC	Bissell, E. E.	UNIV CALIF-BERKELEY	NGR 05-003-450	Bowyer, C. S.	11	1447
GSFC	Chang, T. C.	UNIV CALIF-BERKELEY	NSG 5093	Angelakos, D. J.	49	1464
GSFC	Kupperian, J. E., Jr.	UNIV CALIF-BERKELEY	NSG 5227	Bowyer, C. S.	11	1465
GSFC	Kim, H. H.	UNIV CALIF-BERKELEY	NSG 5256	Colwell, R. N.	33	1466
GSFC	Kupperian, J. E., Jr.	UNIV CALIF-BERKELEY	NSG 5292	Bowyer, C. S.	11	1467
GSFC	Bogges, A.	UNIV CALIF-BERKELEY	NSG 5360	Spinrad, H.	11	1468
GSFC	Nelsen, E. D.	UNIV CALIF-DAVIS	NAS 5-22964	Coulson, K. L.	13	1483
GSFC	Rango, A.	UNIV CALIF-DAVIS	NSG 5092	Algazi, V. R.	39	1494
GSFC	Davis, M. A.	UNIV CALIF-L ANGELES	NAS 5-20064	Russell, C. T.	13	1504
GSFC	Wende, C. D.	UNIV CALIF-L ANGELES	NAS 5-23702	Coleman, P. J., Jr.	39	1505
GSFC	Hoffman, R. A.	UNIV CALIF-L ANGELES	NAS 5-25039	Coroniti, F. V.	13	1506
GSFC	Liberatore, F. J.	UNIV CALIF-L ANGELES	NAS 5-25657	Jura, M. A.	11	1507
GSFC	Halem, M.	UNIV CALIF-L ANGELES	NGR 05-007-328	Arakawa, A.	31	1523
GSFC	Kupperian, J. E., Jr.	UNIV CALIF-L ANGELES	NSG 5056	Peters, C. J.	11	1539
GSFC	Kupperian, J. E., Jr.	UNIV CALIF-L ANGELES	NSG 5165	Margon, B. H.	11	1540
GSFC	Kupperian, J. E., Jr.	UNIV CALIF-L ANGELES	NSG 5169	Jura, M. A.	11	1541
GSFC	Reed, E. I.	UNIV CALIF-L ANGELES	NSG 5190	Thorne, R. M.	31	1542
GSFC	Smith, D. E.	UNIV CALIF-L ANGELES	NSG 5263	Kaula, W. M.	32	1543
GSFC	Bogges, A.	UNIV CALIF-L ANGELES	NSG 5272	Plavec, M.	11	1544
GSFC	Kupperian, J. E., Jr.	UNIV CALIF-L ANGELES	NSG 5351	Siscoe, G. L.	32	1545
GSFC	Bogges, A.	UNIV CALIF-L ANGELES	NSG 5358	Aller, L. H.	11	1546
GSFC	Bogges, A.	UNIV CALIF-L ANGELES	NSG 5377	Jura, M. A.	11	1547
GSFC	Stouffer, C. G.	UNIV CALIF-SAN DIEGO	NAS 5-22375	Tabakoff, W.	11	1571
GSFC	Bartlett, R. O.	UNIV CALIF-SAN DIEGO	NAS 5-23481	McIlwain, C. E.	11	1572
GSFC	Wende, C. D.	UNIV CALIF-SAN DIEGO	NAS 5-23705	McIlwain, C. E.	31	1573
GSFC	White, R. A.	UNIV CALIF-SAN DIEGO	NAS 5-24463	Harms, R. J.	11	1574
GSFC	Shannon, J. L.	UNIV CALIF-SAN DIEGO	NAS 5-24466	Beaver, E. A.	11	1575
GSFC	Shannon, J. L.	UNIV CALIF-SAN DIEGO	NAS 5-25054	Beaver, E. A.	11	1576
GSFC	Davis, M. A.	UNIV CALIF-SAN DIEGO	NAS 5-25448	Peterson, L. E.	13	1577
GSFC	Nelsen, E. D.	UNIV CALIF-SAN DIEGO	NAS 5-25450	Austin, R. W.	33	1578
GSFC	Smith, D. E.	UNIV CALIF-SAN DIEGO	NGR 05-009-246	Berger, J.	39	1596
GSFC	Schaefer, D. H.	UNIV CALIF-SAN DIEGO	NGR 05-009-264	Lee, S. H.	49	1598
GSFC	Donley, J. L.	UNIV CALIF-SAN DIEGO	NSG 5321	Hudson, H. S.	31	1609
GSFC	Donley, J. L.	UNIV CALIF-SAN DIEGO	NSG 5322	Hudson, H. S.	31	1610
GSFC	Kahn, W. D.	UNIV CALIF-SAN DIEGO	NSG 5331	Goodkind, J. M.	19	1611

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GSFC	Chang, A. T.	UNIV CALIF-S BARBARA	NCC 5 5	Estes, J. E.	32	1646
GSFC	Barnes, W. L.	UNIV CALIF-S BARBARA	NSG 5106	Estes, J. E.	33	1653
GSFC	Salomonson, V. V.	UNIV CALIF-S BARBARA	NSG 5155	Ozier, J. D.	32	1654
GSFC	Chang, A. T.	UNIV CALIF-S BARBARA	NSG 5170	Estes, J. E.	32	1655
GSFC	Rango, A.	UNIV CALIF-S BARBARA	NSG 5262	Dozier, J.	39	1656
GSFC	Bogges, A.	UNIV CALIF-S CRUZ	NSG 5361	Herbig, G. H.	11	1661
GSFC	Davis, M. A.	UNIV OF CHICAGO	NAS 5-11067	Simpson, J. A.	13	2075
GSFC	Gallagher, W. F.	UNIV OF CHICAGO	NAS 5-20674	Meyer, P.	13	2076
GSFC	Davis, M. A.	UNIV OF CHICAGO	NAS 5-24430	Simpson, J. A.	13	2077
GSFC	Kupperian, J. E., Jr.	UNIV OF CHICAGO	NSG 5202	Simpson, J. A.	11	2097
GSFC	Kupperian, J. E., Jr.	UNIV OF CHICAGO	NSG 5291	Simpson, J. A.	11	2098
GSFC	Kupperian, J. E., Jr.	UNIV OF CHICAGO	NSG 5311	Simpson, J. A.	11	2099
GSFC	Adler, R. F.	UNIV OF CHICAGO	NSG 5402	Srivastava, R. C.	31	2100
GSFC	Bogges, A.	UNIV OF CHICAGO	NSG 5405	Frisch, P. C.	11	2101
GSFC	Force, C. A.	UNIV OF CHILE	NAS 5-1925	Diaz, E.	99	4027
GSFC	Rice, C. F.	UNIV COLORADO-BOLDR	NAS 5-11405	Barth, C. A.	31	1742
GSFC	Gemmell, J. D.	UNIV COLORADO-BOLDR	NAS 5-22409	Barth, C. A.	31	1743
GSFC	Bogges, A.	UNIV COLORADO-BOLDR	NAS 5-22833	Conti, P. S.	11	1744
GSFC	Bogges, A.	UNIV COLORADO-BOLDR	NAS 5-23274	Linsky, J. L.	11	1745
GSFC	Rice, C. F.	UNIV COLORADO-BOLDR	NAS 5-23808	Stewart, A. I.	31	1746
GSFC	Stephanides, C. C.	UNIV COLORADO-BOLDR	NAS 5-25887	Smith, M. L.	31	1747
GSFC	Bissell, E. E.	UNIV COLORADO-BOLDR	NGR 06-003-176	Lillie, C. F.	11	1758
GSFC	Bissell, E. E.	UNIV COLORADO-BOLDR	NSG 5103	Barth, C. A.	19	1764
GSFC	Reber, C. A.	UNIV COLORADO-BOLDR	NSG 5153	London, J.	31	1765
GSFC	Bissell, E. E.	UNIV COLORADO-BOLDR	NSG 5178	Rottman, G. T.	13	1766
GSFC	Kupperian, J. E., Jr.	UNIV COLORADO-BOLDR	NSG 5211	Linsky, J. L.	11	1767
GSFC	Kupperian, J. E., Jr.	UNIV COLORADO-BOLDR	NSG 5246	Snow, T. P., Jr.	11	1768
GSFC	Bogges, A.	UNIV COLORADO-BOLDR	NSG 5300	Snow, T. P., Jr.	11	1769
GSFC	Bissell, E. E.	UNIV COLORADO-BOLDR	NSG 5303	Snow, T. P., Jr.	11	1770
GSFC	Donley, J. L.	UNIV COLORADO-BOLDR	NSG 5318	Gebbie, K. B.	31	1771
GSFC	Kupperian, J. E., Jr.	UNIV COLORADO-BOLDR	NSG 5355	Snow, T. P., Jr.	11	1772
GSFC	Bogges, A.	UNIV COLORADO-BOLDR	NSG 5365	Shull, J. M.	11	1773
GSFC	Reed, E. I.	UNIV COLORADO-BOLDR	NSG 5372	Rusch, D. W.	31	1774
GSFC	Bogges, A.	UNIV COLORADO-DENVER	NSG 5394	Lane, A. L.	11	1795
GSFC	Halem, M.	UNIV OF CONNECTICUT	NSG 5075	Cooper, A. R.	31	1817
GSFC	Halem, M.	UNIV OF CONNECTICUT	NSG 5346	Lin, J. D.	31	1818
GSFC	Ruitberg, A. P.	UNIV DC-HARVARD GA	NGR 09-053-003	Walker, E. L.	39	1899
GSFC	Webster, W. H., Jr.	UNIV DC-MT VERNON SQ	NGR 09-050-003	Nottingham, W. C.	11	1900
GSFC	Gross, F. C.	UNIV DC-MT VERNON SQ	NGR 09-050-019	Phelps, H. L.	39	1901
GSFC	Fuchs, A. J.	UNIV DC-MT VERNON SQ	NSG 5122	Bakshi, J. S.	21	1902
GSFC	Mentall, J. E.	UNIV DC-MT VERNON SQ	NSG 5192	Morgan, H. D.	13	1903
GSFC	Hobbs, R. W.	UNIV DC-VAN NESS	NCA 5-95	Kasten, R.	11	1904
GSFC	Chappelle, E. W.	UNIV DC-VAN NESS	NSG 5290	Watlington, R. A.	19	1905
GSFC	Kupperian, J. E., Jr.	UNIV OF DELAWARE	NSG 5144	Shipman, H. L.	11	1838
GSFC	Kunde, V. G.	UNIV OF DENVER	NAS 5-25097	Goldman, A.	31	1798
GSFC	Goldberg, R.	UNIV OF DENVER	NAS 5-25862	Barcus, J.	13	1799
GSFC	Kupperian, J. E., Jr.	UNIV OF DENVER	NSG 5135	Everhart, E.	11	1807
GSFC	Bogges, A.	UNIV OF DENVER	NSG 5367	Lesh, J. R.	11	1808
GSFC	Heath, D. F.	UNIV OF FLORIDA	NAS 5-22908	Green, A. E.	49	1927
GSFC	White, W. W.	UNIV OF HAWAII-MANOA	NAS 5-25181	Cushman, S. F.	11	2027
GSFC	Greaves, J. R.	UNIV OF HAWAII-MANOA	NAS 5-25376	Sadler, J. C.	31	2028
GSFC	Greaves, J. R.	UNIV OF HAWAII-MANOA	NAS 5-25378	Murakami, T.	31	2029
GSFC	Bissell, E. E.	UNIV OF HAWAII-MANOA	NGR 12-001-075	Jefferies, J. T.	11	2037
GSFC	White, W. W.	UNIV OF HAWAII-MANOA	NGR 12-001-127	Jefferies, J. T.	32	2039
GSFC	Theon, J. S.	UNIV OF HAWAII-MANOA	NSG 5159	Ramage, C. S.	31	2040
GSFC	Nava, D. F.	UNIV OF HAWAII-MANOA	NSG 5203	Philpotts, J. A.	32	2041
GSFC	Kupperian, J. E., Jr.	UNIV OF HAWAII-MANOA	NSG 5231	Boesgard, A. M.	11	2042
GSFC	Donley, J. L.	UNIV OF HAWAII-MANOA	NSG 5317	Jefferies, J. T.	31	2043

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GSFC	Donley, J. L.	UNIV OF HAWAII-MANOA	NSG 5326	Orrall, F. Q.	31	2044
GSFC	Schaefer, D. H.	UNIV ILLINOIS-URBANA	NAS 5-24275	Slotnick, D. L.	45	2113
GSFC	Keating, T., Jr.	UNIV ILLINOIS-URBANA	NAS 5-25062	Mittra, R.	45	2114
GSFC	Abshire, J. B.	UNIV ILLINOIS-URBANA	NSG 5049	Ghia, K. N.	45	2128
GSFC	Spencer, N. W.	UNIV ILLINOIS-URBANA	NSG 5213	Sechrist, C. F., Jr.	13	2129
GSFC	Donn, B. D.	UNIV ILLINOIS-URBANA	NSG 5278	Snyder, L. E.	11	2130
GSFC	Kupperian, J. E., Jr.	UNIV ILLINOIS-URBANA	NSG 5294	Crutcher, R. M.	11	2131
GSFC	Donley, J. L.	UNIV ILLINOIS-URBANA	NSG 5319	Mouschovias, T. C.	31	2132
GSFC	Gemmell, J. D.	UNIV OF IOWA	NAS 5-11064	Frank, L. A.	13	2201
GSFC	Gemmell, J. D.	UNIV OF IOWA	NAS 5-11279	Tabakoff, W.	11	2202
GSFC	Davis, M. A.	UNIV OF IOWA	NAS 5-11431	Gurnett, D. A.	31	2203
GSFC	Davis, M. A.	UNIV OF IOWA	NAS 5-20093	Gurnett, D. A.	13	2204
GSFC	Davis, M. A.	UNIV OF IOWA	NAS 5-20094	Frank, L. A.	13	2205
GSFC	Fellerman, K. D.	UNIV OF IOWA	NAS 5-24293	Frank, L. A.	13	2206
GSFC	Fellerman, K. D.	UNIV OF IOWA	NAS 5-24294	Shawhan, S. D.	13	2207
GSFC	Heppner, J. P.	UNIV OF IOWA	NAS 5-24336	Gurnett, D. A.	13	2208
GSFC	Gemmell, J. D.	UNIV OF IOWA	NAS 5-25530	Frank, L. A.	13	2209
GSFC	Rango, A.	UNIV OF KANSAS	NAS 5-23777	Ulaby, F. T.	45	2228
GSFC	Schmugge, T. J.	UNIV OF KANSAS	NAS 5-25807	Ulaby, F. T.	31	2229
GSFC	Chang, A. T.	UNIV OF KANSAS	NSG 5335	Ulaby, F. T.	32	2250
GSFC	Davis, M. A.	UNIV MARYLAND-COL PK	NAS 5-11063	Gloeckler, G.	13	2336
GSFC	Gallagher, W. F.	UNIV MARYLAND-COL PK	NAS 5-20062	Gloeckler, G.	13	2337
GSFC	Conrath, B. J.	UNIV MARYLAND-COL PK	NAS 5-23237	Ponnamperuma, C. A.	13	2338
GSFC	Trombka, J. I.	UNIV MARYLAND-COL PK	NAS 5-23457	Sommer, S. E.	39	2339
GSFC	Caudill, L. O.	UNIV MARYLAND-COL PK	NAS 5-25132	McIlrath, T. J.	49	2340
GSFC	Sing, M. L.	UNIV MARYLAND-COL PK	NAS 5-25388	Papadopoulos, K.	13	2341
GSFC	Peake, H. J.	UNIV MARYLAND-COL PK	NAS 5-25437	Taylor, L. S.	45	2342
GSFC	Ogilvie, K. W.	UNIV MARYLAND-COL PK	NAS 5-25472	Coplan, M. A.	11	2343
GSFC	Sours, W. T.	UNIV MARYLAND-COL PK	NAS 5-25486	Currie, D. G.	31	2344
GSFC	Desjardins, R.	UNIV MARYLAND-COL PK	NAS 5-25764	Rieger, C. S.	99	2345
GSFC	Short, N. M.	UNIV MARYLAND-COL PK	NAS 5-25851	Ragan, R. M.	39	2346
GSFC	Fischel, D.	UNIV MARYLAND-COL PK	NCA 5-20	Rosenfeld, A.	11	2355
GSFC	Hobbs, R. W.	UNIV MARYLAND-COL PK	NCA 5-24	Currie, D. G.	11	2356
GSFC	Klinglesmith, D. A.	UNIV MARYLAND-COL PK	NCA 5-26	Rosenfeld, A.	11	2357
GSFC	Klinglesmith, D. A.	UNIV MARYLAND-COL PK	NCA 5-27	Rosenfeld, A.	11	2358
GSFC	Mundy, J. R.	UNIV MARYLAND-COL PK	NCA 5-28	Wockenfuss, W. A.	49	2359
GSFC	Kastner, S. O.	UNIV MARYLAND-COL PK	NCA 5-65	Martin, F. W.	13	2360
GSFC	Dennis, B. R.	UNIV MARYLAND-COL PK	NCA 5-79	Rosenfeld, A.	31	2361
GSFC	Hobbs, R. W.	UNIV MARYLAND-COL PK	NCC 5 9	Tole, J. R.	11	2363
GSFC	Donn, B. D.	UNIV MARYLAND-COL PK	NGL 21-002-033	Smith, E. P.	31	2365
GSFC	Hartle, R. E.	UNIV MARYLAND-COL PK	NGR 21-002-096	Matthews, D. L.	31	2368
GSFC	Ogilvie, K. W.	UNIV MARYLAND-COL PK	NGR 21-002-291	Coplan, M. A.	13	2372
GSFC	Teegarden, B. J.	UNIV MARYLAND-COL PK	NGR 21-002-316	Gloeckler, G.	13	2373
GSFC	Stief, L. J.	UNIV MARYLAND-COL PK	NGR 21-002-368	Khanna, R. K.	32	2376
GSFC	Rango, A.	UNIV MARYLAND-COL PK	NGR 21-002-399	McCuen, R. H.	32	2377
GSFC	Salomonson, V. V.	UNIV MARYLAND-COL PK	NSG 5017	Ragan, R. M.	32	2384
GSFC	Degnan, J. J.	UNIV MARYLAND-COL PK	NSG 5042	Hochuli, U. E.	49	2385
GSFC	Trombka, J. I.	UNIV MARYLAND-COL PK	NSG 5094	Balakrishnan, A. V.	32	2386
GSFC	McGarry, F. E.	UNIV MARYLAND-COL PK	NSG 5123	Basili, V. R.	49	2387
GSFC	Johnson, T. S.	UNIV MARYLAND-COL PK	NSG 5129	Alley, C. O.	13	2388
GSFC	Schmugge, T. J.	UNIV MARYLAND-COL PK	NSG 5137	Witczak, M. W.	32	2389
GSFC	Donn, B. D.	UNIV MARYLAND-COL PK	NSG 5172	Khanna, R. K.	12	2390
GSFC	Barnes, W. L.	UNIV MARYLAND-COL PK	NSG 5174	Wilkerson, T. D.	31	2391
GSFC	Bissell, E. E.	UNIV MARYLAND-COL PK	NSG 5177	Moore, J. H.	13	2392
GSFC	Arking, A.	UNIV MARYLAND-COL PK	NSG 5209	Thompson, O. E.	31	2393
GSFC	Winston, G. C.	UNIV MARYLAND-COL PK	NSG 5234	Currie, D. G.	31	2394
GSFC	Winston, G. C.	UNIV MARYLAND-COL PK	NSG 5287	Currie, D. G.	31	2395
GSFC	Ramaty, R.	UNIV MARYLAND-COL PK	NSG 5298	Wall, N. S.	11	2396

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GSFC	Hudson, R. D.	UNIV MARYLAND-COL PK	NSG 5313	McIlrath, T. J.	13	2397
GSFC	Donley, J. L.	UNIV MARYLAND-COL PK	NSG 5320	Kundu, M. R.	31	2398
GSFC	Donley, J. L.	UNIV MARYLAND-COL PK	NSG 5323	Spicer, D. S.	31	2399
GSFC	Boggess, A.	UNIV MARYLAND-COL PK	NSG 5390	Harrington, J. P.	11	2400
GSFC	Boggess, A.	UNIV MARYLAND-COL PK	NSG 5399	Bell, R. A.	11	2401
GSFC	Spencer, N. W.	UNIV MARYLAND-COL PK	NSG 5404	Lin, C. S.	31	2402
GSFC	Corrigan, J. P.	UNIV MARYLAND-COL PK	NSG 5408	Wu, C. S.	11	2403
GSFC	Nelsen, E. D.	UNIV OF MIAMI	NAS 5-22963	Gordon, H. R.	31	1952
GSFC	Greaves, J. R.	UNIV OF MIAMI	NAS 5-25374	Krause, E. B.	31	1953
GSFC	Halem, M.	UNIV OF MIAMI	NSG 5342	Estoque, M. A.	31	1962
GSFC	Mueller, J. L.	UNIV OF MIAMI	NSG 5344	Williams, F.	33	1963
GSFC	Hedin, A. E.	UNIV MICH-ANN ARBOR	NAS 5-11376	Carignan, G. R.	31	2633
GSFC	Spencer, N. W.	UNIV MICH-ANN ARBOR	NAS 5-11380	Carignan, G. R.	31	2634
GSFC	Cooley, J. E.	UNIV MICH-ANN ARBOR	NAS 5-20939	Carignan, G. R.	31	2635
GSFC	Rice, C. F.	UNIV MICH-ANN ARBOR	NAS 5-23006	Hays, P. B.	31	2636
GSFC	Fellerman, K. D.	UNIV MICH-ANN ARBOR	NAS 5-24295	Carignan, G. R.	13	2637
GSFC	Fellerman, K. D.	UNIV MICH-ANN ARBOR	NAS 5-24296	Hays, P. B.	13	2638
GSFC	Rice, C. F.	UNIV MICH-ANN ARBOR	NAS 5-24331	Walker, J.	31	2639
GSFC	Niemann, H. B.	UNIV MICH-ANN ARBOR	NAS 5-24454	Carignan, G. R.	11	2640
GSFC	Spencer, N. W.	UNIV MICH-ANN ARBOR	NAS 5-25002	Carignan, G. R.	31	2641
GSFC	Spencer, N. W.	UNIV MICH-ANN ARBOR	NAS 5-25031	Carignan, G. R.	31	2642
GSFC	Hoffman, R. A.	UNIV MICH-ANN ARBOR	NAS 5-25038	Nagy, A. F.	13	2643
GSFC	Niemann, H. B.	UNIV MICH-ANN ARBOR	NAS 5-25145	Carignan, G. R.	31	2644
GSFC	Niemann, H. B.	UNIV MICH-ANN ARBOR	NAS 5-25153	Carignan, G. R.	31	2645
GSFC	Haykin, D.	UNIV MICH-ANN ARBOR	NAS 5-25158	Fresh, F.	13	2646
GSFC	Krehbiel, J. P.	UNIV MICH-ANN ARBOR	NAS 5-25409	Carignan, G. R.	13	2647
GSFC	Spencer, N. W.	UNIV MICH-ANN ARBOR	NAS 5-25916	Carignan, G. R.	13	2648
GSFC	Bissell, E. E.	UNIV MICH-ANN ARBOR	NGR 23-005-360	Sharp, W. E.	13	2661
GSFC	Stolarski, R. S.	UNIV MICH-ANN ARBOR	NSG 5171	Rusch, D. W.	31	2679
GSFC	Reed, E. I.	UNIV MICH-ANN ARBOR	NSG 5189	Stedman, D. H.	31	2680
GSFC	Kupperian, J. E., Jr.	UNIV MICH-ANN ARBOR	NSG 5206	Donahue, T. M.	11	2681
GSFC	Kupperian, J. E., Jr.	UNIV MICH-ANN ARBOR	NSG 5232	Atreya, S. K.	11	2682
GSFC	Spencer, N. W.	UNIV MICH-ANN ARBOR	NSG 5281	Fontheim, E. G.	31	2683
GSFC	Spencer, N. W.	UNIV MICH-ANN ARBOR	NSG 5282	Nagy, A. F.	31	2684
GSFC	Boggess, A.	UNIV MICH-ANN ARBOR	NSG 5366	Kirshner, R.	11	2685
GSFC	Gemmell, J. D.	U MINN-MNPLS-ST PAUL	NAS 5-11310	Jee, W. S.	11	2698
GSFC	Findlay, J. A.	U MINN-MNPLS-ST PAUL	NAS 5-11438	Neir, J. A.	31	2699
GSFC	Wende, C. D.	U MINN-MNPLS-ST PAUL	NAS 5-23703	Winckler, J. R.	31	2700
GSFC	Stone, R. G.	U MINN-MNPLS-ST PAUL	NAS 5-25151	Kellogg, P. J.	11	2701
GSFC	Sugiura, M.	U MINN-MNPLS-ST PAUL	NAS 5-25389	Cahill, L. J., Jr.	13	2702
GSFC	Stone, R. G.	U MINN-MNPLS-ST PAUL	NAS 5-25753	Kellogg, P. J.	11	2703
GSFC	Bissell, E. E.	U MINN-MNPLS-ST PAUL	NSG 5088	Winckler, J. R.	13	2715
GSFC	Boggess, A.	U MINN-MNPLS-ST PAUL	NSG 5237	Black, J. H.	11	2716
GSFC	Bissell, E. E.	U MINN-MNPLS-ST PAUL	NSG 5373	Kellogg, P. J.	13	2717
GSFC	Boggess, A.	U MINN-MNPLS-ST PAUL	NSG 5397	Davidson, K.	11	2718
GSFC	Schmugge, T. J.	UNIV MO-COLUMBIA	NSG 5338	Rouse, J. W., Jr.	39	2763
GSFC	Kupperian, J. E., Jr.	UNIV MO-ST LOUIS	NSG 5151	Schwartz, R. D.	11	2774
GSFC	Boggess, A.	UNIV MO-ST LOUIS	NSG 5400	Lamb, S. A.	11	2775
GSFC	Oseroff, H.	UNIV OF MONTANA	NAS 5-23891	Craighead, J. J.	39	2796
GSFC	Kupperian, J. E., Jr.	UNIV NEBRASKA-LINCLN	NSG 5332	Schmidt, E. G.	11	2800
GSFC	Boggess, A.	UNIV NEBRASKA-LINCLN	NSG 5391	Schmidt, E. G.	11	2801
GSFC	Donley, J. L.	UNIV NEW HAMP-DURHAM	NAS 5-23761	Chupp, E. L.	31	2819
GSFC	Wende, C. D.	UNIV NEW HAMP-DURHAM	NAS 5-24328	Arnoldy, R. L.	19	2820
GSFC	Trainor, J. H.	UNIV NEW HAMP-DURHAM	NAS 5-24354	Webber, W. R.	13	2821
GSFC	Davis, M. A.	UNIV NEW HAMP-DURHAM	NAS 5-25420	Lockwood, J. A.	11	2822
GSFC	VonRosenvinge, T. T.	UNIV NEW HAMP-DURHAM	NAS 5-25642	Fisk, L. A.	13	2823
GSFC	Donley, J. L.	UNIV NEW HAMP-DURHAM	NSG 5316	Fisk, L. A.	31	2828
GSFC	Greaves, J. R.	UNIV OKLAHOMA-NORMAN	NAS 5-25375	Sasaki, Y. K.	31	3308

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GSFC	Kupperian, J. E., Jr.	UNIV OKLAHOMA-NORMAN	NSG 5257	Herczeg, T. J.	11	3315
GSFC	Shiue, J. C.	UNIV OF PENNSYLVANIA	NAS 5-25136	Kritikos, H. N.	45	3424
GSFC	Bogges, A.	UNIV OF PENNSYLVANIA	NSG 5296	Koch, R. H.	11	3431
GSFC	Christie, C. J.	UNIV OF PERU	NASW 7	Unavailable	49	4034
GSFC	Kostiuk, T.	UNIV OF PITTSBURGH	NAS 5-22892	Falk, J.	43	3432
GSFC	Kostiuk, T.	UNIV OF PITTSBURGH	NAS 5-25013	Falk, J.	13	3433
GSFC	Thomas, H. H.	UNIV OF PITTSBURGH	NSG 5270	Lidiak, E. G.	32	3446
GSFC	Bogges, A.	UNIV OF PITTSBURGH	NSG 5362	Hapke, B. W.	11	3447
GSFC	Lopez, J. J.	U PUERTO RICO-RIO PI	NAS 5-25844	Cabassa, H. D.	22	4022
GSFC	Kupperian, J. E., Jr.	UNIV OF ROCHESTER	NSG 5329	Savedoff, M. P.	11	3099
GSFC	Kupperian, J. E., Jr.	UNIV OF ROCHESTER	NSG 5354	Savedoff, M. P.	11	3100
GSFC	Bissell, E. E.	UNIV OF SOUTHERN CAL	NSG 5108	Judge, D. L.	13	1703
GSFC	Kupperian, J. E., Jr.	UNIV OF SOUTHERN CAL	NSG 5356	Peters, G. J.	11	1704
GSFC	Golden, T. S.	UNIV TENNESSEE-KNOXV	NAS 5-25101	Snyder, W. M.	39	3492
GSFC	Maguire, W. C.	UNIV TENNESSEE-KNOXV	NAS 5-25428	Fox, K.	13	3493
GSFC	Hirschmann, E.	UNIV TEXAS-AUSTIN	NAS 5-22576	Vogel, W.	45	3639
GSFC	Kahn, W. D.	UNIV TEXAS-AUSTIN	NAS 5-25018	Tapley, B. D.	19	3640
GSFC	Liberatore, F. J.	UNIV TEXAS-AUSTIN	NAS 5-25656	Trafton, L. M.	11	3641
GSFC	Fuchs, A. J.	UNIV TEXAS-AUSTIN	NAS 5-25756	Tapley, B. D.	42	3642
GSFC	White, W. W.	UNIV TEXAS-AUSTIN	NGR 44-012-165	Silverberg, E. C.	32	3656
GSFC	Kolenkiewicz, R.	UNIV TEXAS-AUSTIN	NGR 44-012-283	Tapley, B. D.	32	3658
GSFC	Fuchs, A. J.	UNIV TEXAS-AUSTIN	NSG 5154	Tapley, B. D.	21	3670
GSFC	Kupperian, J. E., Jr.	UNIV TEXAS-AUSTIN	NSG 5167	Smith, M. A.	11	3671
GSFC	Bogges, A.	UNIV TEXAS-AUSTIN	NSG 5233	VandenBout, P. A.	11	3672
GSFC	Kupperian, J. E., Jr.	UNIV TEXAS-AUSTIN	NSG 5309	Smith, M. A.	11	3673
GSFC	Bogges, A.	UNIV TEXAS-AUSTIN	NSG 5328	Parsons, S. B.	11	3674
GSFC	Bogges, A.	UNIV TEXAS-AUSTIN	NSG 5337	Wray, J. D.	11	3675
GSFC	Bogges, A.	UNIV TEXAS-AUSTIN	NSG 5379	Lambert, D. L.	11	3676
GSFC	Bogges, A.	UNIV TEXAS-AUSTIN	NSG 5387	Wills, B. J.	11	3677
GSFC	White, W. W.	UNIV TEXAS-AUSTIN	NSG 7162	Shelus, P. J.	19	3679
GSFC	Rice, C. F.	UNIV TEXAS-DALLAS	NAS 5-11406	Hoffman, J. H.	31	3692
GSFC	Rice, C. F.	UNIV TEXAS-DALLAS	NAS 5-11407	Hanson, W. B.	31	3693
GSFC	Fellerman, K. D.	UNIV TEXAS-DALLAS	NAS 5-24297	Heelis, R. A.	13	3694
GSFC	Fellerman, K. D.	UNIV TEXAS-DALLAS	NAS 5-24298	Hanson, W. B.	13	3695
GSFC	Fellerman, K. D.	UNIV TEXAS-DALLAS	NAS 5-24299	Winningham, J. D.	13	3696
GSFC	Caporale, A. J.	UNIV TEXAS-DALLAS	NAS 5-25310	Hanson, W. B.	13	3697
GSFC	Bissell, E. E.	UNIV TEXAS-DALLAS	NGR 44-004-124	Winningham, J. D.	13	3704
GSFC	Brace, L. H.	UNIV TEXAS-DALLAS	NSG 5085	Heikkila, W. J.	31	3705
GSFC	Brace, L. H.	UNIV TEXAS-DALLAS	NSG 5087	Hoffman, J. H.	31	3706
GSFC	Spencer, N. W.	UNIV TEXAS-DALLAS	NSG 5280	Klumpar, D. M.	31	3707
GSFC	Spencer, N. W.	UNIV TEXAS-S ANTONIO	NSG 5418	Burch, J. L.	31	3721
GSFC	Kupperian, J. E., Jr.	UNIV OF TOLEDO	NSG 5183	Molnar, M. R.	11	3280
GSFC	Kupperian, J. E., Jr.	UNIV OF TOLEDO	NSG 5207	Bopp, B. W.	11	3281
GSFC	Bogges, A.	UNIV OF TOLEDO	NSG 5359	Morrison, N. D.	11	3282
GSFC	Bogges, A.	UNIV OF TOLEDO	NSG 5388	Witt, A. N.	11	3283
GSFC	Greaves, J. R.	UNIV OF UTAH	NAS 5-25373	Kao, S. K.	31	3725
GSFC	Wilson, L.	UNIV OF VIRGINIA	NAS 5-22346	O'connell, R. W.	11	3844
GSFC	Lamb, G. M.	UNIV OF VIRGINIA	NAS 5-24218	Mattauch, R. J.	49	3845
GSFC	Kahle, D. R.	UNIV OF VIRGINIA	NAS 5-25634	Wilson, S. G.	45	3846
GSFC	Kupperian, J. E., Jr.	UNIV OF WASHINGTON	NSG 5142	Wallerstein, G.	11	3944
GSFC	Bogges, A.	UNIV OF WASHINGTON	NSG 5240	Bohm-Vitense, E.	11	3945
GSFC	Spencer, N. W.	UNIV OF WASHINGTON	NSG 5283	Lin, C. S.	31	3946
GSFC	Bogges, A.	UNIV OF WASHINGTON	NSG 5374	Wallerstein, G.	11	3947
GSFC	Bogges, A.	UNIV OF WASHINGTON	NSG 539	Szkody, P.	11	3948
GSFC	Bogges, A.	UNIV OF WASHINGTON	NSG 5398	Bohm-Vitense, E.	11	3949
GSFC	Corrigan, J. P.	UNIV OF WASHINGTON	NSG 5410	Lin, C. S.	11	3950
GSFC	Montgomery, H. E.	UNIV WISC-MADISON	NAS 5-21965	Suomi, V. E.	31	3971
GSFC	Wainscott, F. H.	UNIV WISC-MADISON	NAS 5-22349	Anderson, C. M.	11	3972

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GSFC	Gemmell, J. D.	UNIV WISC-MADISON	NAS 5-22410	Kraushaar, W. L.	31	3973
GSFC	Greaves, J. R.	UNIV WISC-MADISON	NAS 5-23462	Suomi, V. E.	31	3974
GSFC	Hasler, A. F.	UNIV WISC-MADISON	NAS 5-23706	Suomi, V. E.	31	3975
GSFC	Theon, J. S.	UNIV WISC-MADISON	NAS 5-24230	Weinman, J. A.	31	3976
GSFC	Friedman, D. S.	UNIV WISC-MADISON	NAS 5-24385	Siedbank, M. P.	56	3977
GSFC	White, R. A.	UNIV WISC-MADISON	NAS 5-24487	Bless, R. C.	11	3978
GSFC	Greaves, J. R.	UNIV WISC-MADISON	NAS 5-25148	Suomi, V. E.	31	3979
GSFC	Greaves, J. R.	UNIV WISC-MADISON	NAS 5-25377	Suomi, V. E.	31	3980
GSFC	Greaves, J. R.	UNIV WISC-MADISON	NAS 5-25399	Johnson, D. R.	31	3981
GSFC	Sours, W. T.	UNIV WISC-MADISON	NAS 5-25487	Code, A. D.	11	3982
GSFC	Middleton, E.	UNIV WISC-MADISON	NAS 5-25505	Scarpice, F. L.	39	3983
GSFC	Vite, H. D.	UNIV WISC-MADISON	NAS 5-25714	Savage, B. D.	11	3984
GSFC	Bissell, E. E.	UNIV WISC-MADISON	NGL 50-002-013	Code, A. D.	11	3989
GSFC	Bissell, E. E.	UNIV WISC-MADISON	NGL 50-002-044	Kraushaar, W. L.	11	3990
GSFC	Kupperian, J. E., Jr.	UNIV WISC-MADISON	NSG 5100	Savage, B. D.	11	3997
GSFC	Halem, M.	UNIV WISC-MADISON	NSG 5152	Houghton, D. D.	31	3998
GSFC	Kupperian, J. E., Jr.	UNIV WISC-MADISON	NSG 5180	Cassinelli, J. P.	11	3999
GSFC	Kupperian, J. E., Jr.	UNIV WISC-MADISON	NSG 5181	Savage, B. D.	11	4000
GSFC	Halem, M.	UNIV WISC-MADISON	NSG 5223	Herman, G. F.	31	4001
GSFC	Boggess, A.	UNIV WISC-MADISON	NSG 5241	Savage, B. D.	11	4002
GSFC	Boggess, A.	UNIV WISC-MADISON	NSG 5242	Doherty, L. R.	11	4003
GSFC	Minzner, R. A.	UNIV WISC-MADISON	NSG 5251	Suomi, V. E.	31	4004
GSFC	Halem, M.	UNIV WISC-MADISON	NSG 5252	Horn, L. H.	31	4005
GSFC	Boggess, A.	UNIV WISC-MADISON	NSG 5363	Cassinelli, J. P.	11	4006
GSFC	Eiband, A. M.	UTAH STATE UNIV	NAS 5-24455	Banks, P. M.	13	3736
GSFC	Spencer, N. W.	UTAH STATE UNIV	NSG 5215	StMaurice, J. P.	13	3741
GSFC	Spencer, N. W.	UTAH STATE UNIV	NSG 5216	Foster, J. C.	13	3742
GSFC	Boggess, A.	VILLANOVA UNIVERSITY	NSG 5375	Sion, E. M.	11	3452
GSFC	Hirschmann, E.	VIRGINIA POLY INST	NAS 5-22577	Bostian, C. W.	45	3871
GSFC	Argeniero, P. D.	VIRGINIA POLY INST	NAS 5-25839	Havalick, R. M.	31	3872
GSFC	Kupperian, J. E., Jr.	VIRGINIA POLY INST	NSG 5221	Dennison, B. K.	11	3916
GSFC	Schmidt, R. L.	WALLA WALLA COLLEGE	NAS 5-25065	Heisler, R.	45	3960
GSFC	Boggess, A.	WASHINGTON ST UNIV	NSG 5383	Lutz, J. H.	11	3963
GSFC	Kupperian, J. E., Jr.	WASHINGTON UNIVERSTY	NSG 5187	Smith, W. H.	11	2785
GSFC	Boggess, A.	WESTRN KENTUCKY UNIV	NSG 5238	Hackrey, R. L.	11	2270
GSFC	Boggess, A.	WHEATON COLLEGE	NSG 5376	Harker, F.	11	2620
GSFC	Reinhardt, V. S.	WILLIAMS COLLEGE	NSG 5218	Crampson, S. B.	13	2621
GSFC	Pritchard, J. A.	YALE UNIVERSITY	NGL 07-004-005	Harker, R. C.	45	1822
JPL	Estabrook, F. B.	SO UNIV-BATON ROUGE	NGR 19-005-006	Yang, C. H.	11	2280
JSC	Teasdale, W. E.	ALABAMA A&M UNIV	NAS 9-14770	Ingels, F. M.	45	1001
JSC	Harris, J. W.	ARIZONA STATE UNIV	NSG 9068	Buseck, P. R.	32	1088
JSC	Alchuler, S. I.	BAYLOR COL OF MED	NAS 9-13737	Johnson, P. C.	56	3527
JSC	Rippstein, W. J.	BAYLOR COL OF MED	NAS 9-14407	Duncan, W. C.	56	3528
JSC	Homick, J. L.	BAYLOR COL OF MED	NAS 9-14546	Igarashi, M.	56	3529
JSC	Kimzey, S. L.	BAYLOR COL OF MED	NAS 9-14662	Johnson, P. C.	56	3530
JSC	Kimzey, S. L.	BAYLOR COL OF MED	NAS 9-15457	Criswell, B. S.	56	3531
JSC	Leach, C. S.	BAYLOR COL OF MED	NAS 9-15478	Diferrante, N.	56	3532
JSC	Morrison, D. R.	BAYLOR COL OF MED	NAS 9-15669	Twomey, J. J.	59	3533
JSC	Leach, C. S.	BAYLOR COL OF MED	NAS 9-15891	Suki, W. N.	59	3534
JSC	Homick, J. L.	BRANDEIS UNIVERSITY	NAS 9-15147	Lackner, J. R.	59	2440
JSC	Harris, J. W.	BROWN UNIVERSITY	NGR 40-002-123	Rutherford, M. J.	32	3456
JSC	Harris, J. W.	CALIF INST OF TECH	NGL 05-002-188	Wasserburg, G. J.	12	1191
JSC	Harris, J. W.	CALIF INST OF TECH	NGL 05-002-190	Epstein, S.	13	1192
JSC	Harris, J. W.	CALIF INST OF TECH	NGL 05-002-338	Albee, A. L.	13	1194
JSC	Harris, J. W.	CALIF INST OF TECH	NGR 05-002-333	Tombrello, T. A.	13	1202
JSC	Harris, J. W.	CALIF INST OF TECH	NSG 9019	Ahrens, T. J.	19	1232
JSC	Byrns, Z. H.	CITY COLLEGE OF N Y	NAS 9-13642	Pierson, W. J.	13	2906
JSC	Land, C. K.	CITY COLLEGE OF N Y	NAS 9-13940	Schilling, D. L.	45	2907



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JSC	Barnes, C. M.	CLARKSON COL OF TECH	NSG 9059	McNulty, P.	13	2918
JSC	Reveley, W. F.	CLEMSON UNIV-CLEMSON	NAS 9-13669	Gaddis, J. L.	46	3466
JSC	Hoffman, R. A.	COLORADO STATE UNIV	NSG 9045	Lett, J. T.	59	1739
JSC	Harris, J. W.	COLUMBIA UNIVERSITY	NGR 33-008-177	Horai, K.	13	2931
JSC	Altchuler, S. I.	DREXEL UNIVERSITY	NAS 9-15915	Kamel, I. L.	56	3349
JSC	Browne, I. D.	FORT LEWIS COLLEGE	NAS 9-15276	Baker, J. R.	13	1740
JSC	Nolte, R. W.	HARVARD UNIVERSITY	NAS 9-15326	Newton, R. W.	51	2449
JSC	Harris, J. W.	HARVARD UNIVERSITY	NGL 22-007-247	Hays, J. F.	12	2455
JSC	Leach, C. S.	HARVARD UNIVERSITY	NSG 9054	Moore-Ede, M. C.	56	2484
JSC	Potter, A. E.	HOUSTON BAPTIST UNIV	NSG 9038	Morgan, T. H.	11	3537
JSC	McCoy, J.	HOUSTON BAPTIST UNIV	NSG 9076	Warren, D. G.	19	3538
JSC	Savely, R. T.	HOUSTON BAPTIST UNIV	NSG 9010	Choudhury, A. K.	45	1898
JSC	McKay, D. S.	INDIANA U-BLOOMINGTN	NSG 9072	Basu, A.	32	2141
JSC	Harris, J. W.	INDIANA U-BLOOMINGTN	NSG 9077	Basu, A.	32	2142
JSC	Baldwin, R. R.	KANSAS STATE UNIV	NAS 9-14899	Kanemasu, E. T.	31	2222
JSC	Harris, J. W.	LEHIGH UNIVERSITY	NGR 39-007-056	Goldstein, J. I.	12	3366
JSC	Potter, A. E.	LEHIGH UNIVERSITY	NGR 39-007-061	McCluskey, G. E., Jr.	11	3367
JSC	Harris, J. W.	LEHIGH UNIVERSITY	NGR 39-007-064	Sclar, C. B.	13	3368
JSC	Giuli, R. T.	LA STATE U-SHREVEPT	NAS 9-9317	Bankston, J. D., Jr.	11	2272
JSC	Altchuler, S. I.	LA STATE U-SHREVEPT	NAS 9-15950	Albright, J. A.	56	2273
JSC	Smith, M. C., Jr.	MARQUETTE UNIVERSITY	NAS 9-15711	Fitts, R. H.	59	3967
JSC	Luczkowski, S. M.	MASS INST OF TECH	NAS 9-15343	Young, L. R.	59	2515
JSC	Harris, J. W.	MASS INST OF TECH	NGR 22-009-540	Simmons, M. G.	13	2532
JSC	Harris, J. W.	MASS INST OF TECH	NGR 22-009-551	Burns, R. G.	12	2533
JSC	Harris, J. W.	MASS INST OF TECH	NGR 22-009-646	Uhlmann, D. R.	47	2535
JSC	Homick, J. L.	MIAMI UNIVERSITY	NAS 9-14538	Parker, D. E.	59	3202
JSC	Nitschke, H. A.	NEW MEX ST U-LAS CR	NAS 9-95482	Henry, D. G.	39	2888
JSC	Fenner, R. G.	NEW MEX ST U-LAS CR	NAS 9-95497	Carver, K.	39	2889
JSC	Marquis, D. L.	OKLAHOMA STATE UNIV	NAS 9-15692	Ray, D. E.	32	3299
JSC	Nachtwey, D. S.	OREGON STATE UNIV	NAS 9-14860	Worrest, R. C.	54	3320
JSC	Harris, J. W.	OREGON STATE UNIV	NGL 38-002-039	Schmitt, R. A.	13	3323
JSC	Heydorn, R. P.	PAN AMERICAN UNIV	NSG 9033	Lemaster, E. W.	39	3539
JSC	Mendell, W.	PAN AMERICAN UNIV	NSG 9070	Glaser, F. M.	11	3540
JSC	Morrison, D. R.	PENN STATE U-UNIV PK	NAS 9-15566	Hymers, W. C.	51	3383
JSC	Morrison, D. R.	PENN STATE U-UNIV PK	NAS 9-15584	Todd, P. W.	56	3384
JSC	Bailey, J. V.	PENN STATE U-UNIV PK	NAS 9-15798	Mason, C. A.	45	3385
JSC	Browne, I. D.	PRAIRIE VIEW A&M U	NSG 9006	Brams, E. A.	39	3541
JSC	McEwen, M. C.	PURDUE UNIVERSITY	NAS 9-15081	Bauer, M. E.	39	2149
JSC	Joosten, R. E.	PURDUE UNIVERSITY	NAS 9-15325	Mroczyński, R.	39	2150
JSC	Erickson, J. D.	PURDUE UNIVERSITY	NAS 9-15466	Landgrebe, D. A.	39	2151
JSC	Amsbury, D. L.	PURDUE UNIVERSITY	NAS 9-15508	Hoffer, R. M.	39	2152
JSC	Amsbury, D. L.	PURDUE UNIVERSITY	NAS 9-15889	Hoffer, R. M.	32	2153
JSC	Trevino, L. A.	RICE UNIVERSITY	NAS 9-15274	Wierm, F. A.	46	3548
JSC	Howard, J. K.	RICE UNIVERSITY	NAS 9-15630	Davis, S. H.	43	3549
JSC	Parker, R. A.	RICE UNIVERSITY	NAS 9-15940	DuFour, R. J.	11	3550
JSC	Harris, J. W.	RICE UNIVERSITY	NGL 44-006-127	Heymann, D.	32	3554
JSC	Harris, J. W.	RUTGERS U-N BRUNSWK	NSG 9065	Klein, L. C.	32	2878
JSC	Horz, F.	ST MARY'S UNIV-SA	NSG 9039	Hanss, R. E.	32	3565
JSC	Hull, W. E.	SO DAKOTA SCHL MINES	NAS 9-15522	Gowen, R. J.	59	3477
JSC	Bullock, H. E., Jr.	SO DAKOTA STATE UNIV	NAS 9-15345	Westin, F. C.	32	3479
JSC	Echelkamp, R. E.	SO UNIV-BATON ROUGE	NSG 9030	Grewal, G. S.	45	2285
JSC	Horrigan, D. J.	STATE UNIV NY-ALBANY	NAS 9-15802	Farhi, L. E.	59	3052
JSC	Harris, J. W.	STATE U NY-STONY BRK	NGL 33-015-130	Bence, A. E.	13	3071
JSC	Harris, J. W.	STATE U NY-STONY BRK	NGL 33-015-174	Schaeffer, O. A.	12	3072
JSC	Harris, J. W.	STATE U NY-STONY BRK	NSG 9013	Hartung, J. B.	32	3088
JSC	Harris, J. W.	STATE U NY-STONY BRK	NSG 9044	Papike, J. J.	13	3089
JSC	Nachtwey, D. S.	TEMPLE UNIVERSITY	NAS 9-14979	Urback, F.	56	3422
JSC	Kochner, J.	TENNESSEE STATE UNIV	NAS 9-15862	Sampson, C.	62	3487

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JSC	Smith, M. C., Jr.	TEXAS A&M UNIVERSITY	NAS 9-12434	Burns, E. E.	59	3577
JSC	Broune, I. D.	TEXAS A&M UNIVERSITY	NAS 9-13894	Freund, K. J.	22	3578
JSC	Buras, N. T.	TEXAS A&M UNIVERSITY	NAS 9-13904	Rouse, J. W., Jr.	39	3579
JSC	Browne, I. D.	TEXAS A&M UNIVERSITY	NAS 9-14689	Guseman, L. F., Jr.	22	3580
JSC	Blanchard, D.	TEXAS A&M UNIVERSITY	NAS 9-14828	Randall, J. D.	39	3581
JSC	Demel, K. J.	TEXAS A&M UNIVERSITY	NAS 9-14875	Newton, R. R.	32	3582
JSC	Farris, G. W.	TEXAS A&M UNIVERSITY	NAS 9-15311	Jean, B. R.	45	3583
JSC	Matthews, R. E.	TEXAS A&M UNIVERSITY	NAS 9-15451	Rouse, J. W., Jr.	13	3584
JSC	Amsbury, D. L.	TEXAS A&M UNIVERSITY	NAS 9-15465	Harlan, J. C.	32	3585
JSC	Amsbury, D. L.	TEXAS A&M UNIVERSITY	NAS 9-15468	Whitehorn, N.	99	3586
JSC	Fricks, D.	TEXAS A&M UNIVERSITY	NAS 9-15873	Morgan, P. W.	51	3587
JSC	Strouhal, G.	TEXAS A&M UNIVERSITY	NAS 9-15962	Norton, D.	47	3588
JSC	Day, J. L.	TEXAS TECH UNIV	NAS 9-11162	Portnoy, W. M.	45	3607
JSC	French, B. O.	TUSKEGEE INSTITUTE	NAS 9-13844	Sellers, J. P., Jr.	46	1029
JSC	Kimzey, S. L.	UNIV OF ARIZONA	NAS 9-14692	Bartels, P. H.	59	1104
JSC	Harris, J. W.	UNIV OF ARIZONA	NGR 03-002-388	Drake, M. J.	12	1123
JSC	Demel, K. J.	UNIV ARKANSAS-FAYETV	NAS 9-14251	Waite, W. P.	19	1164
JSC	Garcia, J. C.	UNIV CALIF-BERKELEY	NAS 9-14565	Colwell, R. N.	39	1427
JSC	Harris, J. W.	UNIV CALIF-BERKELEY	NGL 05-003-409	Reynolds, J. H.	13	1443
JSC	Rambaut, P. C.	UNIV CALIF-DAVIS	NAS 9-15203	Vogel, J. M.	56	1484
JSC	Harris, J. W.	UNIV CALIF-L ANGELES	NGL 05-007-367	molnar, P.	12	1518
JSC	Harris, J. W.	UNIV CALIF-L ANGELES	NGR 05-007-289	Kaplan, I. R.	13	1521
JSC	Harris, J. W.	UNIV CALIF-SAN DIEGO	NGL 05-009-148	Arnold, J. R.	12	1590
JSC	Harris, J. W.	UNIV CALIF-SAN DIEGO	NGL 05-009-150	Marti, K.	12	1591
JSC	Homick, J. L.	UNIV CALIF-SAN DIEGO	NSG 9048	Bullock, T. H.	56	1622
JSC	Alexander, W. C.	UNIV CALIF-SAN DIEGO	NSG 9075	West, J. B.	56	1623
JSC	Altchuler, S. I.	UNIV CALIF-SAN FRAN	NAS 9-15887	Genant, H. K.	56	1627
JSC	Amsbury, D. L.	UNIV CALIF-S BARBARA	NAS 9-15509	Strahler, A. H.	32	1640
JSC	Harris, J. W.	UNIV CALIF-S BARBARA	NGR 05-010-081	Tilton, G. R.	32	1648
JSC	Harris, J. W.	UNIV CALIF-S BARBARA	NSG 9020	Fuller, M. D.	19	1658
JSC	Harris, J. W.	UNIV OF CHICAGO	NGL 14-001-167	Anders, E.	13	2086
JSC	Harris, J. W.	UNIV OF CHICAGO	NGL 14-001-169	Clayton, R. N.	12	2087
JSC	Harris, J. W.	UNIV OF CHICAGO	NGL 14-001-171	Smith, J. V.	13	2088
JSC	Harris, J. W.	UNIV COLORADO-BOLDR	NSG 9036	Spetzler, H. A.	32	1793
JSC	Luczkowski, S. M.	UNIV OF DENVER	NAS 9-15469	Venditti, F. P.	46	1800
JSC	Nachtwey, D. S.	UNIV OF FLORIDA	NAS 9-15114	Green, A. E.	56	1929
JSC	Harris, J. W.	UNIV OF HAWAII-MANOA	NSG 9071	Philpotts, J. A.	32	2057
JSC	Sauer, R. L.	UNIV HOUSTON-HOUSTON	NAS 9-11676	Cox, J. E.	59	3611
JSC	Eggleston, J. M.	UNIV HOUSTON-HOUSTON	NAS 9-15193	Michalopoulos, C. O.	41	3612
JSC	Jackson, J. T.	UNIV HOUSTON-HOUSTON	NAS 9-15521	Morrow, J. R.	19	3613
JSC	Browne, I. D.	UNIV HOUSTON-HOUSTON	NAS 9-15543	Devell, H. P., Jr.	39	3614
JSC	Kennedy, M. G.	UNIV HOUSTON-HOUSTON	NAS 9-15680	Lee, W. B.	49	3615
JSC	Alexander, W. C.	UNIV HOUSTON-HOUSTON	NAS 9-15767	Lee, J. J.	56	3616
JSC	Schneider, H. J.	UNIV HOUSTON-HOUSTON	NAS 9-15882	Zlatkis, A.	51	3617
JSC	Smith, M. C., Jr.	UNIV HOUSTON-HOUSTON	NAS 9-15944	Bell, L.	99	3618
JSC	Alexander, W. C.	UNIV HOUSTON-CL LAKE	NAS 9-15642	Coleman, A. E.	56	3636
JSC	Harris, J. W.	UNIV HOUSTON-CL LAKE	NSG 9043	Blanford, G. E.	13	3637
JSC	Chassay, C. E.	UNIV ILLINOIS-URBANA	NAS 9-15328	Voss, E. W.	59	2115
JSC	Hull, W. E.	UNIV OF IOWA	NSG 9060	Abboud, F. M.	56	2221
JSC	Demel, K. J.	UNIV OF KANSAS	NAS 9-14052	Ulaby, F. T.	39	2230
JSC	Demel, K. J.	UNIV OF KANSAS	NAS 9-15421	Ulaby, F. T.	31	2231
JSC	Alexander, C.	UNIV OF KENTUCKY	NAS 9-15452	Bhagat, P. K.	56	2259
JSC	Harris, J. W.	UNIV OF MASS-AMHERST	NGL 22-010-089	Haggerty, E. E.	13	2614
JSC	Harris, J. W.	UNIV OF MASS-AMHERST	NSG 9069	Rhodes, J. M.	32	2619
JSC	Huntoon, C. L.	UNIV OF MIAMI	NAS 9-15473	Epstein, M.	56	1956
JSC	Homick, J. L.	UNIV MICH-ANN ARBOR	NAS 9-15244	Anderson, D. J.	56	2654
JSC	Reschke, M. F.	UNIV MICH-ANN ARBOR	NAS 9-15375	Anderson, D. J.	59	2655
JSC	Reschke, M. F.	UNIV MICH-ANN ARBOR	NAS 9-15663	Anderson, D. J.	56	2656

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JSC	Smith, M. C., Jr.	U MINN-MNPLS-ST PAUL	NAS 9-12560	Mitchell, J. R.	59	2705
JSC	Harris, J. W.	U MINN-MNPLS-ST PAUL	NGL 24-005-225	Pepin, R. O.	13	2707
JSC	Harris, J. W.	U MINN-MNPLS-ST PAUL	NGR 24-005-223	Murthy, V. R.	13	2710
JSC	Harris, J. W.	U MINN-MNPLS-ST PAUL	NSG 9050	Weiblen, P. W.	32	2728
JSC	Eggleston, T. W.	UNIV MO-COLUMBIA	NAS 9-15477	Tranter, W. H.	45	2758
JSC	Harnage, M. J.	UNIV MO-COLUMBIA	NAS 9-15896	Rouse, J. W., Jr.	39	2759
JSC	Dawson, C. T.	UNIV MO-ROLLA	NAS 9-14848	Tranter, W. H.	45	2765
JSC	Harris, J. W.	UNIV OF NEW MEXICO	NGL 32-004-063	Keil, K.	12	2898
JSC	Harris, J. W.	UNIV OREGON-EUGENE	NGL 38-003-022	Weill, D. F.	13	3331
JSC	Lintott, J. E.	UNIV OF PENNSYLVANIA	NAS 9-15531	Brown, A. H.	59	3427
JSC	Barnes, C. M.	UNIV OF PENNSYLVANIA	NAS 9-15789	Shen, B. S.	39	3428
JSC	Harris, J. W.	UNIV OF PITTSBURGH	NSG 9056	Hapke, B. W.	13	3451
JSC	Rundel, R.	UNIV SAN FRANCISCO	NAS 9-15152	Benton, E. V.	56	1667
JSC	Thirolf, R. G.	UNIV SAN FRANCISCO	NAS 9-15337	Benton, E. V.	13	1668
JSC	Lofgren, G.	UNIV STHN COLORADO	NSG 9051	Smith, R. K.	19	1812
JSC	Kimzey, S. L.	UNIV TENNESSEE-KNOXV	NAS 9-15164	Dunn, C. D.	56	3508
JSC	Harris, J. W.	UNIV TENNESSEE-KNOXV	NGL 43-001-140	Taylor, L. A.	11	3511
JSC	Schneider, H. J.	U TENNESSEE-MEMPHIS	NAS 9-15670	Autian, J.	56	3518
JSC	Goodrich, W. D.	UNIV TEXAS-AUSTIN	NAS 9-13490	Bertin, J. J.	41	3646
JSC	Richard, R. R.	UNIV TEXAS-AUSTIN	NAS 9-14491	Hartwig, W. H.	49	3647
JSC	Potter, A. E.	UNIV TEXAS-AUSTIN	NAS 9-15057	Barnes, T.	11	3648
JSC	Pels, G. F.	UNIV TEXAS-AUSTIN	NAS 9-15217	Tucker, A. J.	49	3649
JSC	Nitschke, H. A.	UNIV TEXAS-AUSTIN	NAS 9-13401	Crow, G. I.	41	3650
JSC	Bond, V.	UNIV TEXAS-AUSTIN	NAS 9-15567	Szebekely, V. G.	12	3651
JSC	Harris, J. W.	UNIV TEXAS-AUSTIN	NSG 9021	Gose, W. A.	32	3690
JSC	Duke, M.	UNIV TEXAS-EL PASO	NSG 9062	Hoffer, J. M.	12	3713
JSC	Reschke, M. F.	UNIV TEXAS-GALVESTON	NAS 9-14641	Correia, M. J.	69	3714
JSC	Leach, C. S.	UNIV TEXAS-GALVESTON	NAS 9-15565	Ziegler, M. G.	59	3715
JSC	Harris, J. W.	U TEX HEALTH CTR-SA	NSG 9049	Morgan, J. W.	13	3718
JSC	Smith, M. A.	U TEX PUB HLTH-HUS	NAS 9-15388	Booth, F.	51	3719
JSC	Hull, W. E.	U TEX HEALTH CTR-DAL	NSG 9026	Blomquist, C. G.	56	3717
JSC	Harris, J. W.	UNIV OF WASHINGTON	NSG 9032	Adams, J. B.	32	3958
JSC	Harris, J. W.	UNIV OF WASHINGTON	NSG 9052	Brownlee, D. E.	31	3959
JSC	Barnes, C. M.	UNIV OF WEST FLORIDA	NAS 9-15417	Schaefer, H. J.	59	1967
JSC	Cintron, N. M.	UNIV WISC-MADISON	NAS 9-15580	Schnoes, H. K.	56	3987
JSC	Nachtwey, D. S.	UTAH STATE UNIV	NAS 9-14871	Caldwell, M. M.	54	3740
JSC	Hull, W. E.	VIRGINIA COMNWLTH U	NSG 9063	Eckberg, D. L.	56	3867
JSC	Day, J. L.	VIRGINIA POLY INST	NSG 9-15287	Rivers, D. B.	56	3876
JSC	Harris, J. W.	WASHINGTON UNIVERSTY	NGL 26-008-065	Walker, R. M.	13	2781
JSC	Harris, J. W.	WASHINGTON UNIVERSTY	NSG 9055	Haskin, L. A.	32	2792
JSC	Williams, R.	WASHINGTON UNIVERSTY	NSG 9073	Haskin, L. A.	19	2793
KSC	Howard, F. S.	FLORIDA INST OF TECH	NAS10-9461	Thomas, J. J.	43	1914
KSC	Mason, J. D.	KENTUCKY STATE UNIV	NSG 801	Kloek, G.	59	2258
KSC	Palms, E. E.	SAVANNAH STATE COL	NSG 803	Ghuman, G. S.	39	2017
KSC	Jaffers, W.	UNIV OF ARIZONA	NAS10-8518	Krider, E. P.	31	1106
KSC	Buchanan, P.	UNIV OF CENTRAL FLA	NAS10-8986	Vickers, D. H.	39	1924
KSC	Springer, D. A.	UNIV OF CENTRAL FLA	NAS10-9455	Riad, S. M.	49	1925
KSC	Pope, C. D.	UNIV OF FLORIDA	NAS10-8920	Manvi, R.	39	1930
KSC	Pope, C. D.	UNIV OF FLORIDA	NAS10-9168	Gerber, J. F.	39	1931
KSC	Jaffers, W.	UNIV OF FLORIDA	NAS10-9378	Heasley, J. N.	45	1932
KSC	Bland, R. A.	UNIV OF FLORIDA	NAS10-9466	Arvanitis, L. G.	39	1933
KSC	Pope, C. D.	UNIV OF FLORIDA	NAS10-9611	Gerber, J. F.	31	1934
KSC	Horn, F. W.	UNIV OF FLORIDA	NAS10-9666	Blazquez, C. H.	39	1935
KSC	Jaffers, W.	UNIV OF FLORIDA	NGR 10-005-169	Uman, M. A.	31	1939
KSC	Bland, R. A.	UNIV OF MIAMI	NAS10-9410	Lee, S. S.	46	1957
KSC	Bryan, C. J.	UNIV STHN COLORADO	NSG 806	Mahan, K. I.	12	1810
LARC	Spence, D. C.	ARIZONA STATE UNIV	NAS 1-15168	Greeley, R.	31	1071
LARC	Yates, E. C., Jr.	BOSTON UNIVERSITY	NGR 22-004-030	Morino, L.	41	2432

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LARC	Powell, C. A.	BOSTON UNIVERSITY	NSG 1644	Hellman, R. D.	69	2433
LARC	Meador, W. E., Jr.	BROOKLYN COLLEGE	NSG 1378	Franco, V.	13	2904
LARC	Townsend, J. C.	BROWN UNIVERSITY	NSG 1617	Sirovich, L.	41	3457
LARC	Williams, T. S., Jr.	CALIF INST OF TECH	NAS 1-9703	Anderson, D. L.	39	1167
LARC	Houbolt, J. C.	CALIF INST OF TECH	NAS 1-15668	Culick, F. E.	41	1168
LARC	Starns, J. H., Jr.	CALIF INST OF TECH	NSG 1483	Knauss, W. G.	41	1204
LARC	Byvik, C. E.	CHRISTPHR NEWPRT COL	NSG 1514	Buoncristiani, A. M.	13	3754
LARC	Wilson, J. W.	CHRISTPHR NEWPRT COL	NSG 1614	Chang, C. K.	19	3755
LARC	Schroeder, L. C.	CITY COLLEGE OF N Y	NAS 1-15669	Pierson, W. J.	33	2905
LARC	Hess, R. V.	CITY COLLEGE OF N Y	NSG 1485	Tchen, C. M.	39	2910
LARC	Crouch, R. K.	CLARKSON COL OF TECH	NSG 1572	Carlson, F.	13	2916
LARC	Poe, C. C., Jr.	CLEMSON UNIV-CLEMSON	NSG 1297	Gorme, J. G.	46	3467
LARC	Douggett, R. V., Jr.	CLEMSON UNIV-CLEMSON	NSG 1411	Rudisill, C. S.	41	3468
LARC	Dunning, R. S.	CLEVELAND STATE UNIV	NSG 1445	Chukwu, E. N.	41	3192
LARC	Smith, D. D.	COLLEGE OF WM & MARY	NAS 1-9990	Heeman, W.	19	3756
LARC	Anderson, A. F.	COLLEGE OF WM & MARY	NAS 1-14972	Aceto, H., Jr.	99	3757
LARC	Greene, R. F., Jr.	COLLEGE OF WM & MARY	NAS 1-15899	Barnes, C. H., Jr.	99	3758
LARC	Tanner, J. A.	COLLEGE OF WM & MARY	NAS 1-15965	Andersen, C. M.	46	3759
LARC	Sullivan, E. M.	COLLEGE OF WM & MARY	NCC 1 3	Smith, M. A.	31	3760
LARC	Sullivan, E. M.	COLLEGE OF WM & MARY	NCC 1 16	Smith, M. A.	31	3761
LARC	Anderson, A. F.	COLLEGE OF WM & MARY	NGL 47-006-058	Rublein, G. T.	99	3762
LARC	Burks, H. D.	COLLEGE OF WM & MARY	NSG 1095	Kranbuehl, D. E.	12	3763
LARC	Sullivan, E. M.	COLLEGE OF WM & MARY	NSG 1203	Park, J. H.	31	3764
LARC	Miller, W. E.	COLLEGE OF WM & MARY	NSG 1385	Sher, A.	13	3765
LARC	Harris, J. L.	COLLEGE OF WM & MARY	NSG 1435	Donegan, M. K.	21	3766
LARC	Hohl, F.	COLLEGE OF WM & MARY	NSG 1564	Zang, T. A.	13	3767
LARC	Migneault, G. E.	COLLEGE OF WM & MARY	NSG 1625	Schaefer, M. K.	49	3768
LARC	Foudriat, E. C.	COLLEGE OF WM & MARY	NSG 1626	Feyock, S.	22	3769
LARC	Fripp, A. L.	COLLEGE OF WM & MARY	NSG 1653	Sher, A.	13	3770
LARC	Harrison, E. F.	COLORADO STATE UNIV	NAS 1-15580	VonderHaar, T. H.	31	1709
LARC	Lassiter, W. S.	COLORADO STATE UNIV	NAS 1-15925	Meroney, R. N.	31	1710
LARC	Exton, R. J.	COLORADO STATE UNIV	NSG 1594	She, C. Y.	13	1722
LARC	Harris, R. L., Sr.	COLUMBIA UNIVERSITY	NCC 1 5	Galanter, E.	41	2926
LARC	Mixson, J. S.	COLUMBIA UNIVERSITY	NSG 1450	Vaicaitis, R.	41	2932
LARC	Harris, R. L., Sr.	COLUMBIA UNIVERSITY	NSG 1541	Galanter, E.	41	2933
LARC	Stephens, D. G.	COLUMBIA UNIVERSITY	NSG 1550	Galanter, E.	49	2934
LARC	Stephens, D. G.	COLUMBIA UNIVERSITY	NSG 1616	Borsky, P. N.	49	2935
LARC	Williams, T. S., Jr.	CORNELL UNIVERSITY	NAS 1-9683	Sagan, C. E.	99	2950
LARC	Hutchby, J. A.	CORNELL UNIVERSITY	NSG 1642	Frey, J.	45	2968
LARC	Conway, E. J.	CORNELL UNIVERSITY	NSG 1651	Ballantyne, J. M.	45	2969
LARC	Murrow, H. N.	DEL MAR COLLEGE	NSG 1615	Trevino, G.	41	3535
LARC	Russell, J. M., III	DREXEL UNIVERSITY	NAS 1-14393	House, F. B.	31	3346
LARC	Price, D. B.	DREXEL UNIVERSITY	NSG 1496	Calise, A. J.	41	3350
LARC	Smith, G. L.	DREXEL UNIVERSITY	NSG 1545	House, F. B.	31	3351
LARC	Poe, C. C., Jr.	DREXEL UNIVERSITY	NSG 1606	Awerbuch, J.	47	3352
LARC	Hayduk, R. J.	DUKE UNIVERSITY	NSG 1647	Melosh, R. J.	49	3106
LARC	Houck, J. A.	EMBRY-RIDDLE AERO U	NAS 1-15724	Gandelman, J. H.	41	1906
LARC	Williams, T. S., Jr.	FLORIDA STATE UNIV	NAS 1-9693	Hess, S. K.	32	1915
LARC	McMaster, L. R.	FLORIDA STATE UNIV	NAS 1-14930	Craig, R. A.	31	1916
LARC	Duberg, J. E.	GEORGE WASHINGTON U	NAS 1-14605	Liebowitz, H.	41	1844
LARC	Orr, H. D., III	GEORGE WASHINGTON U	NCC 1 1	Liebowitz, H.	31	1847
LARC	Margeolis, K.	GEORGE WASHINGTON U	NCC 1 14	Liebowitz, H.	41	1848
LARC	Callis, L. B., Jr	GEORGE WASHINGTON U	NCC 1 19	Liebowitz, H.	31	1849
LARC	Bobbitt, P. J.	GEORGE WASHINGTON U	NCC 1 24	Liebowitz, H.	41	1850
LARC	Erickson, W. D.	GEORGE WASHINGTON U	NCC 1 27	Liebowitz, H.	41	1851
LARC	Duberg, J. E.	GEORGE WASHINGTON U	NGL 09-010-053	Liebowitz, H.	49	1852
LARC	Bobbitt, P. J.	GEORGE WASHINGTON U	NGR 09-010-074	Liebowitz, H.	41	1853
LARC	Anderson, R. A.	GEORGE WASHINGTON U	NGR 09-010-078	Liebowitz, H.	41	1854

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LARC	Margeolis, K.	GEORGE WASHINGTON U	NGR 09-010-085	Liebowitz, H	41	1855
LARC	Croswell, W. F.	GEORGE WASHINGTON U	NGR 09-010-096	Liebowitz, H.	45	1856
LARC	Callis, L. B., Jr.	GEORGE WASHINGTON U	NSG 1026	Rogerson, A. C.	31	1857
LARC	Croswell, W. F.	GEORGE WASHINGTON U	NSG 1110	Liebowitz, H.	45	1858
LARC	Swann, R. T.	GEORGE WASHINGTON U	NSG 1155	Liebowitz, H	47	1859
LARC	Suit, W. T.	GEORGE WASHINGTON U	NSG 1161	Liebowitz, H.	41	1860
LARC	Callis, L. B., Jr.	GEORGE WASHINGTON U	NSG 1216	Liebowitz, H.	31	1861
LARC	Costen, R. C.	GEORGE WASHINGTON U	NSG 1251	Rogerson, A. C.	31	1862
LARC	Roderick, G. L.	GEORGE WASHINGTON U	NSG 1289	Liebowitz, H.	47	1863
LARC	Crews, J. H., Jr.	GEORGE WASHINGTON U	NSG 1449	Liebowitz, H	47	1864
LARC	Greene, G. C.	GEORGE WASHINGTON U	NSG 1474	Liebowitz, H.	13	1865
LARC	Harris, J. L.	GEORGE WASHINGTON U	NSG 1508	Foley, J. D.	21	1866
LARC	Smith, G. L.	GEORGE WASHINGTON U	NSG 1555	Liebowitz, H.	31	1867
LARC	Elber, W.	GEORGE WASHINGTON U	NSG 1556	Gross, D.	21	1868
LARC	Kemp, W. B., Jr.	GEORGE WASHINGTON U	NSG 1585	Liebowitz, H	41	1869
LARC	O'Brien, T. K.	GEORGE WASHINGTON U	NSG 1604	Yang, J. N	47	1870
LARC	Lawrence, G. F.	GEORGIA INST OF TECH	NAS 1-14351	Zimmer, R. P.	31	1976
LARC	O'Neal, R. L.	GEORGIA INST OF TECH	NAS 1-14654	Blue, M. D.	45	1977
LARC	Hall, J. B., Jr.	GEORGIA INST OF TECH	NAS 1-14947	Wilkins, R. D.	99	1978
LARC	Young, W. H., Jr.	GEORGIA INST OF TECH	NAS 1-15158	Gray, R. B.	41	1979
LARC	O'Neal, R. L.	GEORGIA INST OF TECH	NAS 1-15370	Gaylord, T. K.	45	1980
LARC	McMaster, L. R.	GEORGIA INST OF TECH	NSG 1493	Grams, G. W.	31	1993
LARC	Lee, B. L.	GEORGIA INST OF TECH	NSG 1592	Pierce, G. A.	41	1994
LARC	McMaster, L. R.	GEORGIA INST OF TECH	NSG 1643	Cunnold, D. M.	31	1995
LARC	Jewel, J. W., Jr.	HAMPTON INSTITUTE	NAS 1-14507	Williams, G. K	41	3777
LARC	Erickson, W. D.	HAMPTON INSTITUTE	NAS 1-14832	Darden, G. C.	19	3778
LARC	Knox, C. E.	HAMPTON INSTITUTE	NAS 1-15445	Hargrove, A.	41	3779
LARC	Beckwith, I. E	HAMPTON INSTITUTE	NAS 1-15877	Anyiwo, J. C.	41	3780
LARC	Cox, J. J.	HAMPTON INSTITUTE	NCA 1-25	Slaughter, L. H.	49	3781
LARC	Haigler, G. W.	HAMPTON INSTITUTE	NCC 1 7	Shan, S. N	21	3782
LARC	Poole, L. R.	HAMPTON INSTITUTE	NCC 1 11	Peterson, A. M.	39	3783
LARC	Jobson, D. J.	HAMPTON INSTITUTE	NSG 1294	Trehan, A. K.	45	3784
LARC	Hogge, J. E.	HAMPTON INSTITUTE	NSG 1478	Hargrove, A.	21	3785
LARC	Beckwith, I. E.	HAMPTON INSTITUTE	NSG 1505	Anyiwo, J. C.	41	3786
LARC	Katzberg, S. J.	HAMPTON INSTITUTE	NSG 1552	Trehan, A. K.	45	3787
LARC	Hohl, F.	HAMPTON INSTITUTE	NSG 1595	Han, K. S.	13	3788
LARC	Williams, T. S., Jr.	HARVARD UNIVERSITY	NAS 1-10492	McElroy, M. B.	31	2441
LARC	Horner, G. C.	HOWARD UNIVERSITY	NSG 1320	Jones, I. W.	42	1886
LARC	Hammer, H. A.	HOWARD UNIVERSITY	NSG 1414	Bainum, P. M.	49	1887
LARC	Adelman, H. M.	ILL INST OF TECH	NSG 1266	Haftka, R. T	41	2060
LARC	Hefner, J. N.	ILL INST OF TECH	NSG 1591	Nagib, H. M.	41	2061
LARC	Salas, M. D.	IOWA STATE UNIV	NCC 1 17	Anderson, D. A.	41	2187
LARC	Fralich, R. W.	IOWA STATE UNIV	NSG 1372	McDaniel, T. J	49	2191
LARC	Salas, M. D.	IOWA STATE UNIV	NSG 1535	Anderson, D. A.	41	2192
LARC	Shoosmith, J. N.	IOWA STATE UNIV	NSG 1538	Feinberg, R. B.	21	2193
LARC	Morris, D. J.	IOWA STATE UNIV	NSG 1582	Iversen, J. D	41	2194
LARC	Tanner, J. A.	IOWA STATE UNIV	NSG 1605	Baumgarten, J. R.	46	2195
LARC	Abel, I.	ISRAEL INST OF TECH	NSG 7373	Nissim, E.	41	4033
LARC	Bavuso, S. J.	JOHNS HOPKINS UNIV	NSG 1442	Masson, G. M	45	2316
LARC	Woods, D. C.	LE MOYNE-OWEN COL	NSG 1593	Matthews, N	31	3485
LARC	Everett, R. A., Jr.	LEHIGH UNIVERSITY	NGR 39-007-011	Erdogan, F.	21	3364
LARC	Williams, T. S., Jr.	MASS INST OF TECH	NAS 1-9684	Biemann, K.	39	2485
LARC	McMaster, L. R.	MASS INST OF TECH	NAS 1-14932	Cunnold, D. M.	31	2486
LARC	Hubbard, H. H.	MASS INST OF TECH	NAS 1-15154	Ingard, K. V	41	2487
LARC	Maddalon, D. V.	MASS INST OF TECH	NAS 1-15268	Taneja, N. K.	41	2488
LARC	Harris, R. L., Sr	MASS INST OF TECH	NCC 1 23	Tole, J. R.	41	2517
LARC	Downing, D. R.	MASS INST OF TECH	NGL 22-009-640	Simpson, R. W.	41	2527
LARC	Byvik, C. E.	MASS INST OF TECH	NSG 1048	Wrighton, M. S.	13	2543

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LARC	Byvik, C. E.	MASS INST OF TECH	NSG 1190	Gatos, H. C.	47	2544
LARC	Armstrong, E. S.	MASS INST OF TECH	NSG 1312	Stein, G.	45	2545
LARC	Shoosmith, J. N.	MASS INST OF TECH	NSG 1323	Moses, J.	22	2546
LARC	Boyden, R. P.	MASS INST OF TECH	NSG 1356	Covert, E. E.	41	2547
LARC	Akey, N. D.	MASS INST OF TECH	NSG 1413	Fonstad, C. G.	13	2548
LARC	Bushnell, D. M.	MASS INST OF TECH	NSG 1453	Melcher, J. R.	41	2549
LARC	Boyden, R. P.	MASS INST OF TECH	NSG 1502	Covert, E. E.	41	2550
LARC	Price, H. L.	MASS INST OF TECH	NSG 1504	McGarry, F. J.	47	2551
LARC	Singh, J. J.	MASS INST OF TECH	NSG 1551	Greytak, T. J.	13	2552
LARC	Armstrong, E. S.	MASS INST OF TECH	NSG 1553	Stein, G.	45	2553
LARC	Greene, G. C.	MASS INST OF TECH	NSG 1583	Ingard, K. V.	13	2554
LARC	Hohl, F.	MIAMI UNIVERSITY	NCC 1 12	Wells, W. E.	13	3203
LARC	Hohl, F.	MIAMI UNIVERSITY	NSG 1383	Wells, W. E.	13	3204
LARC	Hohl, F.	MIAMI UNIVERSITY	NSG 1396	Wells, W. E.	13	3205
LARC	South, J. C., Jr.	MISSISSIPPI STATE U	NGR 25-001-055	Thompson, J. F.	41	2742
LARC	Hall, A. W.	MISSISSIPPI STATE U	NSG 1083	Rogerson, A. C.	41	2743
LARC	Stewart, E. C.	MISSISSIPPI STATE U	NSG 1249	Bennett, A. G., Jr.	41	2744
LARC	Hassell, J. L., Jr.	MISSISSIPPI STATE U	NSG 1402	Bennett, A. G., Jr.	41	2745
LARC	Judd, J. H.	MISSISSIPPI STATE U	NSG 1454	Bennett, A. G., Jr.	41	2746
LARC	Holmes, B. J.	MISSISSIPPI STATE U	NSG 1511	Cross, E. J.	41	2747
LARC	Smith, R. E.	MISSISSIPPI STATE U	NSG 1577	Thompson, J. F.	21	2748
LARC	Thomas, J. L.	MISSISSIPPI STATE U	NSG 1623	Bennett, A. G., Jr.	41	2749
LARC	StClair, T. L.	MISS UNIV FOR WOMEN	NSG 1539	Pratt, J. R.	12	2750
LARC	Huber, P. W.	NEW YORK UNIVERSITY	NGR 33-016-131	Agnone, A. M.	41	3000
LARC	Edwards, C. L.	NEW YORK UNIVERSITY	NSG 1444	Zakkay, V.	41	3003
LARC	Liu, C. H.	NEW YORK UNIVERSITY	NSG 1469	Ting, L.	41	3004
LARC	Darden, C. M.	NEW YORK UNIVERSITY	NSG 1576	Ting, L.	13	3005
LARC	South, J. C., Jr.	NEW YORK UNIVERSITY	NSG 1579	Garabedian, P. R.	21	3006
LARC	Knight, J. C.	NEW YORK UNIVERSITY	NSG 1610	Schwartz, J. T.	21	3007
LARC	Rhodes, M. D.	NO CAR A&T STATE U	NSG 1296	Sharma, A. V.	47	3111
LARC	Hutchby, J. A.	NO CAR A&T STATE U	NSG 1390	Stefanakos, E.	45	3112
LARC	Buckley, J. D.	NO CAR A&T STATE U	NSG 1516	Botros, B. M.	47	3113
LARC	Rhodes, M. D.	NO CAR A&T STATE U	NSG 1631	Sharma, A. V.	44	3114
LARC	Lamar, J. E.	NO CAROLINA STATE U	NCC 1 13	Dejarnette, F. R.	41	3121
LARC	South, J. C., Jr.	NO CAROLINA STATE U	NCC 1 22	Hassan, H. A.	41	3122
LARC	Mayes, W. H.	NO CAROLINA STATE U	NGL 34-002-095	Horvath, J. J.	69	3123
LARC	Croswell, W. F.	NO CAROLINA STATE U	NGR 34-002-188	Kauffman, J. F.	45	3124
LARC	Meador, W. E., Jr.	NO CAROLINA STATE U	NSG 1058	Hassan, H. A.	13	3126
LARC	Crane, H. L.	NO CAROLINA STATE U	NSG 1077	Smetana, F. O.	41	3127
LARC	Mayes, W. H.	NO CAROLINA STATE U	NSG 1205	Hart, F. D.	13	3128
LARC	Benz, H. F.	NO CAROLINA STATE U	NSG 1353	Snyder, W. E.	45	3129
LARC	Hatfield, J. J.	NO CAROLINA STATE U	NSG 1355	Rajala, S. A.	45	3130
LARC	Brooks, T. F.	NO CAROLINA STATE U	NSG 1377	Hodgson, T. H.	41	3131
LARC	Long, E. R., Jr.	NO CAROLINA STATE U	NSG 1463	Memory, J. D.	47	3132
LARC	Park, S. K.	NO CAROLINA STATE U	NSG 1549	Rouher, J. A.	22	3133
LARC	Long, E. R., Jr.	NO CAROLINA STATE U	NSG 1562	Fornes, R. E.	13	3134
LARC	Crane, H. L.	NO CAROLINA STATE U	NSG 1584	Smetana, F. O.	41	3135
LARC	Croswell, W. F.	NO CAROLINA STATE U	NSG 1588	Kauffman, J. F.	45	3136
LARC	Barnwell, R. W.	OHIO STATE UNIV	NAS 1-14406	Gregorek, G. M.	41	3207
LARC	Greene, G. C.	OHIO STATE UNIV	NAS 1-15680	Gregorek, G. M.	41	3208
LARC	Bergeron, H. P.	OHIO STATE UNIV	NAS 1-15969	Weislogel, G. S.	41	3209
LARC	Gilreath, M. C.	OHIO STATE UNIV	NSG 1498	Burnside, W. D.	45	3221
LARC	Gilreath, M. C.	OHIO STATE UNIV	NSG 1613	Peters, L.	45	3222
LARC	Holmes, B. J.	OHIO STATE UNIV	NSG 1620	Gilson, R. D.	41	3223
LARC	Barnwell, R. W.	OHIO STATE UNIV	NSG 1622	Burggraf, O. R.	41	3224
LARC	Downing, D. R.	OHIO UNIVERSITY	NGR 36-009-017	McFarland, R. H.	45	3242
LARC	Seiner, J. M.	OKLAHOMA STATE UNIV	NSG 1467	McLaughlin, D. K.	41	3300
LARC	Anderson, A. F.	OLD DOMINION UNIV	NAS 1-14193	Maygarden, E. M.	99	3789

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LARC	Erickson, W. D.	OLD DOMINION UNIV	NAS 1-15648	Unavailable	41	3790
LARC	Reichle, H. G., Jr.	OLD DOMINION UNIV	NCC 1 2	Kindle, E. C.	31	3791
LARC	Peterson, J. B., Jr.	OLD DOMINION UNIV	NCC 1 9	Goglia, G. L.	41	3792
LARC	Erickson, W. D.	OLD DOMINION UNIV	NGR 47-003-052	Roberts, A. S., Jr.	41	3793
LARC	Tripp, J. S.	OLD DOMINION UNIV	NSG 1079	Tcheng, P. L.	45	3796
LARC	Dodgen, J. A.	OLD DOMINION UNIV	NSG 1131	Kindle, E. C.	31	3797
LARC	Kershner, D. D.	OLD DOMINION UNIV	NSG 1143	Barna, P. S.	41	3798
LARC	Davis, J. G., Jr.	OLD DOMINION UNIV	NSG 1167	Thornton, E. A.	41	3799
LARC	Hellbaum, R. F.	OLD DOMINION UNIV	NSG 1177	Rogerson, A. C.	45	3800
LARC	Melfi, L. T., Jr.	OLD DOMINION UNIV	NSG 1271	Brock, F. J.	13	3801
LARC	Card, M. F.	OLD DOMINION UNIV	NSG 1279	Tweed, J.	49	3802
LARC	Peterson, J. B., Jr.	OLD DOMINION UNIV	NSG 1315	Goglia, G. L.	41	3803
LARC	Wieting, A. R.	OLD DOMINION UNIV	NSG 1321	Thornton, E. A.	49	3804
LARC	Holmes, H. K.	OLD DOMINION UNIV	NSG 1324	Zuckerman, A. J.	13	3805
LARC	Campbell, T. G.	OLD DOMINION UNIV	NSG 1331	Becher, J.	45	3806
LARC	McMaster, L. R.	OLD DOMINION UNIV	NSG 1341	Chu, W. P.	31	3807
LARC	Peterson, J. B., Jr.	OLD DOMINION UNIV	NSG 1357	Kuhlman, J. M.	41	3808
LARC	Hohl, F.	OLD DOMINION UNIV	NSG 1362	Harries, W. L.	13	3809
LARC	Gainer, P. A.	OLD DOMINION UNIV	NSG 1379	Varanasi, M. R.	45	3810
LARC	Phillips, D. H.	OLD DOMINION UNIV	NSG 1393	Ake, R. L.	12	3811
LARC	Reichle, H. G., Jr.	OLD DOMINION UNIV	NSG 1394	Kindle, E. C.	31	3812
LARC	Beck, S. M.	OLD DOMINION UNIV	NSG 1395	Kindle, E. C.	31	3813
LARC	Hanks, B. R.	OLD DOMINION UNIV	NSG 1459	Ibrahim, S. R.	46	3814
LARC	Graves, R. A., Jr.	OLD DOMINION UNIV	NSG 1464	Tiwari, S. N.	41	3815
LARC	Hoell, J. M.	OLD DOMINION UNIV	NSG 1466	Copeland, G. E.	31	3816
LARC	Groom, N. J.	OLD DOMINION UNIV	NSG 1473	Roberts, A. S., Jr.	49	3817
LARC	Browell, E. V.	OLD DOMINION UNIV	NSG 1477	Kindle, E. C.	39	3818
LARC	Creedon, J. F.	OLD DOMINION UNIV	NSG 1480	Tcheng, P. L.	41	3819
LARC	Bushnell, D. M.	OLD DOMINION UNIV	NSG 1491	Goglia, G. L.	41	3820
LARC	Sutton, K.	OLD DOMINION UNIV	NSG 1500	Tiwari, S. N.	49	3821
LARC	Kilgore, R. A.	OLD DOMINION UNIV	NSG 1503	Goglia, G. L.	41	3822
LARC	Mikulas, M. M., Jr.	OLD DOMINION UNIV	NSG 1507	Prabhakaran, R.	42	3823
LARC	Dwoyer, D. L.	OLD DOMINION UNIV	NSG 1517	Cooke, C. H.	41	3824
LARC	Moul, M. T.	OLD DOMINION UNIV	NSG 1519	Liberty, S. R.	41	3825
LARC	Lisagor, W. B.	OLD DOMINION UNIV	NSG 1521	Cupschalk, S. G.	47	3826
LARC	Suttles, J. T.	OLD DOMINION UNIV	NSG 1522	Tiwari, S. N.	31	3827
LARC	Yates, E. C., Jr.	OLD DOMINION UNIV	NSG 1560	Kandil, O. A.	41	3828
LARC	Lamar, J. E.	OLD DOMINION UNIV	NSG 1561	Goglia, G. L.	41	3829
LARC	Gentry, G. L.	OLD DOMINION UNIV	NSG 1563	Barna, P. S.	41	3830
LARC	Waller, M. C.	OLD DOMINION UNIV	NSG 1565	Rana, D. S.	21	3831
LARC	Hohl, F.	OLD DOMINION UNIV	NSG 1568	Harries, W. L.	13	3832
LARC	Bushnell, D. M.	OLD DOMINION UNIV	NSG 1618	Grosch, C. E.	41	3833
LARC	Hefner, J. N.	OLD DOMINION UNIV	NSG 1634	Ash, R. L.	41	3834
LARC	Harvey, W. D.	OLD DOMINION UNIV	NSG 1645	Goglia, G. L.	41	3835
LARC	Card, M. F.	OLD DOMINION UNIV	NSG 1649	Ibrahim, S. R.	46	3836
LARC	Moul, M. T.	OLD DOMINION UNIV	NSG 1650	Liberty, S. R.	41	3837
LARC	Gilreath, M. C.	OLD DOMINION UNIV	NSG 1655	Mielke, R. R.	45	3838
LARC	Fisher, B. D.	PENN STATE U-UNIV PK	NSG 1308	McCormick, B. W.	41	3395
LARC	Fripp, A. L.	PENN STATE U-UNIV PK	NSG 1387	White, W. B.	47	3396
LARC	Gatski, T. B.	PENN STATE U-UNIV PK	NSG 1580	Morris, P. J.	41	3397
LARC	Salas, M. D.	POLY INST OF NY	NSG 1248	Moretti, G.	41	3018
LARC	Swanson, R. C.	POLY INST OF NY	NSG 1559	Rubin, S. G.	41	3019
LARC	Williams, T. S., Jr.	POMONA COLLEGE	NAS 1-11854	Baird, A. K.	12	1260
LARC	Williams, T. S., Jr.	PRINCETON UNIVERSITY	NAS 1-9705	Hargraves, R. B.	19	2833
LARC	Miller, G. K.	PRINCETON UNIVERSITY	NAS 1-13502	Socket, E.	41	2834
LARC	Downing, D. R.	PRINCETON UNIVERSITY	NAS 1-15758	Stengel, R. F.	41	2835
LARC	Niessen, F. R.	PRINCETON UNIVERSITY	NAS 1-15764	Stengel, R. F.	41	2836
LARC	Downing, D. R.	PRINCETON UNIVERSITY	NGL 31-001-252	Graham, D.	41	2846

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LARC	Honaker, W. C.	PRINCETON UNIVERSITY	NSG 1070	Miles, R. B.	13	2848
LARC	Mixson, J. S.	PRINCETON UNIVERSITY	NSG 1253	Dowell, E. H.	41	2849
LARC	Schy, A. A.	PRINCETON UNIVERSITY	NSG 1587	Stengel, R. F.	41	2850
LARC	Jones, J. J.	PRINCETON UNIVERSITY	NSG 1630	Bienkowski, G. K.	41	2851
LARC	Swanson, R. C.	PURDUE UNIVERSITY	NSG 1635	McCarthy, D. R.	41	2158
LARC	Swann, R. T.	RENSSELAER POLY-NY	NSG 1510	Ansell, G. S.	47	3037
LARC	Barnwell, R. W.	RENSSELAER POLY-NY	NSG 1624	Nagamatsu, H. T.	41	3038
LARC	Meador, W. E., Jr.	RENSSELAER POLY-NY	NSG 1628	Schwarz, H. J.	13	3039
LARC	Rogers, J. L.	RENSSELAER POLY-NY	NSG 1636	Feeser, L. J.	44	3040
LARC	Jones, W. L.	RUTGERS U-N BRUNSWK	NSG 1566	Delnore, V. E.	33	2873
LARC	Levine, J. S.	SAN DIEGO STATE UNIV	NSG 1430	Angione, R. J.	31	1262
LARC	Bushnell, D. M.	SOUTHERN METHODIST U	NSG 1548	Simpson, R. L.	41	3566
LARC	O'Neal, R. L.	SO UNIV-BATON ROUGE	NAS 1-15335	Scott, R. L., Jr.	31	2279
LARC	Williams, T. S., Jr.	STANFORD UNIVERSITY	NAS 1-9692	Lederberg, J.	59	1305
LARC	Doggett, R. V., Jr.	STANFORD UNIVERSITY	NGL 05-020-243	Ashley, H.	41	1350
LARC	Shoosmith, J. N.	STANFORD UNIVERSITY	NSG 1443	Golub, G. H.	21	1370
LARC	Williams, T. S., Jr.	STATE U NY-STONY BRK	NAS 1-10493	Owen, T.	39	3064
LARC	Bushnell, D. M.	STEVENS INST OF TECH	NSG 1619	Salwen, H.	41	2879
LARC	Benz, H. F.	SYRACUSE UNIVERSITY	NSG 1602	Kowel, S. T.	45	3092
LARC	Segura, R.	SYRACUSE UNIVERSITY	NSG 1611	Kowel, S. T.	45	3093
LARC	Hayes, P. J.	SYRACUSE UNIVERSITY	NSG 1654	Schroder, K.	47	3094
LARC	South, J. C., Jr.	TEXAS A&M UNIVERSITY	NSG 1174	Carlson, L. A.	41	3593
LARC	Lytte, C. D.	TEXAS A&M UNIVERSITY	NSG 1374	Painter, J. H.	45	3594
LARC	Chambers, J. R.	TEXAS A&M UNIVERSITY	NSG 1407	Chevalier, H. L.	41	3595
LARC	Hearn, C. P.	TEXAS A&M UNIVERSITY	NSG 1639	Painter, J. H.	45	3596
LARC	McCormick, M. P.	UNIV OF ARIZONA	NAS 1-14332	Herman, B. M.	31	1090
LARC	McMaster, L. R.	UNIV OF ARIZONA	NAS 1-14928	Herman, B. M.	31	1091
LARC	Sachse, G. W.	UNIV CALIF-BERKELEY	NSG 1637	Chiao, R. Y.	13	1456
LARC	Sobieski, J.	UNIV CALIF-L ANGELES	NSG 1490	Schmit, L. A., Jr.	49	1528
LARC	Hammond, C. E.	UNIV CALIF-L ANGELES	NSG 1578	Friedman, P. P.	41	1529
LARC	Sullivan, E. M.	UNIV CALIF-SAN DIEGO	NSG 1590	Cicerone, R. J.	31	1599
LARC	Whitlock, C. H.	UNIV CALIF-SAN DIEGO	NSG 1641	Smith, R. C.	33	1600
LARC	Mikulas, M. M., Jr.	UNIV OF CINCINNATI	NSG 1185	Nayfeh, A. H.	49	3248
LARC	Monteith, J. H.	UNIV OF CINCINNATI	NSG 1486	Brown, D. L.	46	3249
LARC	Loendorf, D. D.	UNIV COLORADO-BOLDR	NSG 1489	Jordan, H. F.	49	1760
LARC	Senn, E. H.	UNIV COLORADO-BOLDR	NSG 1638	Riddle, W. F.	41	1761
LARC	Housner, J. M.	UNIV COLORADO-DENVER	NAS 1-15775	Thurston, G. A.	41	1794
LARC	Deaton, J. W.	UNIV OF DELAWARE	NSG 1304	Pipes, R. B.	46	1830
LARC	Garcia, R.	UNIV OF DELAWARE	NSG 1409	Pipes, R. B.	42	1831
LARC	Bowker, D. E.	UNIV OF DELAWARE	NSG 1433	Klemas, V.	39	1832
LARC	McWithey, R. R.	UNIV OF DELAWARE	NSG 1488	Vinson, J. R.	42	1833
LARC	Bushnell, D. M.	UNIV OF DELAWARE	NSG 1513	Danberg, J. E.	41	1834
LARC	McMaster, L. R.	UNIV OF DENVER	NAS 1-14929	Murcay, D. G.	31	1796
LARC	Goad, J. H., Jr.	UNIV OF DENVER	NSG 1405	Goldman, A.	31	1803
LARC	Orr, H. D., III	UNIV OF DENVER	NSG 1432	Murcay, D. G.	39	1804
LARC	McCormick, M. P.	UNIV OF DENVER	NSG 1439	Murcay, D. G.	31	1805
LARC	Goad, J. H., Jr.	UNIV OF DENVER	NSG 1557	Murcay, D. G.	31	1806
LARC	Walker, G. H.	UNIV OF FLORIDA	NSG 1425	Li, S. S.	45	1941
LARC	Hohl, F.	UNIV OF FLORIDA	NSG 1586	Schneider, R. T.	13	1942
LARC	Reichle, H. G., Jr.	UNIV OF FLORIDA	NSG 1600	Chameides, W. L.	31	1943
LARC	Maestrello, L.	UNIV HOUSTON-HOUSTON	NSG 1475	Hussain, A. K.	41	3623
LARC	Horner, G. C.	UNIV HOUSTON-HOUSTON	NSG 1603	Denman, E. D.	45	3624
LARC	Evans, J. S.	UNIV ILLINOIS-CHICGO	NSG 1150	Chung, P. M.	41	2110
LARC	Salmirs, S.	UNIV ILLINOIS-URBANA	NAS 1-14731	Jensen, R. S.	41	2112
LARC	Jordan, F. L.	UNIV ILLINOIS-URBANA	NSG 1434	Ormsbee, A. I.	41	2120
LARC	Foudriat, E. C.	UNIV ILLINOIS-URBANA	NSG 1471	Campbell, R. H.	21	2121
LARC	Hohl, F.	UNIV ILLINOIS-URBANA	NSG 1547	Miley, G. H.	13	2122
LARC	Hohl, F.	UNIV ILLINOIS-URBANA	NSG 1609	Verdeyen, J. T.	13	2123



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LARC	Rummler, D. R.	UNIV OF IOWA	NSG 1499	Wu, H. C.	47	2213
LARC	Holmes, B. J.	UNIV OF KANSAS	NAS 1-15770	Roskam, J.	41	2227
LARC	Stephens, D. G.	UNIV OF KANSAS	NCC 1 6	Roskam, J.	41	2232
LARC	Campbell, J. F.	UNIV OF KANSAS	NCC 1 18	Lan, C. E.	41	2233
LARC	Lamar, J. E.	UNIV OF KANSAS	NSG 1046	Roskam, J.	41	2235
LARC	Howell, W. E.	UNIV OF KANSAS	NSG 1281	Reese, C. D.	47	2236
LARC	Schroeder, L. C.	UNIV OF KANSAS	NSG 1397	Moore, R. K.	33	2237
LARC	Campbell, J. F.	UNIV OF KANSAS	NSG 1537	Lan, C. E.	41	2238
LARC	Crosswell, W. F.	UNIV OF KANSAS	NSG 1554	Moore, R. K.	45	2239
LARC	Hassell, J. L., Jr.	UNIV OF KANSAS	NSG 1574	Roskam, J.	41	2240
LARC	Lamar, J. E.	UNIV OF KANSAS	NSG 1629	Lan, C. E.	41	2241
LARC	Holmes, B. J.	UNIV OF KANSAS	NSG 1633	Lenzen, K. H.	41	2242
LARC	Reichle, H. G., Jr.	UNIV OF KENTUCKY	NSG 1501	Peters, L. K.	31	2261
LARC	Fralich, R. W.	UNIVERSITY OF LOWELL	NSG 1295	McElman, J. A.	41	2611
LARC	Browell, E. V.	UNIV MARYLAND-COL PK	NCC 1 25	Wilkerson, T. D.	31	2362
LARC	Benz, H. F.	UNIV MARYLAND-COL PK	NSG 1468	Lin, H. C.	45	2380
LARC	Schy, A. A.	UNIV MARYLAND-COL PK	NSG 1558	Wang, S. H.	45	2381
LARC	DiCarlo, D. J.	UNIV MARYLAND-COL PK	NSG 1570	Barlow, J. B.	41	2382
LARC	Lisagor, W. B.	UNIV OF MIAMI	NSG 1283	Poteat, L. E.	47	1960
LARC	Tucker, J. H.	UNIV OF MIAMI	NSG 1436	Tapia, M. A.	21	1961
LARC	Russell, J. M., III	UNIV MICH-ANN ARBOR	NAS 1-14394	Drayson, S. R.	31	2629
LARC	Jones, J. L.	UNIV MICH-ANN ARBOR	NAS 1-15333	Felbeck, D. K.	47	2630
LARC	Fichter, W. B.	UNIV MICH-ANN ARBOR	NGR 23-005-528	Felbeck, D. K.	47	2663
LARC	Pellett, G. L.	UNIV MICH-ANN ARBOR	NSG 1243	Dingle, A. N.	31	2664
LARC	Migneault, G. E.	UNIV MICH-ANN ARBOR	NSG 1306	Meyer, J. F.	45	2665
LARC	South, J. C., Jr.	UNIV MICH-ANN ARBOR	NSG 1326	Adamson, T. C., Jr.	41	2666
LARC	Sullivan, E. M.	UNIV MICH-ANN ARBOR	NSG 1373	Drayson, S. R.	31	2667
LARC	Dunning, R. S.	UNIV MICH-ANN ARBOR	NSG 1448	Vinh, N. X.	41	2668
LARC	Smith, G. L.	UNIV MICH-ANN ARBOR	NSG 1482	Bartman, F. L.	31	2669
LARC	McCarty, J. L.	UNIV MICH-ANN ARBOR	NSG 1494	Clark, S. K.	41	2670
LARC	McCarty, J. L.	UNIV MICH-ANN ARBOR	NSG 1607	Clark, S. K.	41	2671
LARC	Beswick, A. G.	U MINN-MNPLS-ST PAUL	NSG 1431	Mauersberger, K.	31	2711
LARC	Migneault, G. E.	UNIV MO-COLUMBIA	NSG 1540	Miller, D. R.	22	2761
LARC	Graves, R. A., Jr.	UNIV MO-ROLLA	NSG 1369	Biolsi, L.	12	2767
LARC	Hefner, J. N.	UNIV MO-ROLLA	NSG 1452	Patterson, G. K.	41	2768
LARC	Tanner, J. A.	UNIV NEBRASKA-LINCLN	NSG 1506	Baumgarten, J. R.	46	2799
LARC	Wood, G. M.	UNIV OF NEW ORLEANS	NSG 1460	Ioup, G. E.	47	2290
LARC	Lambiotte, J. J., Jr.	UNIV OF NEW ORLEANS	NSG 1648	Ioup, G. E.	21	2291
LARC	Somers, D. M.	UNIV OF NOTRE DAME	NSG 1419	Mueller, T. J.	41	2176
LARC	Gross, C.	UNIV OKLAHOMA-NORMAN	NSG 1481	Kahng, S. K.	45	3314
LARC	Brewer, W. D.	UNIV OF PENNSYLVANIA	NSG 1596	Vogel, F. L.	19	3430
LARC	Campbell, J. W.	UNIV OF RHODE ISLAND	NSG 1495	Spaulding, M. L.	33	3464
LARC	Park, S. K.	UNIV OF SO FLORIDA	NSG 1487	Tsokos, C. P.	21	1966
LARC	Kilgore, R. A.	UNIV OF SOUTHAMPTON	NSG 7172	Goodyer, M. J.	41	4030
LARC	Boyden, R. P.	UNIV OF SOUTHAMPTON	NSG 7523	Goodyer, M. J.	41	4031
LARC	Stein, M.	UNIV OF SOUTHERN CAL	NSG 1401	Seide, P.	41	1698
LARC	Conway, E. J.	UNIV OF SOUTHERN CAL	NSG 1536	Kroger, F. A.	47	1699
LARC	Wood, G. M.	UNIV SO MISSISSIPPI	NSG 1515	Rayborn, G. H.	19	2753
LARC	Melfi, L. T., Jr.	UNIV OF SYDNEY	NSG 7272	Bird, G. A.	13	4023
LARC	Bland, S. R.	UNIV TENNESSEE-KNOXV	NSG 1224	Kimble, K. R.	41	3512
LARC	Robinson, J. C.	U TENNESSEE-NASHVILLE	NSG 1455	Blackburn, C. L.	41	3519
LARC	Shoosmith, J. N.	UNIV TEXAS-AUSTIN	NSG 1440	Daniel, J. W.	21	3659
LARC	Shipman, F. S.	UNIV TEXAS-AUSTIN	NSG 1446	Browne, J. C.	22	3660
LARC	Will, R. W.	UNIV TEXAS-AUSTIN	NSG 1479	Browne, J. C.	22	3661
LARC	Schiess, J. R.	UNIV TEXAS-AUSTIN	NSG 1544	Cline, A. K.	22	3662
LARC	Smith, R. E.	UNIV TEXAS-AUSTIN	NSG 1632	Sherman, A. H.	21	3663
LARC	Robertson, J. B.	UNIV TEXAS-EL PASO	NSG 1316	Eastman, M. P.	13	3711
LARC	Baker, D. J.	UNIV OF TORONTO	NSG 7409	Tennyson, R. C.	47	4024

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LARC	Card, M. F.	UNIV OF UTAH	NSG 1313	Resch, R. D.	49	3729
LARC	Fripp, A. L.	UNIV OF UTAH	NSG 1534	Rosenberger, F. E.	47	3730
LARC	Will, R. W.	UNIV OF VIRGINIA	NAS 1-14862	Berman, W. J.	22	3841
LARC	Conner, D. W.	UNIV OF VIRGINIA	NAS 1-14908	Kuhlthau, A. R.	49	3842
LARC	Kilgore, R. A.	UNIV OF VIRGINIA	NSG 1010	Zapata, R. N.	41	3852
LARC	Bowles, R. L.	UNIV OF VIRGINIA	NSG 1335	Brown, R. L., Jr.	21	3853
LARC	Tapscott, R. J.	UNIV OF VIRGINIA	NSG 1399	Jacobson, I. D.	49	3854
LARC	Humes, D. H.	UNIV OF VIRGINIA	NSG 1427	Singer, S. F.	11	3855
LARC	Will, R. W.	UNIV OF VIRGINIA	NSG 1458	Pratt, T. W.	22	3856
LARC	DeLoach, R.	UNIV OF VIRGINIA	NSG 1509	Jacobson, I. D.	69	3857
LARC	Beatty, M. E.	UNIV OF VIRGINIA	NSG 1567	Batchman, T. E.	13	3858
LARC	Ashworth, B. R.	UNIV OF VIRGINIA	NSG 1599	Parrish, E. A.	45	3859
LARC	Fripp, A. L.	UNIV OF VIRGINIA	NSG 1652	Jesser, W. A.	47	3860
LARC	Williams, T. S., Jr.	UNIV OF WASHINGTON	NAS 1-9694	Leovy, C. B.	31	3923
LARC	Russell, J. M., III	UNIV OF WASHINGTON	NAS 1-14341	Leovy, C. B.	31	3924
LARC	Browell, E. V.	UNIV WISC-MADISON	NAS 1-14136	Eloranta, E.	31	3968
LARC	Young, W. H., Jr.	UNIV WISC-MILWAUKEE	NGR 50-007-001	Bratanow, T.	41	4010
LARC	Hedgepeth, K. D.	UNIV OF WYOMING	NAS 1-13797	Pepin, T. J.	31	4012
LARC	McCormick, M. P.	UNIV OF WYOMING	NAS 1-14373	Pepin, T. J.	31	4013
LARC	McMaster, L. R.	UNIV OF WYOMING	NAS 1-14931	Pepin, T. J.	31	4014
LARC	McMaster, L. R.	UNIV OF WYOMING	NAS 1-15377	Hofmann, D. J.	31	4015
LARC	McMaster, L. R.	UNIV OF WYOMING	NSG 1518	Pepin, T. J.	31	4019
LARC	Hohl, F.	VANDERBILT UNIVERSTY	NCC 1 8	Lee, J. H.	13	3521
LARC	Hohl, F.	VANDERBILT UNIVERSTY	NSG 1235	Lee, J. H.	13	3522
LARC	Anderson, A. F.	VIRGINIA POLY INST	NAS 1-15080	Unavailable	99	3870
LARC	Montgomery, R. C.	VIRGINIA POLY INST	NCC 1 4	Metrovitch, L.	42	3877
LARC	Tenney, D. R.	VIRGINIA POLY INST	NCC 1 10	Unnam, J.	39	3878
LARC	Davis, J. G. Jr.	VIRGINIA POLY INST	NCC 1 15	Herakovich, C. T	49	3879
LARC	Erickson, W. D.	VIRGINIA POLY INST	NCC 1 20	Hobeika, A. G	41	3880
LARC	Davis, J. G., Jr.	VIRGINIA POLY INST	NGR 47-004-129	Herakovich, C. T.	49	3883
LARC	Smith, A.	VIRGINIA POLY INST	NSG 1020	Sanzone, G.	13	3884
LARC	Johnston, N. J.	VIRGINIA POLY INST	NSG 1064	Wolfe, J. F.	12	3885
LARC	Young, P. R.	VIRGINIA POLY INST	NSG 1085	Mason, J. G.	12	3886
LARC	Progar, D. J.	VIRGINIA POLY INST	NSG 1124	Wightman, J. P.	12	3887
LARC	Hoffman, E. L.	VIRGINIA POLY INST	NSG 1250	Herakovich, C. T.	49	3888
LARC	Hoffman, E. L.	VIRGINIA POLY INST	NSG 1254	Stinchcomb, W. W	46	3889
LARC	Srokowski, A. J.	VIRGINIA POLY INST	NSG 1255	Nayfeh, A. H	41	3890
LARC	Yates, E. C., Jr.	VIRGINIA POLY INST	NSG 1262	Mook, D. T.	41	3891
LARC	Creedon, J. F.	VIRGINIA POLY INST	NSG 1354	VanLandingham, H. F.	41	3892
LARC	Tenney, D. R.	VIRGINIA POLY INST	NSG 1382	Louthan, M. R., Jr.	47	3893
LARC	StClair, A. K.	VIRGINIA POLY INST	NSG 1428	Taylor, L. T.	12	3894
LARC	Tenney, D. R.	VIRGINIA POLY INST	NSG 1470	Houska, C. R.	47	3895
LARC	Moss, J. N.	VIRGINIA POLY INST	NSG 1520	Lewis, C. H.	41	3896
LARC	StClair, T. L.	VIRGINIA POLY INST	NSG 1524	Wolfe, J. F.	12	3897
LARC	Miserentino, R.	VIRGINIA POLY INST	NSG 1526	Hallauer, W. L., Jr.	46	3898
LARC	Montgomery, R. C.	VIRGINIA POLY INST	NSG 1527	VanLandingham, H. F.	45	3899
LARC	Tenney, D. R.	VIRGINIA POLY INST	NSG 1531	Unnam, J.	47	3900
LARC	Everett, R. A., Jr.	VIRGINIA POLY INST	NSG 1571	Morris, D. H.	47	3901
LARC	Watson, W. R.	VIRGINIA POLY INST	NSG 1573	Nayfeh, A. H.	45	3902
LARC	Hefner, J. N.	VIRGINIA POLY INST	NSG 1589	Schetz, J. A.	41	3903
LARC	StClair, A. K.	VIRGINIA POLY INST	NSG 1597	McGrath, J. E	12	3904
LARC	DeLoach, R.	VIRGINIA POLY INST	NSG 1598	Frair, L.	99	3905
LARC	Hefner, J. N.	VIRGINIA POLY INST	NSG 1608	Saric, W. S.	41	3906
LARC	Baker, D. J.	VIRGINIA POLY INST	NSG 1621	Hyer, M. W.	47	3907
LARC	Sobieski, J.	VIRGINIA POLY INST	NSG 1627	Anderson, L. R.	49	3908
LARC	Lansing, D. L.	VIRGINIA STATE UNIV	NGL 47-014-009	Agrawal, K. M.	41	3920
LARC	Singh, J. J.	VIRGINIA STATE UNIV	NSG 1342	Stronach, C. E.	13	3921
LARC	Wilson, J. W.	VIRGINIA STATE UNIV	NSG 1646	Stronach, C. E.	13	3922

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LARC	Williams, T. S., Jr.	WASHINGTON UNIVERSTY	NAS 1-13889	Arvidson, R. E.	39	2777
LARC	Heyman, J. S.	WASHINGTON UNIVERSTY	NSG 1601	Miller, J. G.	13	2783
LARC	Giles, G. L.	WASHINGTON UNIVERSTY	NSG 1640	Szabo, B. A.	49	2784
LARC	Maestrello, L.	WAYNE STATE UNIV	NSG 1330	Chow, P. L.	41	2694
LARC	Watts, J. D.	WICHITA STATE UNIV	NCC 1 21	Cook, E. L.	41	2252
LARC	Noonan, K. W.	WICHITA STATE UNIV	NGR 17-003-021	Rodgers, E. J.	41	2253
LARC	McGhee, R. J.	WICHITA STATE UNIV	NSG 1165	Wentz, W. H., Jr.	41	2254
LARC	Huber, P. W.	WICHITA STATE UNIV	NSG 1575	Zumwalt, G. W.	41	2255
LARC	Queijo, M. J.	WRIGHT STATE UNIV	NSG 1417	Wells, W. R.	41	3294
LARC	Wood, G. M.	XAVIER UNIV-LA	NSG 1361	Ioup, J. W.	13	2293
LARC	Hall, R. M.	YALE UNIVERSITY	NSG 1612	Wegener, P. P.	41	1824
LERC	Bifano, W. J.	ARIZONA STATE UNIV	DEN 3 50	Bahr, D. M.	72	1070
LERC	Hippensteele, S. A.	ARIZONA STATE UNIV	NSG 3075	Metzger, D. E.	41	1080
LERC	Burkhart, J. A.	ARKANSAS STATE UNIV	NSG 3249	Bennett, J. E.	12	1161
LERC	Decker, A. J.	AUBURN UNIV-AUBURN	NSG 3233	Swinson, W. F.	49	1026
LERC	Herbell, T. P.	BROWN UNIVERSITY	NSG 3118	Richman, M. H.	47	3458
LERC	Gluyas, R. E.	BUCKNELL UNIVERSITY	NSG 3136	Snyder, W. J.	43	3340
LERC	Coe, H. H.	CAL STATE U-NRTHRDGE	NSG 3065	Nypan, L. J.	46	1250
LERC	Priem, R. J.	CAL STATE U-SACRAMEN	NGR 05-058-003	Reardon, F. H.	42	1255
LERC	Witzke, W. R.	CARNEGIE-MELLON UNIV	NAS 3-20370	Bhat, G. K.	47	3341
LERC	Strawley, J. E.	CARNEGIE-MELLON UNIV	NSG 3172	Swedlow, J. L.	46	3343
LERC	Cunningham, R. E.	CARNEGIE-MELLON UNIV	NSG 3202	Hughes, W. F.	46	3344
LERC	Labus, T. L.	CASE WESTERN RESERVE	NAS 3-21046	Ostrach, S.	46	3140
LERC	Smetana, J.	CASE WESTERN RESERVE	NAS 3-21365	Collin, R. E.	49	3141
LERC	Wintucky, E. G.	CASE WESTERN RESERVE	NAS 3-21946	Bahnuk, E.	49	3142
LERC	Riley, T. J.	CASE WESTERN RESERVE	NAS 3-21965	Angus, J. C.	12	3143
LERC	Weigand, A. J.	CASE WESTERN RESERVE	NAS 3-22259	Gibbons, D. F.	19	3144
LERC	Sockol, P. M.	CASE WESTERN RESERVE	NCC 3 4	Reshotko, E.	41	3148
LERC	Glasgow, T. K.	CASE WESTERN RESERVE	NGL 36-003-094	Ebert, L. J.	47	3149
LERC	Bishop, A. R.	CASE WESTERN RESERVE	NGR 36-027-064	Reshotko, E.	41	3151
LERC	Kohl, F. J.	CASE WESTERN RESERVE	NSG 3009	Mateescu, G. D.	12	3155
LERC	Fortini, A.	CASE WESTERN RESERVE	NSG 3040	Dybbs, A.	47	3156
LERC	Sockol, P. M.	CASE WESTERN RESERVE	NSG 3062	Reshotko, E.	41	3157
LERC	Dunning, J. W., Jr.	CASE WESTERN RESERVE	NSG 3074	Angus, J. C.	43	3158
LERC	Stevens, G. H.	CASE WESTERN RESERVE	NSG 3085	Pao, Y. H.	45	3159
LERC	Anderson, B. H.	CASE WESTERN RESERVE	NSG 3115	Lynch, W. C.	41	3160
LERC	Weigand, A. J.	CASE WESTERN RESERVE	NSG 3126	Gibbons, D. F.	49	3161
LERC	Mirtich, M. J.	CASE WESTERN RESERVE	NSG 3131	Topich, J. A.	19	3162
LERC	Serafini, T. T.	CASE WESTERN RESERVE	NSG 3140	Koenig, J. L.	12	3163
LERC	Lauver, R. W.	CASE WESTERN RESERVE	NSG 3142	Ritchey, W. M.	12	3164
LERC	Weigand, A. J.	CASE WESTERN RESERVE	NSG 3151	Gibbons, D. F.	56	3165
LERC	Purvis, C. K.	CASE WESTERN RESERVE	NSG 3197	Gordan, W. L.	13	3166
LERC	Fordyce, J. S.	CASE WESTERN RESERVE	NSG 3203	Liu, C. C.	43	3167
LERC	Riddlebaugh, S. M.	CASE WESTERN RESERVE	NSG 3206	Greber, I.	41	3168
LERC	Anderson, B. H.	CASE WESTERN RESERVE	NSG 3207	Parke, F. I.	41	3169
LERC	Hingst, W. R.	CASE WESTERN RESERVE	NSG 3211	Greber, I.	41	3170
LERC	Labus, T. L.	CASE WESTERN RESERVE	NSG 3221	Ostrach, S.	13	3171
LERC	Anderson, D. N.	CASE WESTERN RESERVE	NSG 3230	T'ien, J. S.	46	3172
LERC	Lauver, R. W.	CASE WESTERN RESERVE	NSG 3241	Ritchey, W. M.	12	3173
LERC	Scheuermann, C. M.	CASE WESTERN RESERVE	NSG 3246	Maier, R. D.	47	3174
LERC	Brown, W. F., Jr.	CASE WESTERN RESERVE	NSG 3251	Mendelson, A.	46	3175
LERC	Bedwill, M. A.	CASE WESTERN RESERVE	NSG 3252	Maier, R. D.	47	3176
LERC	Tower, L. K.	CASE WESTERN RESERVE	NSG 3268	Kamotani, Y.	47	3177
LERC	Hingst, W. R.	CASE WESTERN RESERVE	NSG 3271	Greber, I.	41	3178
LERC	Lauver, R. W.	CASE WESTERN RESERVE	NSG 3272	Ishida, H.	12	3179
LERC	Hsu, L. C.	CASE WESTERN RESERVE	NSG 3276	Koenig, J. L.	12	3180
LERC	Mirtich, M. J.	CASE WESTERN RESERVE	NSG 3279	Wallace, J. F.	19	3181
LERC	Weigand, A. J.	CASE WESTERN RESERVE	NSG 3282	Gibbons, D. F.	56	3182

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LERC	Jones, W. R., Jr.	CASE WESTERN RESERVE	NSG 3288	Cahan, B. D.	12	3183
LERC	Souey, J. S.	CASE WESTERN RESERVE	NSG 3289	Geil, K. H.	47	3184
LERC	Smialek, J. L.	CASE WESTERN RESERVE	NSG 3291	Cooper, A. R.	47	3185
LERC	Hirschberg, M. H.	CASE WESTERN RESERVE	NSG 7035	Powell, N. L.	47	3187
LERC	Fordyce, J. S.	CENTRAL ST UNIV-OHIO	NGR 36-033-003	Craft, T. J., Sr.	54	3188
LERC	Young, S. G.	CHICAGO STATE UNIV	NSG 3030	Treptow, R. S.	99	2059
LERC	Braun, W. H.	CITY COLIEGE OF N Y	NSG 3174	Weinstein, H.	49	2912
LERC	Rotnem, J. O.	CLARKSON COL OF TECH	NSG 3191	Arozullah, M.	45	2917
LERC	Weigand, A. J.	CLEMSON UNIV-CLEMSON	NSG 3225	Park, J. B.	56	3469
LERC	Townsend, D. P.	CLEVELAND STATE UNIV	NAS 3-18547	Kasuba, R.	46	3189
LERC	Simoneau, R. J.	CLEVELAND STATE UNIV	NCC 3 3	Gorla, R. S.	46	3190
LERC	Ashbrook, R. L.	CLEVELAND STATE UNIV	NSG 3155	Yeh, H. C.	43	3193
LERC	Nieberding, W. C.	CLEVELAND STATE UNIV	NSG 3222	Maisel, J. F.	45	3194
LERC	Beach, R. F.	CLEVELAND STATE UNIV	NSG 3223	Burghart, J. H.	49	3195
LERC	Lorenzo, C. F.	CLEVELAND STATE UNIV	NSG 3257	Larson, V. H.	46	3196
LERC	Herbell, T. P.	CLEVELAND STATE UNIV	NSG 3259	Yeh, H. C.	47	3197
LERC	Gordon, W. A.	CLEVELAND STATE UNIV	NSG 3308	Megargle, R.	12	3198
LERC	Antoine, A. C.	COLORADO SCH OF MINE	NSG 3122	Daniel, S. R.	12	1708
LERC	Priem, R. J.	COLORADO STATE UNIV	NGR 06-002-095	Mitchell, C. E.	42	1717
LERC	Kerslake, W. R.	COLORADO STATE UNIV	NGR 06-002-112	Wilbur, P. J.	46	1719
LERC	Rawlin, V. K.	COLORADO STATE UNIV	NSG 3011	Kaufman, H. R.	42	1725
LERC	Chubb, D. L.	COLORADO STATE UNIV	NSG 3060	Collins, G. J.	13	1726
LERC	Mirtich, M. J.	COLORADO STATE UNIV	NSG 3086	Kaufman, H. R.	13	1727
LERC	Sockol, P. M.	COLORADO STATE UNIV	NSG 3127	Sadeh, W. Z.	41	1728
LERC	Aron, P. R.	COLORADO STATE UNIV	NSG 3145	Yadlowsky, E. J.	13	1729
LERC	Sater, B. L.	COLORADO STATE UNIV	NSG 3167	Sites, J. R.	13	1730
LERC	Grier, N. T.	COLORADO STATE UNIV	NSG 3196	Kaufman, H. R.	13	1731
LERC	Glasgow, T. K.	COLUMBIA UNIVERSITY	NSG 3050	Tien, J. K.	47	2936
LERC	Flood, D. J.	CORNELL UNIVERSITY	NGR 33-010-188	Asherolt, N. W.	13	2965
LERC	Aron, P. R.	CORNELL UNIVERSITY	NGR 33-010-189	Ruoff, A. L.	47	2966
LERC	Marek, C. J.	CORNELL UNIVERSITY	NSG 3019	Gouldin, F. C.	41	2977
LERC	Bill, R. C.	DARTMOUTH COLLEGE	NSG 3253	Kennedy, F. E., Jr	47	2814
LERC	Zeleznik, F. J.	DREXEL UNIVERSITY	NSG 3090	Rosen, G. H.	21	3354
LERC	Grimes, H. H.	DREXEL UNIVERSITY	NSG 3128	Koczak, M. J.	47	3355
LERC	Gruber, R. P.	DUKE UNIVERSITY	NSG 3157	Wilson, T. G.	45	3107
LERC	Ford, W. F.	DUKE UNIVERSITY	NSG 3160	Smith, D. A.	21	3108
LERC	Jackson, H. D.	GEORGE WASHINGTON U	NSG 3130	Wood, F. B.	99	1871
LERC	Hein, G. F.	GEORGIA INST OF TECH	DEN 3 73	Zimmer, R. P.	45	1975
LERC	Stevens, G. H.	GEORGIA INST OF TECH	NAS 3-20110	Zimmer, R. P.	42	1981
LERC	Baumeister, K. J.	GEORGIA INST OF TECH	NSG 3036	Zinn, B. T.	41	2000
LERC	Priem, R. J.	GEORGIA INST OF TECH	NSG 3052	Korkan, K. D.	42	2001
LERC	Jones, W. R., Jr.	GEORGIA INST OF TECH	NSG 3106	Winer, W. O.	46	2002
LERC	Feiler, C. E.	GEORGIA INST OF TECH	NSG 3228	Cassanova, R. A.	13	2003
LERC	Sockol, P. M.	GEORGIA INST OF TECH	NSG 3260	Johnston, W. A.	41	2004
LERC	Scudder, L. R.	GEORGIA INST OF TECH	NSG 3297	Jacobson, J. E.	72	2005
LERC	McFarland, E. R.	GEORGIA INST OF TECH	NSG 3307	Wu, J.	41	2006
LERC	Groeneweg, J. F.	ILL INST OF TECH	NSG 3220	Nagib, H. M.	41	2062
LERC	Sockol, P. M.	IND U-PURDUE-INDAPLS	NSG 3183	Bodonyi, R. J.	41	2143
LERC	Chima, R. U.	IND U-PURDUE-INDAPLS	NSG 3294	Ecer, A.	41	2144
LERC	Ludwig, L. P.	ISRAEL INST OF TECH	NSG 7317	Etsion, I.	46	4032
LERC	Sater, B. L.	KENT STATE UNIV-KENT	NAS 3-21945	Gelerinter, E.	19	3199
LERC	Wintucky, E. G.	KENT STATE UNIV-KENT	NSG 3159	Johnson, D. L.	47	3201
LERC	Batterton, P. G.	LEHIGH UNIVERSITY	NSG 3162	Rockwell, D. O.	41	3369
LERC	Chamis, C. C.	LEHIGH UNIVERSITY	NSG 3179	Sih, G. C.	49	3370
LERC	Sovey, J. S.	LEHIGH UNIVERSITY	NSG 3193	Micale, F. J.	47	3371
LERC	Crouse, J. E.	MASS INST OF TECH	NAS 3-20473	Kerrebrock, J. L.	41	2492
LERC	Pepper, S. V.	MASS INST OF TECH	NCC 3 1	Johnson, K. H.	19	2518
LERC	McNally, W. D.	MASS INST OF TECH	NGL 22-009-383	Kerrebrock, J. L.	41	2524

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LERC	Holms, A. G.	MASS INST OF TECH	NGR 22-009-339	Witmer, E. A.	41	2530
LERC	Weinberg, I.	MASS INST OF TECH	NSG 3017	Gatos, H. C.	47	2569
LERC	Chamis, C. C.	MASS INST OF TECH	NSG 3044	McGarry, F. J.	49	2570
LERC	Scheuermann, C. M.	MASS INST OF TECH	NSG 3046	Flemings, M. C.	47	2571
LERC	Brabbs, T. A.	MASS INST OF TECH	NSG 3076	Hoult, D. P.	41	2572
LERC	Adamczyk, J. J.	MASS INST OF TECH	NSG 3079	Kerrebrock, J. L.	41	2573
LERC	Baumeister, K. J.	MASS INST OF TECH	NSG 3129	Ungard, K. U.	41	2574
LERC	Domitz, S.	MASS INST OF TECH	NSG 3175	Kolm, H. H.	42	2575
LERC	Braun, W. H.	MASS INST OF TECH	NSG 3187	Kerrebrock, J. L.	49	2576
LERC	Adamczyk, J. J.	MASS INST OF TECH	NSG 3208	Greitzer, E. M.	41	2577
LERC	Vary, A.	MASS INST OF TECH	NSG 3210	Williams, J. H., Jr.	47	2578
LERC	McNally, W. D.	MASS INST OF TECH	NSG 3234	Kerrebrock, J. L.	41	2579
LERC	Cassidy, J. F.	MASS INST OF TECH	NSG 3245	Heywood, J. B.	46	2580
LERC	Antoine, A. C.	MASS INST OF TECH	NSG 3286	Uhlmann, D. R.	12	2581
LERC	Janetzke, D. C.	MASS INST OF TECH	NSG 3303	Miller, R. H.	41	2582
LERC	Nakanishi, S.	MICHIGAN STATE UNIV	NSG 3299	Asmussen, J.	19	2626
LERC	Barrett, C. A.	MICHIGAN TECH UNIV	NSG 3215	Heckel, R. W.	47	2628
LERC	Reid, M. A.	MUSKINGUM COLLEGE	NSG 3278	Wallace, W. J.	12	3206
LERC	Labus, T. L.	NEW YORK UNIVERSITY	NSG 3059	Keller, J. B.	49	3008
LERC	Godlewski, M. P.	NO CAROLINA STATE U	NGR 34-002-195	Hauser, J. R.	45	3125
LERC	Ludwig, L. P.	NORTHWESTERN UNIV	NAS 3-21261	Burton, R. A.	46	2063
LERC	Ludwig, L. P.	NORTHWESTERN UNIV	NSG 3039	Burton, R. A.	47	2070
LERC	Coy, J. J.	NORTHWESTERN UNIV	NSG 3143	Cheng, H. S.	46	2071
LERC	Wedeven, L. D.	NORTHWESTERN UNIV	NSG 3149	Cheng, H. S.	46	2072
LERC	Gray, H. R.	OHIO STATE UNIV	NGL 36-008-051	Beck, F. H.	47	3216
LERC	Bill, R. C.	OHIO STATE UNIV	NSG 3164	Black, J. T.	47	3230
LERC	Bowles, K. J.	OHIO STATE UNIV	NSG 3235	Smith, E. E.	49	3231
LERC	Mikkelson, D. C.	OHIO STATE UNIV	NSG 3247	Gregorek, G. M.	41	3232
LERC	Vary, A.	OHIO STATE UNIV	NSG 3269	Fu, L. S.	47	3233
LERC	Baumbilk, R. J.	OHIO STATE UNIV	NSG 3302	Collins, S. A., Jr.	45	3234
LERC	Britsch, W. R.	PENN STATE U-UNIV PK	NGL 39-009-007	Lakshminarayana, B.	41	3390
LERC	Priem, R. J.	PENN STATE U-UNIV PK	NGR 39-009-077	Faeth, G. M.	42	3393
LERC	Heidmann, M. F.	PENN STATE U-UNIV PK	NSG 3012	Eisenhuth, J.	41	3399
LERC	Sanders, W. A.	PENN STATE U-UNIV PK	NSG 3016	Bradt, R. C.	47	3400
LERC	Sockol, P. M.	PENN STATE U-UNIV PK	NSG 3032	Lakshminarayana, B.	41	3401
LERC	Aron, P. R.	PENN STATE U-UNIV PK	NSG 3166	Robinson, J. W.	13	3402
LERC	Sockol, P. M.	PENN STATE U-UNIV PK	NSG 3212	Lakshminarayana, B.	41	3403
LERC	Sanger, N. L.	PENN STATE U-UNIV PK	NSG 3264	Kubo, I.	41	3404
LERC	Englert, G. W.	PENN STATE U-UNIV PK	NSG 3265	Morris, P. J.	41	3405
LERC	Sockol, P. M.	PENN STATE U-UNIV PK	NSG 3266	Lakshminarayana, B.	41	3406
LERC	Aron, P. R.	PENN STATE U-UNIV PK	NSG 3301	Kendall, B. R.	13	3407
LERC	Mitchell, G. A.	PENN STATE U-UNIV PK	NSG 3304	McCormick, B. W.	41	3408
LERC	Marek, C. J.	PENN STATE U-UNIV PK	NSG 3306	Faeth, G. M.	46	3409
LERC	Will, H. A.	POLY INST OF NY	NSG 3108	Lederman, S.	13	3023
LERC	Domitz, S.	PRINCETON UNIVERSITY	NSG 3176	O'Neill, G. K.	42	2856
LERC	Cassidy, J. F.	PRINCETON UNIVERSITY	NSG 3178	Srignano, W. A.	46	2857
LERC	Braun, W. H.	PRINCETON UNIVERSITY	NSG 3292	Dowell, E. H.	41	2858
LERC	Davidson, H. W.	PURDUE UNIVERSITY	NSG 3071	L'Ecuyer, M. R.	41	2162
LERC	Katsanis, T.	PURDUE UNIVERSITY	NSG 3105	Meinke, W. J.	41	2163
LERC	Lehtinen, B.	PURDUE UNIVERSITY	NSG 3119	Leonard, R. G.	41	2164
LERC	Serafini, J. S.	PURDUE UNIVERSITY	NSG 3135	Sullivan, J. P.	41	2165
LERC	Chamis, C. C.	PURDUE UNIVERSITY	NSG 3185	Sun, C. T.	41	2166
LERC	Cooper, L. P.	PURDUE UNIVERSITY	NSG 3213	Lefebvre, A. H.	41	2167
LERC	Gilbert, L. J.	PURDUE UNIVERSITY	NSG 3237	Krause, P. C.	45	2168
LERC	Haggard, J. B.	PURDUE UNIVERSITY	NSG 3258	Shifstad, J. G.	46	2169
LERC	Boldman, D. R.	PURDUE UNIVERSITY	NSG 3285	Fleeter, S.	41	2170
LERC	Jones, W. R., Jr.	RENSSELAER POLY-NY	NSG 3170	Lauer, J. L.	13	3041
LERC	Simoneau, R. J.	RENSSELAER POLY-NY	NSG 3262	Mayle, R. E.	41	3042

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LERC	Lad, R. A.	RICE UNIVERSITY	NGL 44-006-001	Rorschach, H. E.	13	3552
LERC	Claus, R. W.	RUTGERS U-N BRUNSWK	NSG 3280	Johnson, J. A.	41	2874
LERC	Gaugler, R. E.	STANFORD UNIVERSITY	NSG 3124	Johnston, J. P.	46	1398
LERC	Weinberg, I.	STATE UNIV NY-ALBANY	NSG 3095	Corbett, J. W.	39	3054
LERC	Holdeman, J. D.	STATE UNIV NY-ALBANY	NSG 3138	Falconer, P.	31	3055
LERC	Morris, J. F.	STATE UNIV NY-BUFFAL	NSG 7071	Shaw, D. T.	13	3063
LERC	Brabbs, T. A.	STATE U NY-STONY BRK	NCC 3 2	Yang, C. H.	12	3069
LERC	Cochran, T. H.	STATE U NY-STONY BRK	NSG 3051	Berlad, A. L.	43	3077
LERC	Cochran, T. H.	STATE U NY-STONY BRK	NSG 3298	Berlad, A. L.	13	3078
LERC	Priem, R. J.	TENNESSEE TECH U	NGR 43-003-015	Ventrice, M. B.	46	3491
LERC	Brown, G. V.	TEXAS A&M UNIVERSITY	NSG 3201	Ford, A. L.	13	3598
LERC	Marek, C. J.	TRENTON STATE COL	NSG 3180	Feng, C. C.	46	2880
LERC	Weigand, A. J.	TULANE UNIVERSITY	NSG 3209	Weinstein, A. M.	56	2288
LERC	Titran, R. H.	TUSKEGEE INSTITUTE	NSG 3154	Ramirez, R. P.	47	1033
LERC	Glassman, A. J	TUSKEGEE INSTITUTE	NSG 3295	Jenkins, R. M.	41	1034
LERC	Fordyce, J. S.	UNIV OF ALBUQUERQUE	NSG 3092	Urzendowski, R. M.	12	2893
LERC	Chamis, C. C.	UNIV OF AKRON	NSG 3283	Adams, M. L.	41	3244
LERC	Marek, C. J.	UNIV CALIF-BERKELEY	NSG 3028	Daily, J. W.	46	1462
LERC	Marek, C. J.	UNIV CALIF-BERKELEY	NSG 3227	Oppenheim, A. K.	41	1463
LERC	Sater, B. L.	UNIV CALIF-IRVINE	NAS 3-21963	Foltz, E. L.	56	1496
LERC	Spera, D. A.	UNIV CALIF-L ANGELES	NSG 3082	Friedman, P. P.	46	1532
LERC	Friedman, R.	UNIV CALIF-L ANGELES	NSG 3116	Liu, C. Y.	41	1533
LERC	Burkhart, J. A.	UNIV CALIF-L ANGELES	NSG 3153	Frederking, T. H.	46	1534
LERC	Rice, E. J.	UNIV CALIF-L ANGELES	NSG 3236	Charwat, A. F.	13	1535
LERC	Salzman, J. A	UNIV CALIF-SAN DIEGO	NAS 3-21386	Austin, R. W.	19	1569
LERC	Salzman, J. A.	UNIV CALIF-SAN DIEGO	NAS 3-21473	Austin, R. W.	33	1570
LERC	Flood, D. J.	UNIV CALIF-SAN DIEGO	NSG 3034	Oesterreicher, H.	47	1602
LERC	Haggard, J. B.	UNIV CALIF-SAN DIEGO	NSG 3047	Williams, F. A.	43	1603
LERC	Woollam, J. A.	UNIV CALIF-SAN DIEGO	NSG 3055	Webb, G. W.	19	1604
LERC	Woollam, J. A.	UNIV CALIF-SAN DIEGO	NSG 3103	Luo, H. L.	13	1605
LERC	Purvis, C. K.	UNIV CALIF-SAN DIEGO	NSG 3150	Whipple, E. C., Jr	39	1606
LERC	Marek, C. J.	UNIV CALIF-SAN DIEGO	NSG 3219	Libby, P. A.	41	1607
LERC	Cochran, T. H.	UNIV CALIF-SAN DIEGO	NSG 3296	Williams, F. A.	13	1608
LERC	Kohl, F. J.	UNIV CALIF-S BARBARA	NSG 3256	Steinberg, M.	12	1652
LERC	McFarland, E. R.	UNIV OF CINCINNATI	NAS 3-21609	Tabakoff, W.	41	3245
LERC	Sundberg, G. R.	UNIV OF CINCINNATI	NSG 3022	Henderson, H. T.	45	3250
LERC	Riley, T. J.	UNIV OF CINCINNATI	NSG 3024	Nevin, J. H.	45	3251
LERC	Stupka, F. S.	UNIV OF CINCINNATI	NSG 3066	Tabakoff, W.	41	3252
LERC	Blue, J. W.	UNIV OF CINCINNATI	NSG 3091	Selberg, B. P.	13	3253
LERC	Miner, R. V., Jr.	UNIV OF CINCINNATI	NSG 3147	Antolovich, S. D.	47	3254
LERC	Coy, J. J.	UNIV OF CINCINNATI	NSG 3188	Huston, R. L.	46	3255
LERC	Chubb, D. L.	UNIV OF CINCINNATI	NSG 3218	Tabakoff, W.	46	3256
LERC	Hirschberg, M. H.	UNIV OF CINCINNATI	NSG 3263	Antolovich, S. D.	47	3257
LERC	Kao, H. C.	UNIV OF CINCINNATI	NSG 3267	Ghia, K. N.	41	3258
LERC	Groeneweg, J. F.	UNIV COLORADO-BOLDR	NSG 3181	Uberoi, M. S.	41	1763
LERC	Goldman, L. J.	UNIV OF CONNECTICUT	NSG 3238	Langston, L. S.	46	1816
LERC	Gentile, L. C.	UNIV OF DAYTON	NAS 3-20392	Engler, N. A.	42	3259
LERC	Stevenson, S. M.	UNIV OF DAYTON	NAS 3-21355	Martino, J. P.	47	3260
LERC	Gentile, L. C.	UNIV OF DAYTON	NAS 3-21370	Engler, N. A.	42	3261
LERC	Acurio, J.	UNIV OF DAYTON	NAS 3-21698	Militello, J.	41	3262
LERC	Vernon, R. W.	UNIV OF DELAWARE	NSG 3184	Birchenall, C. E.	47	1835
LERC	Adamczyk, J. J.	UNIV OF DELAWARE	NSG 3189	Seidel, B. S.	41	1836
LERC	Farrell, C. A., Jr.	UNIV OF DELAWARE	NSG 3270	Seidel, B. S.	41	1837
LERC	Sheibley, D. W.	UNIV OF FLORIDA	NGR 10-005-182	Walker, R. D., Jr.	43	1940
LERC	Godlewski, M. P.	UNIV OF FLORIDA	NSG 3018	Lindholm, F. A.	45	1946
LERC	Dutta, S.	UNIV OF FLORIDA	NSG 3254	Hench, L. L.	47	1947
LERC	Sater, B. L.	UNIV OF FLORIDA	NSG 3273	Hench, L. L.	56	1948
LERC	Bober, L. J.	UNIV ILLINOIS-URBANA	NGL 14-005-140	Chow, W. L.	41	2116

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LERC	Dunning, J. W., Jr.	UNIV ILLINOIS-URBANA	NGR 14-005-200	Verdeyen, J. T.	13	2119
LERC	Cochran, T. H.	UNIV ILLINOIS-URBANA	NSG 3043	Strehlow, R. A.	43	2125
LERC	Scribber, H. W.	UNIV ILLINOIS-URBANA	NSG 3098	Conry, T. F.	46	2126
LERC	Cochran, T. H.	UNIV ILLINOIS-URBANA	NSG 3293	Strehlow, R. A.	13	2127
LERC	Stockman, N. O.	UNIV OF IOWA	NSG 3117	Chou, D. C.	41	2216
LERC	Johnson, G. M.	UNIV OF IOWA	NSG 3305	Chen, C. J.	41	2217
LERC	Hallenback, C. A.	UNIV OF KANSAS	NSG 3290	Armstrong, T. P.	13	2243
LERC	Cochran, T. H.	UNIV OF KENTUCKY	NSG 3114	Altenkirch, R. A.	46	2263
LERC	Fleming, D. P.	UNIV OF LOUISVILLE	NSG 3200	Childs, D. W.	46	2267
LERC	Simoneau, R. J.	UNIV MARYLAND-COL PK	NGR 21-002-344	Sengers, J. V.	13	2375
LERC	Coles, W. D.	UNIV MARYLAND-COL PK	NGR 21-002-400	Spain, I. L.	13	2378
LERC	Cooper, L. P.	UNIV MICH-ANN ARBOR	NSG 3148	Nicholls, J. A.	41	2675
LERC	Beam, L. W.	UNIV MICH-ANN ARBOR	NSG 3161	Bolt, J. A.	46	2676
LERC	Ercegovic, D. E.	UNIV MICH-ANN ARBOR	NSG 3165	Kauffman, C. W.	41	2677
LERC	Lauver, R. W.	UNIV MICH-ANN ARBOR	NSG 3192	Yeh, G. S.	47	2678
LERC	Sovey, J. S.	U MINN-MNPLS-ST PAUL	NSG 3041	Wehner, G. K.	13	2713
LERC	Morris, J. F.	U MINN-MNPLS-ST PAUL	NSG 3094	Chanin, L. M.	19	2714
LERC	Wedeven, L. D.	UNIV MO-ROLLA	NSG 3113	Medrow, R. A.	46	2770
LERC	Weigand, A. J.	UNIV MO-ROLLA	NSG 3199	Yasuda, H. K.	19	2771
LERC	Rice, E. J.	UNIV MO-ROLLA	NSG 3231	Eversman, W.	41	2772
LERC	Haggard, J. B.	UNIV OF NOTRE DAME	NAS 3-21018	Kanury, M.	11	2175
LERC	Seldner, K.	UNIV OF NOTRE DAME	NSG 3048	Sain, M. K.	45	2178
LERC	Crouse, J. E.	UNIV OF NOTRE DAME	NSG 3133	Roberts, W. B.	41	2179
LERC	Burkhart, J. A.	UNIV OF NOTRE DAME	NSG 3.82	Gabriel, G. J.	45	2180
LERC	Scott, J. N.	UNIV OF NOTRE DAME	NSG 3195	Atassi, H.	13	2181
LERC	McBrien, E. F.	UNIV OF PITTSBURGH	NSG 3163	Hamilton, H. B.	45	3443
LERC	Brown, G. V.	UNIV OF PITTSBURGH	NSG 3168	Wallace, W. E.	13	3444
LERC	Kohl, F. J.	UNIV OF PITTSBURGH	NSG 3214	Meier, G. H.	47	3445
LERC	Lyons, V. J.	UNIV OF SHEFFIELD	NSG 7517	Chigier, N. A.	43	4029
LERC	Secunde, R. R.	UNIV OF SOUTHERN CAL	NSG 3243	Campbell, P. E.	45	1701
LERC	Diehl, L. A.	UNIV OF SOUTHERN CAL	NSG 3248	Gerstein, M.	46	1702
LERC	Graham, R. W.	UNIV TENNESSEE-KNOXV	NSG 3173	Reid, R. L.	46	3514
LERC	Staiger, P. J.	UNIV TENNESSEE-KNOXV	NSG 3224	Dicks, J. B.	49	3515
LERC	Rostafinski, W. A.	UNIV TENNESSEE-KNOXV	NSG 3287	Kurosaka, M.	41	3516
LERC	Smith, J. M.	UNIV TEXAS-ARLINGTON	NSG 3255	Wilson, D. R.	49	3638
LERC	Moeckel, W. E.	UNIV TEXAS-AUSTIN	NSG 3089	Powers, E. J.	45	3667
LERC	Sheibley, D. W.	UNIV TEXAS-AUSTIN	NSG 3190	Lagow, R. J.	56	3668
LERC	Rice, E. J.	UNIV TEXAS-AUSTIN	NSG 3198	Blackstock, D. T.	13	3669
LERC	Brandhorst, H. W., Jr.	UNIV TEXAS-EL PASO	NSG 3146	Brient, S. J.	47	3712
LERC	Finnegan, P. M.	UNIV OF TOLEDO	NCC 3 5	Keith, T. G., Jr.	49	3271
LERC	Merrill, W. C.	UNIV OF TOLEDO	NSG 3084	Leininger, G. G.	45	3272
LERC	Connolley, D. J.	UNIV OF TOLEDO	NSG 3099	Rush, W. F.	13	3273
LERC	Labus, T. L.	UNIV OF TOLEDO	NSG 3121	Dewitt, K. J.	49	3274
LERC	Chamis, C. C.	UNIV OF TOLEDO	NSG 3139	Koza, K. R.	41	3275
LERC	Cunningham, R. E.	UNIV OF TOLEDO	NSG 3156	Keith, T. G., Jr.	46	3276
LERC	Lehtinen, B.	UNIV OF TOLEDO	NSG 3171	Leininger, G. G.	45	3277
LERC	Stearns, C. A.	UNIV OF TOLEDO	NSG 3250	Edwards, J. G.	12	3278
LERC	Gruber, R. P.	UNIV OF TOLEDO	NSG 3281	Stuart, T. A.	45	3279
LERC	Kascak, A. F.	UNIV OF VIRGINIA	NSG 3177	Barrett, L. E.	46	3862
LERC	Behrendt, D. R.	UNIV OF VIRGINIA	NSG 3242	Wawner, F. E., Jr.	47	3863
LERC	Valentine, H. H.	UNIV OF WASHINGTON	NSG 3152	Martini, W. R.	46	3941
LERC	Valentine, H. H.	UNIV OF WASHINGTON	NSG 3194	Martini, W. R.	46	3942
LERC	Braun, W. H.	UNIV OF WASHINGTON	NSG 3261	Seebass, A. R.	41	3943
LERC	DiCarlo, J. A.	UNIV OF WYOMING	NSG 3217	Adams, D. F.	47	4020
LERC	Maslowski, E. A.	VIRGINIA POLY INST	DEN 3 65	Demerdash, N. A.	45	3869
LERC	Jones, A. L.	VIRGINIA POLY INST	NSG 3073	Jakubowski, A. K.	41	3911
LERC	Sovey, J. S.	VIRGINIA POLY INST	NSG 3204	Dwight, D. W.	47	3912
LERC	Ludwig, L. P.	VIRGINIA POLY INST	NSG 3239	Mitchell, L. D.	41	3913

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LERC	Kolecki, J. C.	VIRGINIA POLY INST	NSG 3274	Lee, F. C.	45	3914
LERC	Lehtinen, B.	VIRGINIA POLY INST	NSG 3275	Leonard, R. G.	41	3915
LERC	Smith, J. M.	WICHITA STATE UNIV	NSG 3186	Jordan, K. D.	21	2256
LERC	Richards, T. R.	WICHITA STATE UNIV	NSG 3277	Wentz, W. H., Jr.	41	2257
LERC	Godlewski, M. P.	WORCESTER POLY INST	NSG 3137	Lanyon, H. P.	45	2622
LERC	DiCarlo, J. A.	WRIGHT STATE UNIV	NSG 3240	Bambakidis, G.	13	3295
LERC	Fryburg, G. C.	YALE UNIVERSITY	NSG 3107	Rosner, D. E.	47	1826
LERC	Fryburg, G. C.	YALE UNIVERSITY	NSG 3169	Rosner, D. E.	12	1827
LERC	Godlewski, M. P.	YESHIVA UNIVERSITY	NSG 3123	Pollak, F.	45	3102
MSFC	Williams, J. R.	ALABAMA A&M UNIV	NAS 8-32945	Lal, R. B.	47	1000
MSFC	Downs, S. W., Jr.	ALABAMA A&M UNIV	NGR 01-001-023	Montgomery, O. L.	55	1002
MSFC	Schafer, C. F.	ALABAMA A&M UNIV	NSG 8033	Lal, R. B.	13	1003
MSFC	Bilbro, J. W.	ALABAMA A&M UNIV	NSG 8037	Huth, G. C.	45	1004
MSFC	Humphries, W. R.	ALABAMA A&M UNIV	NSG 8041	Saha, H.	46	1005
MSFC	Allen, R. E.	ALABAMA A&M UNIV	NSG 8042	Savage, J.	59	1006
MSFC	Snyder, R. S.	ALABAMA A&M UNIV	NSG 8051	Gibson, W. L.	59	1007
MSFC	Gould, J. M.	ALABAMA A&M UNIV	NSG 8057	Shiva, S. G.	45	1008
MSFC	Downs, S. W., Jr.	ALABAMA A&M UNIV	NSG 8062	Montgomery, O. L.	39	1009
MSFC	Snyder, R. S.	ALABAMA A&M UNIV	NSG 8064	Savage, J.	59	1010
MSFC	Smith, O. E.	ALABAMA A&M UNIV	NSG 8065	Temple, E. C.	21	1011
MSFC	Smith, A. D.	ALABAMA A&M UNIV	NSG 8066	Montgomery, O. L.	39	1012
MSFC	Nerren, B. H.	ALABAMA A&M UNIV	NSG 8067	Sharma, G. C.	51	1013
MSFC	Burns, R. E.	ALABAMA A&M UNIV	NSG 8068	Williams, A. C.	13	1014
MSFC	Lee, G.	ARIZONA STATE UNIV	NAS 8-32230	Woodfin, M. A.	21	1072
MSFC	Alexander, M. B.	ARIZONA STATE UNIV	NAS 8-32357	Logan, E., Jr.	31	1073
MSFC	Reeves, F. A.	ARIZONA STATE UNIV	NAS 8-32937	Wagner, J. B.	47	1074
MSFC	Finnell, S. E.	ATHENS STATE COLLEGE	NAS 8-32220	Martin, A. M.	13	1015
MSFC	Woodis, K. W.	ATHENS STATE COLLEGE	NAS 8-32834	Workman, G. L.	45	1016
MSFC	Zwiener, J. M.	ATHENS STATE COLLEGE	NAS 8-32920	Workman, G. L.	19	1017
MSFC	Kent, M. I.	ATLANTA UNIVERSITY	NSG 8019	Reed, J. L.	12	1968
MSFC	Matheney, J. L.	AUBURN UNIV-AUBURN	NAS 8-31572	Tung, C.	45	1018
MSFC	Huffman, J. D.	AUBURN UNIV-AUBURN	NAS 8-32215	Vacbon, R. I.	39	1019
MSFC	Routh, D. E.	AUBURN UNIV-AUBURN	NAS 8-32633	Cook, K. B.	49	1020
MSFC	Routh, D. E.	AUBURN UNIV-AUBURN	NAS 8-32634	Kerns, D. V.	49	1021
MSFC	Routh, D. E.	AUBURN UNIV-AUBURN	NAS 8-33092	Kerns, D. V.	45	1022
MSFC	Shackelford, B. W., Jr.	AUBURN UNIV-AUBURN	NCA 8-130	Sforzini, R. H.	41	1023
MSFC	Shackelford, B. W., Jr.	AUBURN UNIV-AUBURN	NCA 8-132	Sforzini, R. H.	46	1024
MSFC	Wagon, F. W.	AUBURN UNIV-AUBURN	NCA 8-133	Irwin, J. D.	45	1025
MSFC	Daniel, C. C.	AUBURN UNIV-AUBURN	NSG 8047	Flood, C. A., Jr.	49	1027
MSFC	O'Dell, C. R.	BELOIT COLLEGE	NAS 8-32901	Schroeder, D. J.	11	3965
MSFC	Jones, J. B., Jr.	BELOIT COLLEGE	NAS 8-33355	Winkler, P. F., Jr.	11	3966
MSFC	Guynes, B. V.	BOSTON UNIVERSITY	NAS 8-32844	Mendillo, M.	31	2429
MSFC	Jones, J. B., Jr.	BRANDEIS UNIVERSITY	NAS 8-33326	Willis, A. G.	11	2438
MSFC	Jones, J. B., Jr.	BRANDEIS UNIVERSITY	NAS 8-33343	Ghigo, F. D.	11	2439
MSFC	Talley, D.	CALIF INST OF TECH	NAS 8-27978	Stone, E. C.	11	1178
MSFC	Gross, L. A.	CALIF INST OF TECH	NAS 8-29313	Acosta, A. J.	46	1179
MSFC	Gross, L. A.	CALIF INST OF TECH	NAS 8-33108	Costa, A. J.	46	1180
MSFC	DeLoach, A. C.	CALIF INST OF TECH	NAS 8-33215	Moore, R. L.	13	1181
MSFC	Jones, J. B., Jr.	CALIF INST OF TECH	NAS 8-33331	Garmire, G. P.	11	1182
MSFC	Jones, J. B., Jr.	CALIF INST OF TECH	NAS 8-33352	Garmire, G. P.	11	1183
MSFC	Schafer, C. F.	CASE WESTERN RESERVE	NAS 8-31907	Ostrach, S.	12	3146
MSFC	Reeves, F. A.	CASE WESTERN RESERVE	NAS 8-33015	Ostrach, S.	13	3147
MSFC	Williams, J. R.	CLARKSON COL OF TECH	NAS 8-32944	Subramanian, R. S.	13	2915
MSFC	Fichtl, G. H.	COLORADO STATE UNIV	NAS 8-31673	Edwards, H. W.	46	1715
MSFC	Manning, H. S.	COLUMBIA UNIVERSITY	NAS 8-30753	Novick, R.	11	2923
MSFC	Seltzer, S. M.	COLUMBIA UNIVERSITY	NAS 8-32212	Likins, P. A.	19	2924
MSFC	West, G. S., Jr.	COLUMBIA UNIVERSITY	NAS 8-33378	Balachandran, N. K.	31	2925
MSFC	Black, R. E.	DREXEL UNIVERSITY	NAS 8-33372	Lord, A. E.	31	3348



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MSFC	Kent, M. I.	FISK UNIVERSITY	NSG 8035	Mickens, R. E.	12	3483
MSFC	Kroes, R. L.	FISK UNIVERSITY	NSG 8060	Silberman, E.	13	3484
MSFC	Downs, S. W., Jr.	GEORGIA INST OF TECH	NAS 8-31990	Faust, C. E.	32	1985
MSFC	Smith, O. E.	GEORGIA INST OF TECH	NAS 8-32897	Justus, C. G.	31	1986
MSFC	Reed, B.	GEORGIA INST OF TECH	NAS 8-33093	Pierce, A. D.	49	1987
MSFC	Johnston, M. H.	GEORGIA INST OF TECH	NAS 8-33438	Brown, J. L.	47	1988
MSFC	Inman, R. A.	GEORGIA INST OF TECH	NAS 8-33605	Kozakoff, D. J.	45	1989
MSFC	Snoddy, W. C.	HARVARD UNIVERSITY	NAS 5-3949	Hughes, B. M.	11	2444
MSFC	Snoddy, W. C.	HARVARD UNIVERSITY	NAS 8-31374	Vaiana, G. S.	13	2447
MSFC	Lacy, L. L.	HARVARD UNIVERSITY	NAS 8-32691	Turnbull, D.	13	2448
MSFC	Dailey, C. C.	INDIANA U-BLOOMINGTN	NAS 8-33087	Mufson, S. L.	11	2137
MSFC	Dailey, C. C.	IOWA STATE UNIV	NAS 8-33013	Lamb, R. C.	11	2182
MSFC	Jones, J. B., Jr.	IOWA STATE UNIV	NAS 8-33334	Lamb, R. C.	11	2183
MSFC	O'Dell, C. R.	JOHNS HOPKINS UNIV	NAS 8-32903	Fastie, W. G.	11	2309
MSFC	DeLoach, A. C.	JOHNS HOPKINS UNIV	NAS 8-33106	Roelof, E. C.	13	2310
MSFC	Williams, J. R.	LEHIGH UNIVERSITY	NAS 8-32951	VanDerHoff, J. W.	13	3362
MSFC	Manning, H. S.	MASS INST OF TECH	NAS 8-27972	Bradt, H. V.	11	2505
MSFC	Manning, H. S.	MASS INST OF TECH	NAS 8-27975	Lewin, W. H.	11	2506
MSFC	Davidson, M. C.	MASS INST OF TECH	NAS 8-30537	Gatos, H. C.	47	2507
MSFC	Manning, H. S.	MASS INST OF TECH	NAS 8-30752	Clark, G. W.	11	2508
MSFC	Reeves, F. A.	MASS INST OF TECH	NAS 8-31350	Uhlmann, D. R.	47	2509
MSFC	Reeves, F. A.	MASS INST OF TECH	NAS 8-31552	Uhlmann, D. R.	47	2510
MSFC	VonTiesenhause, G. F.	MASS INST OF TECH	NAS 8-32925	Miller, R. H.	47	2511
MSFC	Davidson, M. C.	MASS INST OF TECH	NAS 8-32994	Hitt, A. F.	13	2512
MSFC	DeLoach, A. C.	MASS INST OF TECH	NAS 8-33137	Sullivan, J. D.	13	2513
MSFC	DeLoach, A. C.	MASS INST OF TECH	NAS 8-33138	Frankenthal, S.	13	2514
MSFC	Jones, J. B., Jr.	MIDDLEBURY COLLEGE	NAS 8-33335	Winkler, P. F., Jr.	11	3751
MSFC	Hollis, B. R., Jr.	MISSISSIPPI STATE U	NAS 8-26749	Trotter, D.	13	2733
MSFC	Wallace, G. R.	MISSISSIPPI STATE U	NAS 8-31373	Ingels, F. M.	45	2734
MSFC	Darden, J. H.	MISSISSIPPI STATE U	NAS 8-32810	Mitchell, J. R.	22	2735
MSFC	Sims, J. L.	MISSISSIPPI STATE U	NAS 8-32912	Kassner, J. L., Jr.	49	2736
MSFC	Hollis, B. R., Jr.	MISSISSIPPI STATE U	NAS 8-33448	Wade, T. E.	45	2737
MSFC	Edge, T. M.	MISSISSIPPI STATE U	NAS 8-33450	Causey, W. H., Jr.	45	2738
MSFC	Atherton, J. R.	MISSISSIPPI STATE U	NAS 8-33570	Ingels, F. M.	11	2739
MSFC	Broussard, P. H.	MISSISSIPPI STATE U	NCA 8-131	Jones, E. W.	46	2740
MSFC	Eby, P. B.	MONTANA STATE UNIV	NSG 8061	Nordvedt, K.	13	2795
MSFC	Burch, J. L.	MOREHOUSE COLLEGE	NSG 8043	Turner, J. M.	13	2014
MSFC	Patterson, W. J.	MORRIS BROWN COLLEGE	NSG 8027	Maxwell, A.	12	2015
MSFC	Jones, J. B., Jr.	NEW MEX INST MINING	NAS 8-33341	Gibson, D. M.	11	2882
MSFC	Reeves, F. A.	NEW YORK UNIVERSITY	NAS 8-33099	Johnson, A. J.	59	2998
MSFC	Stuckey, J. M.	NO CAR A&T STATE U	NSG 8045	Sharma, A. V.	46	3116
MSFC	Paludan, C. T.	NO CAROLINA STATE U	NAS 8-31984	Welby, G.	39	3120
MSFC	Downs, S. W., Jr.	NORTH GEORGIA COL	NAS 8-30619	Biesbrock, J. A.	51	2016
MSFC	Jones, J. B., Jr.	NORTHWESTERN UNIV	NAS 8-33010	Ulmer, M. P.	11	2064
MSFC	Jones, J. B., Jr.	NORTHWESTERN UNIV	NAS 8-33354	Ulmer, M. P.	11	2065
MSFC	Hill, C. K.	OREGON STATE UNIV	NAS 8-32694	Barber, D. A.	31	3319
MSFC	Neuschaefer, R.	PRINCETON UNIVERSITY	NAS 8-32614	Saville, D. A.	13	2841
MSFC	McPherson, W. B.	PRINCETON UNIVERSITY	NAS 8-33102	Caveny, L. H.	49	2842
MSFC	Jones, J. B., Jr.	PRINCETON UNIVERSITY	NAS 8-33345	Cowie, L. L.	11	2843
MSFC	Davidson, M. C.	RENSSELAER POLY-NY	NAS 8-26146	Wiedmann, H.	47	3027
MSFC	Reeves, F. A.	RENSSELAER POLY-NY	NAS 8-32425	Glicksman, M. E.	47	3028
MSFC	Davidson, M. C.	RENSSELAER POLY-NY	NAS 8-32639	Wiedemeier, H.	19	3029
MSFC	Reeves, F. A.	RENSSELAER POLY-NY	NAS 8-32690	Glicksman, M. E.	12	3030
MSFC	Williams, J. R.	RENSSELAER POLY-NY	NAS 8-32936	Wiedemeier, H.	47	3031
MSFC	Lacy, L. L.	RENSSELAER POLY-NY	NAS 8-33074	Ross, S.	13	3032
MSFC	Brantley, W.	RICE UNIVERSITY	NAS 8-33023	Few, A. A.	49	3545
MSFC	Oran, W. A.	RICE UNIVERSITY	NAS 8-33199	Margrave, J.	47	3546
MSFC	Jones, J. B., Jr.	RICE UNIVERSITY	NAS 8-33361	Haymes, R. C.	11	3547

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MSFC	Hill, C. K.	ST LOUIS UNIVERSITY	NAS 8-32838	Fuelberg, H. E.	31	2754
MSFC	Hill, C. K.	ST LOUIS UNIVERSITY	NAS 8-33370	Fuelberg, H. E.	31	2755
MSFC	Jayroe, R. R., Jr.	SAVANNAH STATE COL	NSG 8048	Wenner, D. B.	45	2018
MSFC	Williamson, J. G.	SO UNIV-BATON ROUGE	NSG 8025	Tabony, J.	46	2282
MSFC	White, J. B.	SO UNIV-BATON ROUGE	NSG 8053	Montgomery, V. T	45	2283
MSFC	Owen, R. B.	SO UNIV-BATON ROUGE	NSG 8056	Scott, R. L., Jr.	46	2284
MSFC	Snoddy, W. C.	STANFORD UNIVERSITY	NAS 8-32263	Underwood, J. H.	11	1315
MSFC	Potter, R. A.	STANFORD UNIVERSITY	NAS 8-32355	Everitt, C. W.	13	1316
MSFC	Urban, E. W.	STANFORD UNIVERSITY	NAS 8-32605	Everitt, C. W.	13	1317
MSFC	Guynes, B. V.	STANFORD UNIVERSITY	NAS 8-32852	Darosa, A. V.	31	1318
MSFC	Dailey, C. C.	STANFORD UNIVERSITY	NAS 8-33012	Walker, A. B., Jr.	11	1319
MSFC	Davidson, M. C.	STANFORD UNIVERSITY	NAS 8-33110	Tiller, W. A.	19	1320
MSFC	Dailey, C. C.	STANFORD UNIVERSITY	NAS 8-33234	Wagoner, R. V.	11	1321
MSFC	Clifton, K. S.	STATE UNIV NY-ALBANY	NAS 8-32485	Schuerman, D.	31	3048
MSFC	Vaughan, O. H.	STATE UNIV NY-ALBANY	NAS 8-32893	Vonnegut, B.	39	3049
MSFC	Williams, J. R.	STATE UNIV NY-ALBANY	NAS 8-32947	VanOss, C. J.	59	3050
MSFC	Turner, R. E.	STATE UNIV NY-ALBANY	NAS 8-33380	Orville, R. E.	31	3051
MSFC	Gary, G. A.	STATE UNIV NY-ALBANY	NSG 8040	Weinberg, J. L.	11	3061
MSFC	O'Dell, C. R.	STATE U NY-STONY BRK	NAS 8-32904	Caldwell, J. J.	11	3066
MSFC	Humphries, W. R.	TENNESSEE TECH U	NAS 8-31564	Griggs, E. I.	31	3490
MSFC	Hill, C. K.	TEXAS A&M UNIVERSITY	NAS 8-31773	Scoggins, J. R.	31	3575
MSFC	Nowakowski, M.	TEXAS A&M UNIVERSITY	NAS 8-32527	Parker, D. L.	13	3576
MSFC	Young, L. E.	TUSKEGEE INSTITUTE	NSG 8038	Doreswamy, C. V.	45	1035
MSFC	Brontley, L. W.	TUSKEGEE INSTITUTE	NSG 8054	Sellers, J. P., Jr.	46	1036
MSFC	Rhodes, P. H.	UNIV ALA-BIRMINGHAM	NAS 8-32923	Sachs, G.	59	1037
MSFC	Bannister, T.	UNIV ALA-BIRMINGHAM	NAS 8-33014	Chiovetti, R., Jr.	59	1038
MSFC	Tandberghansen, E.	UNIV ALA-HUNTSVILLE	NAS 8-28097	Wu, S. T.	13	1040
MSFC	Decher, R.	UNIV ALA-HUNTSVILLE	NAS 8-29316	Hendricks, J. B.	46	1041
MSFC	Chappell, C. R.	UNIV ALA-HUNTSVILLE	NAS 8-30563	Comfort, R. H.	13	1042
MSFC	Parnell, T. A.	UNIV ALA-HUNTSVILLE	NAS 8-31170	Gregory, J. C.	13	1043
MSFC	West, G. S., Jr.	UNIV ALA-HUNTSVILLE	NAS 8-31171	Hung, R. J.	39	1044
MSFC	Price, J. M.	UNIV ALA-HUNTSVILLE	NAS 8-31293	Christensen, D.	13	1045
MSFC	Vaughan, O. H.	UNIV ALA-HUNTSVILLE	NAS 8-31729	Hung, R. J.	13	1046
MSFC	Parnell, T. A.	UNIV ALA-HUNTSVILLE	NAS 8-31895	Gregory, J. C.	17	1047
MSFC	Urban, E. W.	UNIV ALA-HUNTSVILLE	NAS 8-32818	Karr, G. R.	13	1048
MSFC	Jones, R. E.	UNIV ALA-HUNTSVILLE	NAS 8-33096	Shiva, S. G.	22	1049
MSFC	Morgan, S. H.	UNIV ALA-HUNTSVILLE	NAS 8-33132	Wu, S. T.	19	1050
MSFC	DeLoach, A. C.	UNIV ALA-HUNTSVILLE	NAS 8-33216	Steinolfson, R. S.	13	1051
MSFC	Gause, R. I.	UNIV ALA-HUNTSVILLE	NAS 8-33377	Castle, J. G.	47	1052
MSFC	Urban, E. W.	UNIV ALA-HUNTSVILLE	NAS 8-33384	Hendricks, J. B.	12	1053
MSFC	Morgan, S. H.	UNIV ALA-HUNTSVILLE	NAS 8-33443	Wu, S. T.	19	1054
MSFC	Aldrich, B. R.	UNIV ALA-HUNTSVILLE	NAS 8-33542	Hendricks, J. B.	47	1055
MSFC	Lacy, L. L.	UNIV ALA-HUNTSVILLE	NAS 8-33543	Davis, J. H.	47	1056
MSFC	Owen, R. B.	UNIV ALA-UNIVERSITY	NAS 8-32386	Lin, H. K.	13	1058
MSFC	Williams, D. E.	UNIV ALA-UNIVERSITY	NAS 8-33430	Raburn, W. D.	45	1059
MSFC	Peters, P. N.	UNIV ALA-UNIVERSITY	NAS 8-33507	Bertsch, W.	31	1060
MSFC	Parnell, T. A.	UNIV OF ARIZONA	NAS 8-31192	Benton, E. V.	11	1100
MSFC	Snyder, R. S.	UNIV OF ARIZONA	NAS 8-31948	Bartels, P. H.	59	1101
MSFC	Williams, J. R.	UNIV OF ARIZONA	NAS 8-32950	Bier, M.	59	1102
MSFC	Jones, J. B., Jr.	UNIV OF ARIZONA	NAS 8-33351	Strittmatter, P. A.	11	1103
MSFC	Falls, L. W.	UNIV ARKANSAS-FAYETV	NAS 8-31550	Tubbs, J. D.	31	1162
MSFC	Smith, O. E.	UNIV ARKANSAS-FAYETV	NAS 8-33224	Tubbs, J. D.	31	1163
MSFC	Ondrak, B. T.	UNIV CALIF-BERKELEY	NAS 8-29603	Price, P. B.	12	1421
MSFC	Marmann, R.	UNIV CALIF-BERKELEY	NAS 8-32577	Bowyer, C. S.	11	1422
MSFC	Dailey, C. C.	UNIV CALIF-BERKELEY	NAS 8-33011	Anderson, K. A.	11	1423
MSFC	Jones, J. B., Jr.	UNIV CALIF-BERKELEY	NAS 8-33349	Bowyer, C. S.	11	1424
MSFC	Jones, J. B., Jr.	UNIV CALIF-BERKELEY	NAS 8-33356	McKee, C.	11	1425
MSFC	Barnes, J. B.	UNIV CALIF-BERKELEY	NAS 8-33357	Anderson, K. A.	11	1426

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MSFC	Williams, J. R.	UNIV CALIF-L ANGELES	NAS 8-33115	Bunshah, R. F.	47	1508
MSFC	Jones, J. B., Jr.	UNIV CALIF-L ANGELES	NAS 8-33353	Margon, B. H.	11	1509
MSFC	Manning, H. S.	UNIV CALIF-SAN DIEGO	NAS 8-27974	Peterson, L. E.	11	1579
MSFC	Chappell, C. R.	UNIV CALIF-SAN DIEGO	NAS 8-31145	McIlwain, C. E.	13	1580
MSFC	DeLoach, A. C.	UNIV CALIF-SAN DIEGO	NAS 8-32984	Svestka, Z.	13	1581
MSFC	Jones, J. B., Jr.	UNIV CALIF-S CRUZ	NAS 8-33347	Davies, R. L.	11	1659
MSFC	Bianchi, C.	UNIV OF CENTRAL FLA	NAS 8-32835	Carroll, W. E.	47	1922
MSFC	Smith, O. E.	UNIV OF CENTRAL FLA	NAS 8-33071	Somerville, P. N.	31	1923
MSFC	Guynes, B. V.	UNIV OF CHICAGO	NAS 8-32828	Meyer, P.	31	2078
MSFC	Jones, J. B., Jr.	UNIV OF CHICAGO	NAS 8-33350	Meyer, P.	11	2079
MSFC	Jones, C. T.	UNIV COLORADO-BOLDR	NAS 8-31958	Toornre, D. J.	39	1748
MSFC	Dailey, C. C.	UNIV COLORADO-BOLDR	NAS 8-33084	Linsky, J. L.	11	1749
MSFC	Jones, J. B., Jr.	UNIV COLORADO-BOLDR	NAS 8-33333	Haisch, B. M.	11	1750
MSFC	Jones, J. B., Jr.	UNIV COLORADO-BOLDR	NAS 8-33338	McCray, R.	11	1751
MSFC	Jones, J. B., Jr.	UNIV COLORADO-BOLDR	NAS 8-33342	Ayres, T. R.	11	1752
MSFC	Camp, D. W.	UNIV OF DAYTON	NAS 8-31294	Leurs, J. K.	41	3264
MSFC	Camp, D. W.	UNIV OF DAYTON	NAS 8-32111	Luers, J. K.	41	3265
MSFC	Camp, D. W.	UNIV OF DAYTON	NAS 8-33369	Leurs, J. K.	31	3266
MSFC	Schell, J. T.	UNIV OF FLORIDA	NAS 8-20247	Patterson, E. P.	12	1928
MSFC	DeLoach, A. C.	UNIV OF HAWAII-MANOA	NAS 8-33219	Heasley, J. N.	13	2030
MSFC	Clark, J.	UNIV HOUSTON-CL LAKE	DEN 8 1	Samfield, E.	31	3635
MSFC	Costes, N. C.	UNIV ILLINOIS-CHICGO	NAS 8-32993	Silver, M. L.	44	2108
MSFC	Guynes, B. V.	UNIV OF IOWA	NAS 8-32807	Shawhan, S. D.	31	2210
MSFC	Winder, S. W.	UNIV OF LOUISVILLE	NAS 8-31233	Childs, D. W.	42	2264
MSFC	Scott, F. E.	UNIV MARYLAND-COL PK	NAS 8-32148	Colwell, R. R.	54	2347
MSFC	DeLoach, A. C.	UNIV MARYLAND-COL PK	NAS 8-33105	Rundu, M. R.	13	2348
MSFC	Jones, J. B., Jr.	UNIV MARYLAND-COL PK	NAS 8-33329	Scott, J. S.	11	2349
MSFC	Jones, J. B., Jr.	UNIV MARYLAND-COL PK	NAS 8-33346	Erickson, W. C.	11	2350
MSFC	Jones, J. B., Jr.	UNIV MARYLAND-COL PK	NAS 8-33358	Wilson, A. S.	11	2351
MSFC	Urban, E. W.	UNIV MARYLAND-COL PK	NAS 8-33557	Paik, H. J.	13	2352
MSFC	Fowlis, W. W.	UNIV OF MIAMI	NAS 8-32898	Geisler, J. E.	31	1954
MSFC	Fowlis, W. W.	UNIV OF MIAMI	NAS 8-33558	Geisler, J. E.	31	1955
MSFC	Ruff, R. C.	UNIV MICH-ANN ARBOR	NAS 8-31987	Carignan, G. R.	19	2650
MSFC	Chappell, C. R.	UNIV MICH-ANN ARBOR	NAS 8-32332	Carignan, G. R.	19	2651
MSFC	Jones, C. T.	UNIV MICH-ANN ARBOR	NAS 8-32569	Torr, M. R.	19	2652
MSFC	Ruff, R. C.	UNIV MICH-ANN ARBOR	NAS 8-32661	Shyn, T. W.	39	2653
MSFC	Talley, D.	U MINN-MNPLS-ST PAUL	NAS 8-27977	Waddington, C. J.	11	2704
MSFC	Smith, R. E.	UNIV MO-COLUMBIA	NAS 8-31150	Tung, C.	31	2756
MSFC	Smith, R. E.	UNIV MO-COLUMBIA	NAS 8-31849	Kassner, J. L., Jr.	31	2757
MSFC	Fallon, R. A.	UNIV MO-ROLLA	NAS 8-32976	Hagen, D. E.	31	2764
MSFC	Geller, G.	UNIV MO-ROLLA	NSG 8055	Summers, D. A.	47	2773
MSFC	Smith, R. E.	UNIV NEVADA-DRI	NAS 8-31470	Squires, P.	31	2802
MSFC	Fallon, R. A.	UNIV NEVADA-DRI	NAS 8-32975	Kocmond, W. C.	31	2803
MSFC	Fallon, R. A.	UNIV NEVADA-DRI	NAS 8-32977	Hallett, J.	31	2804
MSFC	Fallon, R. A.	UNIV NEVADA-DRI	NAS 8-33273	Kocmond, W. C.	31	2805
MSFC	Anderson, B. J.	UNIV NEVADA-DRI	NAS 8-33295	Hallett, J.	31	2806
MSFC	Smith, R. E.	UNIV OF NEVADA-RENO	NAS 8-31441	Telford, J. W.	19	2809
MSFC	Schrick, B. J.	UNIV OF NEVADA-RENO	NAS 8-32313	Kocmond, W. C.	31	2810
MSFC	Humphries, W. R.	UNIV OF NEW ORLEANS	NAS 8-33479	Bankston, J. D., Jr.	46	2289
MSFC	Camp, D. W.	UNIV OKLAHOMA-NORMAN	NAS 8-31377	McCarthy, J.	31	3309
MSFC	Jones, J. B., Jr.	UNIV OKLAHOMA-NORMAN	NAS 8-33330	Chincarini, G. L.	11	3310
MSFC	Scott, F. E.	UNIV ORGEON-HLTH CTR	NAS 8-32162	Knox, R. J.	59	3336
MSFC	Reeves, F. A.	UNIV ORGEON-HLTH CTR	NAS 8-32353	Brooks, D. E.	51	3337
MSFC	Reeves, F. A.	UNIV ORGEON-HLTH CTR	NAS 8-32609	Seaman, G. V.	59	3338
MSFC	Nerrin, B. N.	UNIV ORGEON-HLTH CTR	NAS 8-32817	Brooks, D. E.	59	3339
MSFC	Dailey, C. C.	UNIV OF PENNSYLVANIA	NAS 8-33088	Shen, B. S.	11	3425
MSFC	Jones, J. B., Jr.	UNIV OF PENNSYLVANIA	NAS 8-33336	Shen, B. S.	11	3426
MSFC	Jones, J. B., Jr.	UNIV OF ROCHESTER	NAS 8-33328	Duthie, J. G.	11	3096

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MSFC	Parnell, T. A.	UNIV SAN FRANCISCO	NAS 8-26758	Benton, E. V.	13	1666
MSFC	Lowrey, D. O.	UNIV SO CAROLINA-COL	NAS 8-28660	Fellers, R. G.	45	3472
MSFC	Craig, G. D.	UNIV TENNESSEE-KNOXV	NAS 8-29271	Gonzalez, R. C.	45	3494
MSFC	Sloan, J.	UNIV TENNESSEE-KNOXV	NAS 8-29584	Frost, W.	46	3495
MSFC	Hill, C. K.	UNIV TENNESSEE-KNOXV	NAS 8-31718	Frost, W.	31	3496
MSFC	Vaughan, O. H.	UNIV TENNESSEE-KNOXV	NAS 8-32031	Connett, J. R.	31	3
MSFC	Bensko, J.	UNIV TENNESSEE-KNOXV	NAS 8-32034	Shahrokhi, F.	32	3498
MSFC	Anderson, B. J.	UNIV TENNESSEE-KNOXV	NAS 8-32611	Carter, J. M.	39	3499
MSFC	Camp, D. W.	UNIV TENNESSEE-KNOXV	NAS 8-32635	Kohl, R. H.	31	3500
MSFC	Camp, D. W.	UNIV TENNESSEE-KNOXV	NAS 8-32692	Frost, W.	31	3501
MSFC	Guttman, C. H.	UNIV TENNESSEE-KNOXV	NAS 8-33065	Hung, J. C.	46	3502
MSFC	Daniel, J. L.	UNIV TENNESSEE-KNOXV	NAS 8-33218	Shahrokhi, F.	39	3503
MSFC	Mercier, D. R.	UNIV TENNESSEE-KNOXV	NAS 8-33225	Smith, V. K., III	41	3504
MSFC	Fowlis, W. W.	UNIV TENNESSEE-KNOXV	NAS 8-33386	Antar, B. N.	31	3505
MSFC	Fichtl, G. H.	UNIV TENNESSEE-KNOXV	NAS 8-33447	Antar, B. N.	13	3506
MSFC	Howell, J. T., Jr.	UNIV TENNESSEE-KNOXV	NAS 8-33604	Hung, J. C.	45	3507
MSFC	Snoddy, W. C.	UNIV TEXAS-AUSTIN	NAS 8-31459	Henize, K. G.	11	3643
MSFC	O'Dell, C. R.	UNIV TEXAS-AUSTIN	NAS 8-32905	Lambert, D. L.	11	3644
MSFC	O'Dell, C. R.	UNIV TEXAS-AUSTIN	NAS 8-32906	Jefferys, W. H.	11	3645
MSFC	Chappell, C. R.	UNIV TEXAS-DALLAS	NAS 8-31775	Hanson, W. B.	19	3698
MSFC	Oran, W. A.	UNIV TEXAS-DALLAS	NAS 8-32689	Hoffman, J. H.	31	3699
MSFC	Chappell, C. R.	UNIV TEXAS-DALLAS	NAS 8-32831	Hanson, W. B.	13	3700
MSFC	Chappell, C. R.	UNIV TEXAS-S ANTONIO	NAS 8-32584	Burch, J. L.	31	3720
MSFC	Winter, S. W.	UNIV OF VIRGINIA	NAS 8-31951	Gunter, E. J.	46	3847
MSFC	Jones, J. B., Jr.	UNIV OF VIRGINIA	NAS 8-33327	Thuan, T. X.	11	3848
MSFC	Jones, J. B., Jr.	UNIV OF VIRGINIA	NAS 8-33348	Sarazin, C. L.	11	3849
MSFC	Fallon, R. A.	UNIV OF WASHINGTON	NAS 8-33148	Hobbs, P. V.	31	3926
MSFC	Jones, J. B., Jr.	UNIV OF WASHINGTON	NAS 8-33337	Szkody, P.	11	3927
MSFC	Jones, J. B., Jr.	UNIV OF WASHINGTON	NAS 8-33344	Boynton, P. E.	11	3928
MSFC	Jones, J. B., Jr.	UNIV OF WASHINGTON	NAS 8-33360	Boynton, P. E.	11	3929
MSFC	Turner, R. E.	UNIV WISC-MADISON	NAS 8-33222	Johnson, D. R.	31	3985
MSFC	Jones, J. B., Jr.	UNIV WISC-MADISON	NAS 8-33340	Cassinelli, J. P.	11	3986
MSFC	Schrick, B. J.	UNIV OF WYOMING	NAS 8-32067	Vah, G.	31	4016
MSFC	Reeves, F. A.	UNIV OF WYOMING	NAS 8-32486	Saunders, C.	47	4017
MSFC	Fallon, R. A.	UNIV OF WYOMING	NAS 8-33150	Vah, G.	31	4018
MSFC	Chappell, C. R.	UTAH STATE UNIV	NAS 8-32636	Ratt, W. J.	31	3737
MSFC	Johnson, W. G.	UTAH STATE UNIV	NAS 8-33381	Williamson, P. R.	31	3738
MSFC	Johnson, W. G.	UTAH STATE UNIV	NAS 8-33383	Banks, P. M.	31	3739
MSFC	Nichols, R. L.	VANDERBILT UNIVERSTY	NAS 8-32695	Kinser, D. L.	47	3520
MSFC	Jones, J. B., Jr.	VIRGINIA POLY INST	NAS 8-33359	Dennison, B. K.	11	3874
MSFC	Costes, N. C.	VIRGINIA POLY INST	NAS 8-33449	Storre, S.	32	3875
MSFC	DeLoach, A. C.	WEBER STATE COL	NAS 8-33113	Tripp, D. A.	31	3750
MSFC	Talley, D.	WASHINGTON UNIVERSTY	NAS 8-27976	Barcus, J.	11	2779
MSFC	Daniels, J. L., Jr.	WASHINGTON UNIVERSTY	NAS 8-32354	Eastwood, L.	39	2780
MSFC	Stonemetz, R. E.	WESTRN KENTUCKY UNIV	NAS 8-33387	Healy, H.	31	2269
MSFC	Espy, P. N.	XAVIER UNIV-LA	NSG 8050	Ioup, J. W.	39	2294
MSFC	Eby, P. B.	YALE UNIVERSITY	NAS 8-33572	Parker, P. D.	11	1821
NSTL	Wolverton, B. C.	ALCORN STATE UNIV	NSG 8036	Latif, A.	51	2730
NSTL	Wolverton, B. C.	FORT VALLEY STATE C	NSG 735	Rogerson, A. C.	39	1974
NSTL	Pearson, R.	GEORGIA INST OF TECH	NAS13-84	Faust, N. L.	22	1990
NSTL	Atwell, B. H.	JACKSON STATE UNIV	NSG 736	Lang, M.	32	2731
NSTL	Wolverton, B. C.	JACKSON STATE UNIV	NSG 8026	Garrity, E.	39	2732
NSTL	Atwell, B. H.	MURRAY STATE UNIV	NAS13-111	Franklin, W. A.	31	3296
NSTL	Whitley, S. L.	NAVAJO COMMUNITY COL	NSG 737	Isher, S. F.	49	1089
NSTL	Atwell, B. H.	UNIV OF FLORIDA	NAS13-106	Cross, C.	32	1936
NSTL	Butera, M. K.	UNIV OF GEORGIA	NAS13-121	Cooley, J. E.	32	2022
NSTL	Atwell, B. H.	UNIV OF GEORGIA	NAS13-173	Welch, R.	32	2023
NSTL	Atwell, B. H.	UNIV OF NEW MEXICO	NAS13-509	Moran, S. R.	32	2896

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NSTL	Atwell, B. H.	UNIV OKLAHOMA-NORMAN	NAS13-122	Harrington, J. A.	32	3311
NSTL	Zetka, E. F.	UNIV OF RHODE ISLAND	NAS13-112	Tippie, V.	33	3463
NSTL	Wolverton, B. C.	UNIV SO MISSISSIPPI	NAS13-81	Stocks, P. K.	39	2751
NSTL	Hegwood, R. B.	UNIV SO MISSISSIPPI	NAS13-95	Brundage, W. G.	49	2752
WFC	Stanley, H. R.	COLUMBIA UNIVERSITY	NAS 6-2519	Talwani, M.	32	2922
WFC	Gray, J. W.	CORNELL UNIVERSITY	NSG 6020	Wray, J. D.	19	2979
WFC	Holland, A. C.	DREXEL UNIVERSITY	NSG 6007	Hackney, R. L.	31	3357
WFC	Holland, A. C.	DREXEL UNIVERSITY	NSG 6019	Acquista, C. R.	13	3358
WFC	Torres, A. L.	DREXEL UNIVERSITY	NSG 6035	Thornton, D. C.	12	3359
WFC	Milliner, J. B.	ESTRN SHORE CMTY COL	NAS 6-2964	Layman, P.	99	3772
WFC	Stanley, H. R.	JOHNS HOPKINS UNIV	NAS 6-2706	Phillips, O. M.	33	2306
WFC	Huang, N. E.	JOHNS HOPKINS UNIV	NAS 6-2888	Phillips, O. M.	33	2307
WFC	Huang, N. E.	JOHNS HOPKINS UNIV	NAS 6-2993	Phillips, O. M.	33	2308
WFC	Krabill, W. B.	NEW MEX ST U-LAS CR	NAS 6-2885	Guard, K.	32	2887
WFC	Huang, N. E.	NO CAROLINA STATE U	NAS 6-3018	Tung, C.	33	3119
WFC	West, W. W.	OKLAHOMA STATE UNIV	NAS 6-2970	Buck, R. F.	49	3298
WFC	Carr, R. E.	OKLAHOMA STATE UNIV	NSG 6018	Roth, L. O.	49	3303
WFC	Duke, J. R.	PENN STATE U-UNIV PK	NAS 6-2726	Olivero, J.	31	3380
WFC	Schmidlin, F. J.	PENN STATE U-UNIV PK	NAS 6-2818	Clark, J. H.	31	3381
WFC	Schmidlin, F. J.	PENN STATE U-UNIV PK	NAS 6-2826	Hale, L. C.	31	3382
WFC	Ballance, C. W., Jr.	PENN STATE U-UNIV PK	NGL 39-009-032	Kendall, B. R.	13	3392
WFC	Gray, J. W.	PENN STATE U-UNIV PK	NSG 6004	Ferguson, C. A.	19	3415
WFC	Maurer, H. E.	PURDUE UNIVERSITY	NAS 6-2695	Phillips, T. L.	39	2148
WFC	Gray, J. W.	RICE UNIVERSITY	NAS 6-1667	Anderson, H. R., Jr	11	3544
WFC	Huang, N. E.	TEXAS A&M UNIVERSITY	NAS 6-2884	Ichiye, T.	35	3574
WFC	Gray, J. W.	UNIV ALASKA-FAIRBNKS	NSG 6014	Davis, T. N.	19	1065
WFC	Gray, J. W.	UNIV ALASKA-FAIRBNKS	NSG 6024	Hallinan, T. J.	19	1066
WFC	Gray, J. W.	UNIV ALASKA-FAIRBNKS	NSG 6028	Hallinan, T. J.	19	1067
WFC	Duke, J. R.	UNIV OF DAYTON	NAS 6-2456	Luers, J. K.	31	3263
WFC	Melson, W. E., Jr.	UNIV OF DAYTON	NSG 6026	Luers, J. K.	41	3269
WFC	Huang, N. E.	UNIV OF DELAWARE	NAS 6-2820	Wu, J.	33	1829
WFC	Gray, J. W.	UNIV HOUSTON-HOUSTON	NSG 6008	Sheldon, W. R.	19	3626
WFC	Gray, J. W.	UNIV ILLINOIS-URBANA	NGR 14-005-181	Bowhill, S. A	19	2118
WFC	Floyd, J. C.	UNIV MD-EASTRN SHORE	NAS 6-2855	Smith, J. C.	99	2417
WFC	Trafford, G. H.	UNIV MD-EASTRN SHORE	NGR 21-119-003	Singh, G.	13	2418
WFC	Oberholtzer, J. D.	UNIV MD-EASTRN SHORE	NSG 6006	Wutoh, J. G.	99	2419
WFC	Parsons, C. L.	UNIV MD-EASTRN SHORE	NSG 6016	Smith, J. C.	31	2420
WFC	Trafford, G. H.	UNIV MD-EASTRN SHORE	NSG 6017	Lynk, W. L.	59	2421
WFC	Huang, N. E.	UNIV MD-EASTRN SHORE	NSG 6025	Dudis, J. J.	33	2422
WFC	Trafford, G. H.	UNIV MD-EASTRN SHORE	NSG 6033	Albino, M.	51	2423
WFC	Trafford, G. H.	UNIV MD-EASTRN SHORE	NSG 6034	Gupta, G. C.	39	2424
WFC	Frostrom, R. J., Jr.	UNIV MICH-ANN ARBOR	NAS 6-2794	Horvath, J. J.	31	2649
WFC	Ballance, C. W., Jr.	U MINN-MNPLS-ST PAUL	NSG 6005	Arnoldy, R. J.	19	2719
WFC	Gray, J. W.	U MINN-MNPLS-ST PAUL	NSG 6009	Nier, A. O.	19	2720
WFC	Gray, J. W.	U MINN-MNPLS-ST PAUL	NSG 6021	Cahill, L. J., Jr.	19	2721
WFC	Gray, J. W.	UNIV NEW HAMP-DURHAM	NSG 6022	Arnoldy, R. L.	19	2829
WFC	Gray, J. W.	UNIV OF PITTSBURGH	NSG 6011	Zipf, E. C.	19	3448
WFC	Gray, J. W.	UNIV TEXAS-DALLAS	NSG 6023	Christensen, A. B.	19	3708
WFC	Duke, J. P.	UNIV OF UTAH	NAS 6-2498	Kao, S. K.	31	3726
WFC	Duke, J. R.	UNIV OF UTAH	NAS 6-2627	Staffanson, F. L.	31	3727
WFC	Huang, N. E.	UNIV OF WASHINGTON	NAS 6-2996	Katsaros, K. B	33	3925
WFC	Gray, J. W.	UTAH STATE UNIV	NSG 6027	Williamson, P. R.	19	3743
WFC	Scott, J. H., Jr.	VIRGINIA POLY INST	NAS 6-2388	Powell, N. L.	39	3873
WFC	Schmidlin, F. J.	VIRGINIA POLY INST	NGL 47-004-067	Tieleman, H. W	31	3881
WFC	Parker, L. C.	VIRGINIA POLY INST	NSG 6029	Powell, N. L.	19	3917
WFC	Parker, L. C.	VIRGINIA POLY INST	NSG 6030	Powell, N. L.	19	3918
WFC	Parker, L. C.	VIRGINIA POLY INST	NSG 6031	Powell, N. L.	19	3919
HQ-BX	Weir, J. F.	UNIV OF HAWAII-MANOA	NASW 2801	Jefferies, J. T.	11	2032

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	AGREEMENT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-EB	Kakar, R. K.	FLORIDA STATE UNIV	NSG 7473	Hunt, R. H.	31	1919
HQ-EB	Seals, R. K., Jr.	UNIV CALIF-IRVINE	NSG 7208	Molina, M. J.	31	1498
HQ-EB	Dodge, J. C.	UNIV OF CHICAGO	NGR 14-001-008	Fujita, T. T.	31	2090
HQ-EB	Kakar, R. K.	UNIV MARYLAND-COL PK	NSG 7340	Ginter, M. L.	13	2410
HQ-EB	Seals, R. K., Jr.	U MINN-MNPLS-ST PAUL	NSG 7221	Mauersberger, K.	31	2724
HQ-EB	Kakar, R. K.	UNIV OF WYOMING	NSG 7349	Hofmann, D. J.	31	4021
HQ-EB	Kakar, R. K.	WASHINGTON ST UNIV	NSG 7214	Cronn, D.	31	3964
HQ-EB	Kakar, R. K.	OREGON GRADUATE CTR	NSG 7457	Rasmussen, R. A.	31	3317
HQ-ER	Flinn, E. A.	MASS INST OF TECH	NSG 7428	Counselman, C. C., III	32	2601
HQ-ER	Murphy, J. P.	OHIO STATE UNIV	NASW 3194	Mueller, I. I.	31	3214
HQ-ER	Murphy, J. P.	OHIO STATE UNIV	NGR 36-008-204	Mueller, I. I.	32	3218
HQ-ER	Murphy, J. P.	UNIV COLORADO-BOLDR	NASW 3103	Wyss, M.	32	1753
HQ-ER	Flinn, E. A.	UNIV TEXAS-AUSTIN	NSG 7159	Dorman, J. H.	19	3678
HQ-ES	Flinn, E. A.	MASS INST OF TECH	NSG 7329	Soloman, S. C.	32	2596
HQ-ET	Vitale, J. A.	CALIF INST OF TECH	NSG 7610	Anderson, D. L.	32	1231
HQ-ET	Vitale, J. A.	CORNELL UNIVERSITY	NGL 33-010-171	Liang, T.	39	2957
HQ-ET	Weinstein, R. H.	HUMBOLDT STATE UNIV	NSG 7525	Hankins, D. B.	39	1259
HQ-ET	Vitale, J. A.	LA ST U&A&M COL-BRGE	NGL 19-001-105	Whitehurst, C. A.	39	2271
HQ-ET	Vitale, J. A.	MASS INST OF TECH	NSG 7331	Gatos, H. C.	47	2597
HQ-ET	Vitale, J. A.	MICHIGAN STATE UNIV	NGL 23-004-083	Boylan, M. G.	39	2625
HQ-ET	Vitale, J. A.	MISSISSIPPI STATE U	NGL 25-001-054	Miller, W. F.	39	2741
HQ-ET	Roberson, F. I.	NEW YORK UNIVERSITY	NSG 7636	Fusfeld, H. I.	99	3014
HQ-ET	Vitale, J. A.	OKLAHOMA STATE UNIV	NSG 7640	Walsh, S.	31	3304
HQ-ET	Vitale, J. A.	OREGON STATE UNIV	NGL 38-002-053	Schrumpf, B. J.	39	3324
HQ-ET	Vitale, J. A.	PURDUE UNIVERSITY	NGL 15-005-186	Weismiller, R. A.	39	2156
HQ-ET	Vitale, J. A.	SO DAKOTA STATE UNIV	NGL 42-003-007	Myers, V. I.	39	3480
HQ-ET	Bivins, R. G.	SOUTHEASTN OKLA ST U	NASW 3007	Gold, C. H.	99	3305
HQ-ET	Bivins, R. G.	SOUTHEASTN OKLA ST U	NASW 3180	Olver, R.	49	3306
HQ-ET	Roberson, F. I.	STANFORD UNIVERSITY	NASW 3204	McAlister, J. F.	39	1323
HQ-ET	Dolby, W.	ST UNIV SYSTM OF FLA	NASW 3060	Unavailable	99	1921
HQ-ET	Vitale, J. A.	TEXAS A&M UNIVERSITY	NGL 44-001-001	Blanchard, B. J.	39	3591
HQ-ET	Vitale, J. A.	UNIV ALASKA-FAIRBNKS	NGL 02-001-092	Miller, J. M.	39	1063
HQ-ET	Vitale, J. A.	UNIV OF ARIZONA	NGL 03-002-313	Johnson, J. D.	39	1115
HQ-ET	Vitale, J. A.	UNIV OF ARIZONA	NSG 7333	Bier, M.	59	1145
HQ-ET	Vitale, J. A.	UNIV CALIF-BERKELEY	NGL 05-003-404	Colewell, R. N.	39	1442
HQ-ET	Vitale, J. A.	UNIV CALIF-BERKELEY	NSG 7220	Colwell, R. N.	39	1472
HQ-ET	Tuyahov, A. J.	UNIV CALIF-BERKELEY	NSG 7522	Colwell, R. N.	79	1478
HQ-ET	Vitale, J. A.	UNIV COLORADO-BOLDR	NGL 06-003-200	Ives, J. D.	39	1756
HQ-ET	Bivins, R. G.	UNIV OF CONNECTICUT	NASW 3191	Unavailable	99	1815
HQ-ET	Ault, L. A.	UNIV OF DENVER	NASW 3113	Johnson, F. D.	99	1801
HQ-ET	Vitale, J. A.	UNIV OF FLORIDA	NSG 7236	Ruth, B. E.	39	1950
HQ-ET	Harrison, J. O.	UNIV OF GEORGIA	NASW 2948	Unavailable	99	2020
HQ-ET	Harrison, J. O.	UNIV OF GEORGIA	NASW 3247	Hale, H.	22	2021
HQ-ET	Vitale, J. A.	UNIV OF KANSAS	NGL 17-004-024	Barr, B. G.	39	2234
HQ-ET	Dolby, W.	UNIV OF KENTUCKY	NASW 3039	Unavailable	99	2260
HQ-ET	Vitale, J. A.	U MINN-MNPLS-ST PAUL	NGL 24-005-263	Shepherd, W. G.	39	2708
HQ-ET	Vitale, J. A.	UNIV NEBRASKA-LINCLN	NGL 28-004-020	Carlson, M. P.	39	2797
HQ-ET	Bivins, R. G.	UNIV OF NEW MEXICO	NASW 2936	Unavailable	99	2894
HQ-ET	Vitale, J. A.	UNIV SO CAROLINA-COL	NSG 7504	Cooper, J. M.	39	3476
HQ-ET	Gilbert, R.	UNIV OF SOUTHERN CAL	NASW 3009	Unavailable	99	1692
HQ-ET	Bivins, R. G.	UNIV OF SOUTHERN CAL	NASW 3235	Mixer, R.	99	1693
HQ-ET	Vitale, J. A.	UNIV OF UTAH	NSG 7226	Ridd, M. K.	39	3732
HQ-ET	Vitale, J. A.	UNIV OF VERMONT	NSG 7453	John, H. H.	32	3753
HQ-ET	Vitale, J. A.	UNIV WISC-MADISON	NGL 50-002-127	Clapp, J. L.	39	3991
HQ-KT	Bivins, R. G.	UNIV OF PITTSBURGH	NASW 3042	Unavailable	99	3434
HQ-LF	Rich, W. B.	CAL STATE U-CHICO	NASW 2835	Unavailable	99	1239
HQ-LU	Pohly, J. G.	BOWIE STATE COLLEGE	NGT 21-027-012	Kirksey, C. H.	99	2298
HQ-LU	Carter, C. H.	CALIF INST OF TECH	NGT 05-003-790	Albee, A. L.	49	1203

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	AGREEMENT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-LU	Pohly, J. G.	CAL STATE U-L ANGLES	NASW 3257	Manvi, R.	46	1245
HQ-LU	Pohly, J. G.	CAL STATE U-L ANGLES	NSG 7229	Maniv, R.	46	1247
HQ-LU	Pohly, J. G.	CAL STATE U-L ANGLES	NSG 7263	Gold, P. I.	46	1248
HQ-LU	Pohly, J. G.	CARNEGIE-MELLON UNIV	NGT 39-087-790	Cathie, W.	49	3342
HQ-LU	Carter, C. H.	CASE WESTERN RESERVE	NGT 36-027-011	Prahe, J. M.	49	3152
HQ-LU	Pohly, J. G.	CASE WESTERN RESERVE	NGT 36-027-790	Chenelle, D. W.	49	3153
HQ-LU	Pohly, J. G.	CLARK COLLEGE	NSG 7267	Sinha, O. P.	13	1970
HQ-LU	Pohly, J. G.	CLEVELAND STATE UNIV	NGT 36-025-780	Bennett, W. R.	49	3191
HQ-LU	Pohly, J. G.	FLORIDA A&M UNIV	NSG 901	Jones, H. J.	13	1909
HQ-LU	Pohly, J. G.	HOWARD UNIVERSITY	NGL 09-011-046	Ferguson, G. A.	39	1883
HQ-LU	Carter, C. H.	HOWARD UNIVERSITY	NGT 09-011-060	Fan, D. N.	99	1885
HQ-LU	Pohly, J. G.	MOREHOUSE COLLEGE	NGT 11-008-004	Hall, J. H.	99	2012
HQ-LU	Pohly, J. G.	MOREHOUSE COLLEGE	NSG 7652	Hall, J. H.	12	2013
HQ-LU	Pohly, J. G.	MORGAN STATE UNIV	NGT 21-025-006	Proctor, N. K.	19	2332
HQ-LU	Pohly, J. G.	NM HIGHLANDS UNIV	NGT 32-010-001	Zenick, H.	99	2881
HQ-LU	Pohly, J. G.	NORTHWESTERN UNIV	NGT 14-007-780	Ingersoll, D.	49	2067
HQ-LU	Nicogossian, A. E.	OHIO STATE UNIV	NGT 36-008-007	Keller, M. D.	56	3219
HQ-LU	Pohly, J. G.	OHIO STATE UNIV	NGT 36-008-780	Stranges, J.	49	3220
HQ-LU	Carter, C. H.	OLD DOMINION UNIV	NGT 47-003-028	McRee, G. J.	49	3794
HQ-LU	Carter, C. H.	OLD DOMINION UNIV	NGT 47-003-029	Goglia, G. L.	49	3795
HQ-LU	Pohly, J. G.	PURDUE UNIVERSITY	NGT 15-005-790	Holec, D. E.	49	2157
HQ-LU	Pohly, J. G.	SPELMAN COLLEGE	NGT 11-013-001	Falconer, E.	99	2019
HQ-LU	Carter, C. H.	STANFORD UNIVERSITY	NGT 05-020-409	Adams, J. L.	49	1367
HQ-LU	Carter, C. H.	STANFORD UNIVERSITY	NGT 05-020-412	Bershader, D.	49	1368
HQ-LU	Carter, C. H.	STANFORD UNIVERSITY	NGT 05-020-777	Beard, R. R.	59	1369
HQ-LU	Pohly, J. G.	TENNESSEE STATE UNIV	NGT 43-014-750	Malkani, M. J.	49	3488
HQ-LU	Pohly, J. G.	TENNESSEE STATE UNIV	NGT 43-014-790	Malkani, M. J.	49	3489
HQ-LU	Pohly, J. G.	TUSKEGEE INSTITUTE	NGT 01-005-750	Dybczak, Z. W.	49	1031
HQ-LU	Pohly, J. G.	TUSKEGEE INSTITUTE	NGT 01-005-780	Dybczak, Z. W.	49	1032
HQ-LU	Carter, C. H.	UNIV ALA-HUNTSVILLE	NGT 01-008-021	Karr, G. R.	49	1057
HQ-LU	Carter, C. H.	UNIV ALA-UNIVERSITY	NGT 01-002-099	Barfield, B. F.	49	1061
HQ-LU	Carter, C. H.	UNIV HOUSTON-HOUSTON	NGT 44-005-114	Huang, C. J.	49	3621
HQ-LU	Carter, C. H.	UNIV HOUSTON-HOUSTON	NGT 44-005-115	Huang, C. J.	49	3622
HQ-LU	Carter, C. H.	UNIV MARYLAND-COL PK	NGT 21-002-254	Emad, F. P.	49	2379
HQ-LU	Pohly, J. G.	UNIV OF NEW MEXICO	NGT 32-004-770	Etter, D. M.	49	2901
HQ-LU	Pohly, J. G.	UNIV OKLAHOMA-NORMAN	NGT 37-003-760	Thomas, G.	49	3313
HQ-LU	Carter, C. H.	UNIV OF SANTA CLARA	NGT 05-017-998	Healy, T. J.	49	1685
HQ-LU	Pohly, J. G.	UNIV OF UTAH	NSG 7516	Guillory, W. A.	12	3734
HQ-ML	Mahon, J. B.	PENN STATE U-UNIV PK	NASW 3256	Unavailable	42	3386
HQ-MT	Puttkamer, J.	GEORGETOWN UNIV	NASW 3152	Cheston, P. S.	99	1874
HQ-RE	Gevarter, W. B.	RENSSELAER POLY-NY	NSG 7184	Shen, C. N.	19	3044
HQ-RE	Gevarter, W. B.	RENSSELAER POLY-NY	NSG 7369	Yerazunis, S. W.	49	3046
HQ-RE	Montious, C. E.	STANFORD UNIVERSITY	NASW 2916	McCarthy, J.	45	1322
HQ-RE	Fitzmaurice, M. W.	STANFORD UNIVERSITY	NGL 05-020-103	Harris, S. E.	45	1348
HQ-RE	Gevarter, W. B.	UNIV MARYLAND-COL PK	NGR 21-002-270	Minker, J.	21	2371
HQ-RP	Henry, W.	CALIF INST OF TECH	NSG 7458	Ahrens, T. J.	13	1227
HQ-RP	Povinelli, F. P.	IMPERIAL C SCI & TEC	NASW 3258	Whitelow, J.	41	4028
HQ-RP	Lazar, J.	PRINCETON UNIVERSITY	NGL 31-001-005	Jahn, R. G.	42	2844
HQ-RR	Lundholm, J. G., Jr.	DREXEL UNIVERSITY	NSG 7491	Rosen, G. H.	13	3360
HQ-RR	Thom, K.	UNIV OF FLORIDA	NGL 10-005-089	Schneider, R. T.	13	1938
HQ-RR	Thom, K.	UNIV OF FLORIDA	NSG 7299	Schneider, R. T.	13	1951
HQ-RS	Lundholm, J. G., Jr.	CORNELL UNIVERSITY	NSG 7487	Ashcroft, N. W.	13	2987
HQ-RS	Lundholm, J. G., Jr.	CORNELL UNIVERSITY	NSG 7488	Ruoff, A. L.	47	2988
HQ-RS	Lundholm, J. G., Jr.	UNIV MARYLAND-COL PK	NSG 7496	Spain, I. L.	13	2415
HQ-RS	Lundholm, J. G., Jr.	U MINN-MNPLS-ST PAUL	NSG 7296	Scriven, L. E.	13	2726
HQ-RT	Schwenk, F. C.	CALIF INST OF TECH	NSG 7275	Vaughan, R.	13	1221
HQ-RT	Schwenk, F. C.	CALIF INST OF TECH	NSG 7508	Liepmann, H. W.	13	1229
HQ-RT	Schwenk, F. C.	COLORADO STATE UNIV	NGR 06-002-159	Etters, R. D.	13	1720

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HQ-RT	Whiting, E. E.	HOWARD UNIVERSITY	NSG 7624	Choudhury, A. K.	45	1897
HQ-RT	Schwenk, F. C.	MASS INST OF TECH	NSG 7396	Mar, J. W.	42	2600
HQ-RT	Gevarter, W. B.	RENSELAER POLY-NY	NASW 3279	Yerazunis, S. W.	31	3033
HQ-RT	McKenzie, R. L.	RICE UNIVERSITY	NSG 7490	Swain, P. H.	13	3564
HQ-RT	Schwenk, F. C.	STANFORD UNIVERSITY	NSG 7619	Harris, S. E.	13	1409
HQ-RT	Randolph, L. P.	STATE UNIV NY-ALBANY	NSG 7501	Ratcliff, K. F.	42	3060
HQ-RT	Whiting, E. E.	UNIV CALIF-IRVINE	NSG 7472	Wallis, R. F.	13	1500
HQ-RT	Randolph, L. P.	UNIV ILLINOIS-CHICGO	NSG 7247	Barcilon, V.	21	2111
HQ-RT	Schwenk, F. C.	UNIV OF IOWA	NSG 7471	Stwalley, W. C.	13	2219
HQ-RT	Whiting, E. E.	UNIV MARYLAND-COL PK	NSG 7196	Weber, J.	13	2405
HQ-RT	Whiting, E. E.	UNIV MARYLAND-COL PK	NSG 7253	Reiger, C. J.	22	2407
HQ-RT	Randolph, L. P.	UNIV OF UTAH	NASW 2967	Vali, V.	13	3728
HQ-RT	Schwenk, F. C.	UNIV OF WASHINGTON	NGL 48-002-044	Hertzberg, A.	13	3931
HQ-RW	Gilstad, D. A.	RENSELAER POLY-NY	NGL 33-018-003	Wiberly, S. E.	47	3034
HQ-RW	Gangler, J. J.	UNIV OF WASHINGTON	NGL 48-002-004	Mueller, J. I.	47	3930
HQ-RX	Rollins, R. H.	UNIV OF VIRGINIA	NSG 7266	Kuhlthau, A. R.	72	3864
HQ-SB	Young, R. S.	ARIZONA STATE UNIV	NSG 7255	Cronin, J. R.	32	1082
HQ-SB	Larson, C. A.	BOSTON UNIVERSITY	NGR 22-004-018	Fulton, G. P.	59	2430
HQ-SB	Young, R. S.	BOSTON UNIVERSITY	NGR 22-004-025	Margulis, L.	32	2431
HQ-SB	Young, R. S.	BOSTON UNIVERSITY	NSG 7588	Golubic, S.	54	2437
HQ-SB	Young, R. S.	CALIF INST OF TECH	NGR 05-002-121	Horowitz, N. H.	51	1196
HQ-SB	Winter, D. L.	CALIF INST OF TECH	NSG 7387	Strumwasser, F.	51	1225
HQ-SB	Young, R. S.	CORNELL UNIVERSITY	NGR 33-010-101	Sagan, C. E.	12	2960
HQ-SB	Young, R. S.	CORNELL UNIVERSITY	NSG 7235	MacDonald, R. E.	51	2982
HQ-SB	Young, R. S.	CORNELL UNIVERSITY	NSG 7529	Gibson, J.	51	2990
HQ-SB	Larson, C. A.	DREXEL UNIVERSITY	NSG 7494	Dubin, S.	59	3361
HQ-SB	Young, R. S.	FLORIDA STATE UNIV	NSG 7337	Friedmann, E. I.	54	1918
HQ-SB	Halstead, T. W.	GEORGE WASHINGTON U	NASW 3165	Waters, E.	59	1846
HQ-SB	Young, R. S.	GEORGIA INST OF TECH	NSG 7069	Hubbard, J. S.	51	2010
HQ-SB	Young, R. S.	HARDIN-SIMMONS UNIV	NGR 44-095-001	Foster, T. L.	51	3536
HQ-SB	Young, R. S.	HARVARD UNIVERSITY	NGL 22-007-069	Barghoorn, E. S.	32	2453
HQ-SB	Young, R. S.	INDIANA U-BLOOMINGTN	NGR 15-003-118	Hayes, J. M.	32	2138
HQ-SB	Young, R. S.	INDIANA U-BLOOMINGTN	NSG 7389	Ripley, E. M.	32	2139
HQ-SB	Young, R. S.	INDIANA U-BLOOMINGTN	NSG 7520	Ripley, E. M.	32	2140
HQ-SB	Young, R. S.	MASS INST OF TECH	NGR 22-009-005	Biemann, K	51	2528
HQ-SB	Young, R. S.	MASS INST OF TECH	NGR 22-009-277	Rich, A.	12	2529
HQ-SB	Halstead, T. W.	OHIO UNIVERSITY	NSG 7352	Jaffe, M. J.	51	3243
HQ-SB	Young, R. S.	PENN STATE U-UNIV PK	NGR 39-009-180	Casida, L. E., Jr	51	3394
HQ-SB	Young, R. S.	PENN STATE U-UNIV PK	NSG 7515	Wedler, F. C	12	3420
HQ-SB	Young, R. S.	POLY INST OF NY	NGR 33-006-070	Eirich, F. R.	12	3017
HQ-SB	Halstead, T. W.	PRINCETON UNIVERSITY	NSG 7280	Jacobs, W. P	51	2865
HQ-SB	Halstead, T. W.	PURDUE UNIVERSITY	NSG 7278	Mitchell, C. A.	51	2174
HQ-SB	Young, R. S.	RENSELAER POLY-NY	NGR 33-018-148	Ferris, J. P.	12	3036
HQ-SB	Young, R. S.	RENSELAER POLY-NY	NSG 7065	Wedler, F. C	51	3043
HQ-SB	Young, R. S.	RENSELAER POLY-NY	NSG 7345	Pope, D. H.	51	3045
HQ-SB	Halstead, T. W.	RICE UNIVERSITY	NASW 3164	Ward, C. H.	51	3551
HQ-SB	Young, R. S.	SAN FRAN STATE UNIV	NSG 7512	Orenberg, J. B.	51	1268
HQ-SB	Young, R. S.	SO ILL UNIV-CARBONDL	NSG 7394	Yopp, J. H.	51	2073
HQ-SB	Young, R. S.	STANFORD UNIVERSITY	NGL 05-020-582	Bonner, W. A.	59	1353
HQ-SB	Young, R. S.	STANFORD UNIVERSITY	NGR 05-020-004	Lederberg, J.	51	1355
HQ-SB	Halstead, T. W.	STATE U NY-STONY BRK	NSG 7270	Krikorian, A. D.	51	3084
HQ-SB	Young, R. S.	TEXAS A&M UNIVERSITY	NSG 7037	Fendler, J. H.	12	3603
HQ-SB	Halstead, T. W.	TEXAS TECH UNIV	NSG 7435	Hartman, H. B.	32	3609
HQ-SB	Young, R. S.	UNIV ALA-BIRMINGHAM	NGR 01-010-001	Lacey, J. C., Jr	12	1039
HQ-SB	Young, R. S.	UNIV OF ARIZONA	NGR 03-002-171	Nagy, B.	32	1117
HQ-SB	Young, R. S.	UNIV CALIF-BERKELEY	NGL 05-003-003	Calvin, M.	32	1438
HQ-SB	Young, R. S.	UNIV CALIF-BERKELEY	NGR 05-003-460	Jukes, J. H.	12	1450
HQ-SB	Geib, D. S.	UNIV CALIF-BERKELEY	NSG 7262	Pace, N	51	1473



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HQ-SB	Halstead, T. W.	UNIV CALIF-BERKELEY	NSG 7336	Pace, N.	51	1475
HQ-SB	Halstead, T. W.	UNIV CALIF-DAVIS	NSG 7493	Smith, A. H.	51	1495
HQ-SB	Young, R. S.	UNIV CALIF-L ANGELES	NGR 05-007-221	Kaplan, I. R.	32	1519
HQ-SB	Young, R. S.	UNIV CALIF-L ANGELES	NGR 05-007-407	Anderson, R. N.	32	1526
HQ-SB	Young, R. S.	UNIV CALIF-L ANGELES	NSG 7489	Schopf, J. W.	32	1560
HQ-SB	Young, R. S.	UNIV CALIF-SAN FRAN	NSG 7151	Stoeckenius, W.	51	1639
HQ-SB	Larson, C. A.	UNIV OF CHICAGO	NSG 7303	Moran, H. F.	51	2103
HQ-SB	Young, R. S.	UNIV OF CONNECTICUT	NSG 7450	Leadbetter, E. R.	51	1819
HQ-SB	Young, R. S.	UNIV OF HAWAII-MANOA	NGL 12-001-042	Siegel, S. M.	51	2035
HQ-SB	Young, R. S.	UNIV OF HAWAII-MANOA	NGR 12-001-109	Folsome, C. E.	12	2038
HQ-SB	Young, R. S.	UNIV HOUSTON-HOUSTON	NGR 44-005-002	Oro, J.	32	3619
HQ-SB	Young, R. S.	UNIV HOUSTON-HOUSTON	NGR 44-005-091	Becker, R. S.	12	3620
HQ-SB	Halstead, T. W.	UNIV HOUSTON-HOUSTON	NSG 7300	Hendrix, D. H.	51	3628
HQ-SB	Young, R. S.	UNIV HOUSTON-HOUSTON	NSG 7440	Fox, G. E.	51	3630
HQ-SB	Halstead, T. W.	UNIV HOUSTON-HOUSTON	NSG 9042	Coules, J. R.	51	3634
HQ-SB	Young, R. S.	UNIV ILLINOIS-URBANA	NSG 7044	Woese, C. R.	12	2133
HQ-SB	Halstead, T. W.	UNIV OF LOUISVILLE	NSG 7441	Fuller, P. M.	51	2268
HQ-SB	Young, R. S.	UNIV MARYLAND-COL PK	NGR 21-002-317	Ponnamperuma, C. A.	12	2374
HQ-SB	Young, R. S.	UNIV MARYLAND-COL PK	NSG 7469	Ponnamperuma, C	12	2413
HQ-SB	Young, R. S.	UNIV MD-EASTRN SHORE	NSG 7470	Joshi, J. M.	55	2425
HQ-SB	Young, R. S.	UNIV OF MASS-AMHERST	NSG 7397	Huguenin, R. L.	12	2616
HQ-SB	Young, P. S.	UNIV OF MIAMI	NGR 10-007-008	Fox, S. W.	12	1959
HQ-SB	Young, R. S.	UNIV MICH-ANN ARBOR	NSG 7308	Kuhn, W. R.	31	2687
HQ-SB	Young, R. S.	UNIV MICH-ANN ARBOR	NSG 7452	Rich, A.	51	2689
HQ-SB	Halstead, T. W.	UNIV MICH-ANN ARBOR	NSG 9047	Ross, M. D.	51	2693
HQ-SB	Halstead, T. W.	UNIV OF PENNSYLVANIA	NGR 39-010-149	Brown, A. H.	51	3429
HQ-SB	Young, R. S.	UNIV SO CAROLINA-COL	NSG 7096	Rohlfing, D. L.	51	3475
HQ-SB	Young, R. S.	UNIV OF SOUTHERN CAL	NSG 7367	Strehler, B. L.	51	1705
HQ-SB	Halstead, T. W.	UNIV TEXAS-AUSTIN	NSG 7480	Roux, S. J.	51	3687
HQ-SB	Geib, D. S.	UNIV OF TOLEDO	NSG 7424	Diehn, B.	51	3287
HQ-SB	Young, R. S.	UNIV WISC-MADISON	NSG 7521	Fitch, W. M	51	4009
HQ-SB	Young, R. S.	UTAH STATE UNIV	NSG 7038	Smith, G. G.	32	3744
HQ-SB	Halstead, T. W.	UTAH STATE UNIV	NSG 7567	Salisbury, F. B.	51	3749
HQ-SB	Young, R. S.	WORCESTER POLY INST	NSG 7154	Danielli, J. F.	51	2623
HQ-SB	Young, R. S.	WORCESTER POLY INST	NSG 7392	Plumb, R. C	12	2624
HQ-SB	Nicogossian, A. E.	WRIGHT STATE UNIV	NGT 36-024-790	Mohler, S. R	59	3293
HQ-SB	Halstead, T. W.	YALE UNIVERSITY	NSG 7290	Galston, A. W.	51	1828
HQ-SC	Roman, N. G.	BOWLING GRN STATE U	NSG 7022	Ptak, R. L	11	3139
HQ-SC	Roman, N. G.	CALIF INST OF TECH	NGL 05-002-134	Oke, J. B.	11	1189
HQ-SC	Boggess, N. W.	CALIF INST OF TECH	NGL 05-002-207	Neugebauer, G.	11	1193
HQ-SC	Kaluzienski, L. J.	CALIF INST OF TECH	NGR 05-002-160	Vogt, R. E.	11	1197
HQ-SC	Roman, N. G.	CALIF INST OF TECH	NGR 05-002-256	Thorne, K. S.	11	1198
HQ-SC	Roman, N. G.	CALIF INST OF TECH	NSG 7495	Mashhoon, B.	11	1228
HQ-SC	Boggess, N. W.	COLUMBIA UNIVERSITY	NSG 7105	Flynn, G. W.	11	2944
HQ-SC	Sofia, S.	COLUMBIA UNIVERSITY	NSG 7248	Weisskopf, M. C.	11	2947
HQ-SC	Boggess, N. W.	CORNELL UNIVERSITY	NSG 7324	Houck, J. R.	11	2984
HQ-SC	Boggess, N. W.	HARVARD UNIVERSITY	NGR 22-007-270	Fazio, G. G.	11	2458
HQ-SC	Kaluzienski, L. J.	HARVARD UNIVERSITY	NGR 22-007-272	Cameron, A. G.	11	2459
HQ-SC	Roman, N. G.	HARVARD UNIVERSITY	NSG 7304	Parkinson, W. H.	31	2477
HQ-SC	Kaluzienski, L. J.	JOHNS HOPKINS UNIV	NSG 7449	Davidson, A. F.	11	2327
HQ-SC	Boggess, N. W.	MASS INST OF TECH	NGR 22-009-526	Weiss, R.	11	2531
HQ-SC	Boggess, N. W.	MASS INST OF TECH	NSG 7186	Kleinman, S. G.	11	2593
HQ-SC	Boggess, N. W.	MASS INST OF TECH	NSG 7328	Weiss, R.	11	2595
HQ-SC	Opp, A. G.	MASS INST OF TECH	NSG 7339	Lewin, W. H.	11	2599
HQ-SC	Roman, N. G.	MONTANA STATE UNIV	NGR 27-001-040	Nordtvedt, K., Jr.	11	2794
HQ-SC	Roman, N. G.	NEW YORK UNIVERSITY	NGR 33-016-196	Glassgold, A. E.	13	3001
HQ-SC	Roman, N. G.	NORTHWESTERN UNIV	NGL 14-007-041	Huang, S. S.	11	2066
HQ-SC	Roman, N. G.	PRINCETON UNIVERSITY	NGL 31-001-007	Spitzer, L., Jr.	11	2845

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HQ-SC	Bogges, N. W.	PRINCETON UNIVERSITY	NGR 31-001-202	Dicke, R. H.	13	2847
HQ-SC	Roman, N. G.	PRINCETON UNIVERSITY	NSG 7256	Bahcall, N. A.	11	2864
HQ-SC	Bogges, N. W.	PRINCETON UNIVERSITY	NSG 7302	Wilkinson, D. T.	11	2867
HQ-SC	Rosendhal, J. D.	PRINCETON UNIVERSITY	NSG 7379	Schwarzschild, M.	11	2868
HQ-SC	Roman, N. G.	PRINCETON UNIVERSITY	NSG 7600	Spitzer, L., Jr.	11	2870
HQ-SC	Roman, N. G.	PRINCETON UNIVERSITY	NSG 7618	Jenkins, E. B.	11	2872
HQ-SC	Rosendhal, J. D.	PURDUE UNIVERSITY	NSG 7167	Moffett, T. J.	11	2173
HQ-SC	Kaluziński, L. J.	STANFORD UNIVERSITY	NGR 05-020-452	Hofstadter, R.	11	1357
HQ-SC	Kaluziński, L. J.	STANFORD UNIVERSITY	NGR 05-020-668	Sturrock, P. A.	11	1364
HQ-SC	Roman, N. G.	STANFORD UNIVERSITY	NSG 7204	Will, C. M.	11	1403
HQ-SC	Kaluziński, L. J.	STANFORD UNIVERSITY	NSG 7476	Walker, A. B., Jr.	11	1405
HQ-SC	Weiler, E. J.	STATE UNIV NY-ALBANY	NSG 7241	Weinberg, J. L.	11	3059
HQ-SC	Fishman, G. J.	STATE U NY-STONY BRK	NGR 33-015-180	Forman, M. A.	11	3076
HQ-SC	Bogges, N. W.	UNIV OF ARIZONA	NGR 03-002-269	Low, F. J.	11	1119
HQ-SC	Bogges, N. W.	UNIV OF ARIZONA	NGR 03-002-371	Hoffman, W. F.	11	1122
HQ-SC	Opp, A. G.	UNIV OF ARIZONA	NSG 7101	Jokipii, J. R.	11	1139
HQ-SC	Roman, N. G.	UNIV OF ARIZONA	NSG 7358	Gehrels, A. M.	11	1146
HQ-SC	Bogges, N. W.	UNIV OF ARIZONA	NSG 7368	Craine, E. R.	11	1147
HQ-SC	Weiler, E. J.	UNIV OF ARIZONA	NSG 7574	Tapia, S. F.	11	1156
HQ-SC	Bogges, N. W.	UNIV CALIF-BERKELEY	NGL 05-003-272	Townes, C. H.	11	1440
HQ-SC	Kaluziński, L. J.	UNIV CALIF-BERKELEY	NGR 05-003-376	Price, P. B.	11	1446
HQ-SC	Opp, A. G.	UNIV CALIF-BERKELEY	NGR 05-003-513	Heckman, H. H.	11	1453
HQ-SC	Kaluziński, L. J.	UNIV CALIF-BERKELEY	NGR 05-003-553	Buffington, A.	11	1454
HQ-SC	Weiler, E. J.	UNIV CALIF-BERKELEY	NGR 05-003-578	Silk, J. I.	11	1455
HQ-SC	Bogges, N. W.	UNIV CALIF-BERKELEY	NSG 7205	Richards, P. L.	11	1471
HQ-SC	Bogges, N. W.	UNIV CALIF-BERKELEY	NSG 7455	Smoot, G.	11	1477
HQ-SC	Kaluziński, L. J.	UNIV CALIF-BERKELEY	NSG 7592	Anderson, K. A.	11	1480
HQ-SC	Kaluziński, L. J.	UNIV CALIF-L ANGELES	NSG 7341	Kennel, C. F.	11	1557
HQ-SC	Weiler, E. J.	UNIV CALIF-L ANGELES	NSG 7621	Jura, M. A.	11	1566
HQ-SC	Kaluziński, L. J.	UNIV CALIF RIVERSIDE	NGR 05-008-022	White, R. S.	11	1567
HQ-SC	Aucremann, M. J.	UNIV CALIF-SAN DIEGO	NASW 2996	McIlwain, C. E.	31	1582
HQ-SC	Kaluziński, L. J.	UNIV CALIF-SAN DIEGO	NGL 05-005-003	Peterson, L. E.	13	1583
HQ-SC	Opp, A. G.	UNIV CALIF-SAN DIEGO	NGL 05-005-004	Gould, R. J.	11	1584
HQ-SC	Rosendhal, J. D.	UNIV CALIF-SAN DIEGO	NGR 05-009-188	McIlwain, C. E.	11	1595
HQ-SC	Kaluziński, L. J.	UNIV CALIF-SAN DIEGO	NSG 7294	Rothschild, R. E.	11	1616
HQ-SC	Burbidge, E.	UNIV CALIF-SAN DIEGO	NSG 7377	Burbidge, M.	11	1617
HQ-SC	Kaluziński, L. J.	UNIV CALIF-SAN DIEGO	NSG 7541	Lingenfelter, R. E.	11	1620
HQ-SC	Bogges, N. W.	UNIV CALIF-S CRUZ	NGR 05-061-015	Rank, D. M.	11	1660
HQ-SC	Roman, N. G.	UNIV CALIF-S CRUZ	NSG 7503	Miller, J. S.	11	1662
HQ-SC	Kaluziński, L. J.	UNIV OF CHICAGO	NGL 14-001-001	Parker, E. N.	11	2082
HQ-SC	Opp, A. G.	UNIV OF CHICAGO	NGL 14-001-005	Meyer, P.	11	2083
HQ-SC	Rosendhal, J. D.	UNIV OF CHICAGO	NGR 14-001-147	Hobbs, L. M.	11	2092
HQ-SC	Kaluziński, L. J.	UNIV OF CHICAGO	NSG 7464	Muller, D.	31	2105
HQ-SC	Roman, N. G.	UNIV COLORADO-BOLDR	NGR 06-003-179	Lillie, C. F.	11	1759
HQ-SC	Kaluziński, L. J.	UNIV COLORADO-BOLDR	NSG 7128	McCray, R.	11	1775
HQ-SC	Roman, N. G.	UNIV COLORADO-BOLDR	NSG 7430	Conti, P. S.	11	1783
HQ-SC	Roman, N. G.	UNIV COLORADO-BOLDR	NSG 7459	Timothy, J. G.	13	1784
HQ-SC	Rosendhal, J. D.	UNIV COLORADO-BOLDR	NSG 7460	Thomas, R.	13	1785
HQ-SC	Roman, N. G.	UNIV COLORADO-BOLDR	NSG 7477	Snow, T. P., Jr.	11	1786
HQ-SC	Weiler, E. J.	UNIV COLORADO-BOLDR	NSG 7626	Snow, T. P., Jr.	11	1791
HQ-SC	Roman, N. G.	UNIV OF FLORIDA	NSG 7143	Carr, T. D.	11	1949
HQ-SC	Opp, A. G.	UNIV ILLINOIS-URBANA	NSG 7598	Pines, D.	11	2135
HQ-SC	Roman, N. G.	UNIV MARYLAND-BALT	NGR 21-002-010	Misner, C. W.	11	2335
HQ-SC	Kaluziński, L. J.	UNIV MARYLAND-COL PK	NGR 21-002-066	Earl, J. A.	11	2366
HQ-SC	Roman, N. G.	UNIV MARYLAND-COL PK	NGR 21-002-073	Griem, H. R.	11	2367
HQ-SC	Kaluziński, L. J.	UNIV MARYLAND-COL PK	NGR 21-002-224	Gloeckler, G.	11	2370
HQ-SC	Opp, A. G.	UNIV MARYLAND-COL PK	NSG 7252	Rose, W. K.	11	2406
HQ-SC	Rosendhal, J. D.	UNIV MARYLAND-COL PK	NSG 7284	Currie, D. G.	11	2408

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HQ-SC	Kaluzienski, L. J.	UNIV MARYLAND-COL PK	NSG 7555	Scott, J. S.	11	2416
HQ-SC	Rosendhal, J. D.	UNIV MICH-ANN ARBOR	NGR 23-005-464	Hiltner, W. A.	11	2662
HQ-SC	Weiler, E. J.	UNIV MICH-ANN ARBOR	NSG 7608	Hegy, D. J.	11	2692
HQ-SC	Kaluzienski, L. J.	U MINN-MNPLS-ST PAUL	NGR 24-005-050	Waddington, C. J.	11	2709
HQ-SC	Bogges, N. W.	U MINN-MNPLS-ST PAUL	NSG 2014	Ney, E.	11	2712
HQ-SC	Kaluzienski, L. J.	UNIV NEW HAMP-DURHAM	NGL 30-002-021	Chupp, E. L.	11	2826
HQ-SC	Fishman, G. J.	UNIV NEW HAMP-DURHAM	NGR 30-002-052	Webber, W. R.	11	2827
HQ-SC	Kaluzienski, L. J.	UNIV NEW HAMP-DURHAM	NSG 7481	Lockwood, J. A.	11	2831
HQ-SC	Roman, N. G.	UNIV OREGON-EUGENE	NSG 7639	Zimmerman, R. L.	11	3335
HQ-SC	Roman, N. G.	UNIV TEXAS-AUSTIN	NSG 7232	Shield, G. A.	11	3680
HQ-SC	Rosendhal, J. D.	UNIV TEXAS-AUSTIN	NSG 7347	Bengtson, R. D.	11	3682
HQ-SC	Roman, N. G.	UNIV TEXAS-AUSTIN	NSG 7371	Henize, K. G.	11	3684
HQ-SC	Bogges, N. W.	UNIV TEXAS-AUSTIN	NSG 7381	Evans, N. J., II	11	3685
HQ-SC	Rosendhal, J. D.	UNIV OF TOLEDO	NSG 7041	Witt, A. N.	11	3284
HQ-SC	Roman, N. G.	UNIV OF TOLEDO	NSG 7138	Molnar, M. R.	11	3285
HQ-SC	Rosendhal, J. D.	UNIV OF TOLEDO	NSG 7431	Witt, A. N.	11	3288
HQ-SC	Roman, N. G.	UNIV OF TOLEDO	NSG 7475	Molnar, M. R.	11	3289
HQ-SC	Weiler, E. J.	UNIV OF TOLEDO	NSG 7620	Witt, A. N.	11	3290
HQ-SC	Roman, N. G.	UNIV OF VIRGINIA	NGL 47-005-066	Frederick, L. W.	11	3850
HQ-SC	Kaluzienski, L. J.	UNIV OF WASHINGTON	NSG 7318	Lord, J. J.	11	3955
HQ-SC	Weiler, E. J.	UNIV WISC-MADISON	NSG 7050	Williamson, P. R.	11	4007
HQ-SC	Roman, N. G.	VANDERBILT UNIVERSTY	NSG 7343	Weedman, D. W.	11	3523
HQ-SC	Roman, N. G.	VANDERBILT UNIVERSTY	NSG 7463	Hall, D.	11	3524
HQ-SC	Roman, N. G.	VANDERBILT UNIVERSTY	NSG 7543	Hall, D.	11	3525
HQ-SC	Kaluzienski, L. J.	WASHINGTON UNIVERSTY	NGR 25-008-001	Israel, M. H.	11	2782
HQ-SC	Weiler, E. J.	WASHINGTON UNIVERSTY	NSG 7372	Smith, W. H.	11	2789
HQ-SL	French, B. M.	ARIZONA STATE UNIV	NGL 03-001-001	Moore, C. B.	32	1078
HQ-SL	French, B. M.	ARIZONA STATE UNIV	NSG 7040	Larimer, J. W.	32	1081
HQ-SL	Dwornik, S. E.	ARIZONA STATE UNIV	NSG 7415	Greeley, R.	32	1083
HQ-SL	Quaide, W. L.	ARIZONA STATE UNIV	NSG 7429	Greeley, R.	32	1084
HQ-SL	Dwornik, S. E.	ARIZONA STATE UNIV	NSG 7548	Greeley, R.	31	1085
HQ-SL	Dwornik, S. E.	ARIZONA STATE UNIV	NSG 7630	Rankin, R. L.	32	1086
HQ-SL	Dwornik, S. E.	ARIZONA STATE UNIV	NSG 7642	Sheridan, M.	32	1087
HQ-SL	Dwornik, S. E.	BROWN UNIVERSITY	NASW 3285	Mutch, T. A.	32	3453
HQ-SL	Dwornik, S. E.	BROWN UNIVERSITY	NGR 40-002-088	Head, J. W.	32	3454
HQ-SL	Dwornik, S. E.	BROWN UNIVERSITY	NGR 40-002-116	Head, J. W.	32	3455
HQ-SL	Dwornik, S. E.	BROWN UNIVERSITY	NSG 7569	Mutch, T. A.	32	3459
HQ-SL	Dwornik, S. E.	BROWN UNIVERSITY	NSG 7570	Head, J. W.	32	3460
HQ-SL	Quaide, W. L.	BROWN UNIVERSITY	NSG 7589	Rutherford, M. J.	32	3461
HQ-SL	Quaide, W. L.	BROWN UNIVERSITY	NSG 7605	Parmentier, E. M.	32	3462
HQ-SL	Brunk, W. E.	CALIF INST OF TECH	NGL 05-002-003	Muhleman, D. O.	11	1185
HQ-SL	Quaide, W. L.	CALIF INST OF TECH	NGL 05-002-069	Anderson, D. L.	32	1187
HQ-SL	Quaide, W. L.	CALIF INST OF TECH	NGL 05-002-105	Ahrens, T. J.	32	1188
HQ-SL	Brunk, W. E.	CALIF INST OF TECH	NGL 05-002-140	Goldreich, P.	11	1190
HQ-SL	Brunk, W. E.	CALIF INST OF TECH	NGR 05-002-114	Muhleman, D. O.	11	1195
HQ-SL	Dwornik, S. E.	CALIF INST OF TECH	NGR 05-002-303	Shoemaker, E. M.	32	1201
HQ-SL	Quaide, W. L.	CALIF INST OF TECH	NSG 7129	Ahrens, T. J.	32	1219
HQ-SL	Quaide, W. L.	CALIF INST OF TECH	NSG 7202	Burnett, D. S.	32	1220
HQ-SL	Quaide, W. L.	CALIF INST OF TECH	NSG 7316	Melosh, H. J.	32	1222
HQ-SL	Mitz, M. A.	CALIF INST OF TECH	NSG 7376	Yung, Y. L.	31	1224
HQ-SL	Dwornik, S. E.	CALIF INST OF TECH	NSG 7442	Albee, A. L.	32	1226
HQ-SL	Quaide, W. L.	CALIF INST OF TECH	NSG 7565	Muhleman, D. O.	32	1230
HQ-SL	French, B. M.	CAL STATE U-FULLERTN	NSG 7314	Woolum, D. S.	32	1242
HQ-SL	Murphy, R. E.	CAL STATE U-FULLERTN	NSG 7614	Ryan, J. A.	31	1243
HQ-SL	French, B. M.	CARNEGIE-MELLON UNIV	NSG 7585	Kohman, T. P.	32	3345
HQ-SL	Quaide, W. L.	COLUMBIA UNIVERSITY	NSG 7194	Keihm, S. J.	32	2945
HQ-SL	French, B. M.	COLUMBIA UNIVERSITY	NSG 7200	Onions, R. K.	32	2946
HQ-SL	Quaide, W. L.	COLUMBIA UNIVERSITY	NSG 7434	Takahashi, T.	32	2948

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HQ-SL	French, B. E.	COLUMBIA UNIVERSITY	NSG 7466	Onions, R. K.	32	2949
HQ-SL	Murphy, R. E.	CORNELL UNIVERSITY	NGL 33-010-082	Sagan, C. E.	31	2956
HQ-SL	Murphy, R. E.	CORNELL UNIVERSITY	NGL 33-010-186	Gierasch, P. J.	31	2958
HQ-SL	Quaide, W. L.	CORNELL UNIVERSITY	NGR 33-010-108	Turcotte, D. L.	32	2961
HQ-SL	Dwornik, S. E.	CORNELL UNIVERSITY	NGR 33-010-220	Sagan, C. E.	32	2967
HQ-SL	Brunk, W. E.	CORNELL UNIVERSITY	NSG 7126	Veverka, J.	11	2980
HQ-SL	Boyce, J. M.	CORNELL UNIVERSITY	NSG 7156	Veverka, J.	32	2981
HQ-SL	Kochendorfer, F. D.	CORNELL UNIVERSITY	NSG 7268	Harwit, M. O.	32	2983
HQ-SL	Goldstein, B. E.	CORNELL UNIVERSITY	NSG 7348	Gold, T.	32	2985
HQ-SL	Quaide, W. L.	CORNELL UNIVERSITY	NSG 7445	Burns, J. A.	31	2986
HQ-SL	Boyce, J. M.	CORNELL UNIVERSITY	NSG 7498	Veverka, J.	32	2989
HQ-SL	Boyce, J. M.	CORNELL UNIVERSITY	NSG 7546	Veverka, J.	32	2991
HQ-SL	Boyce, J. M.	CORNELL UNIVERSITY	NSG 7547	Veverka, J.	32	2992
HQ-SL	Quaide, W. L.	CORNELL UNIVERSITY	NSG 7593	Burns, J. A.	32	2993
HQ-SL	Quaide, W. L.	CORNELL UNIVERSITY	NSG 7606	Veverka, J.	32	2994
HQ-SL	Murphy, R. E.	CORNELL UNIVERSITY	NSG 7612	Gierasch, P. J.	31	2995
HQ-SL	Brunk, W. E.	FLORIDA STATE UNIV	NGR 10-004-056	Hunt, R. H.	11	1917
HQ-SL	Murphy, R. E.	FLORIDA STATE UNIV	NSG 7629	Hess, S. K.	31	1920
HQ-SL	Fellows, R. F.	GEORGIA INST OF TECH	NGL 11-002-004	Edwards, H. D.	31	1992
HQ-SL	Murphy, R. E.	HARVARD UNIVERSITY	NGL 22-007-228	Goody, R. M.	31	2454
HQ-SL	Quaide, W. L.	HARVARD UNIVERSITY	NGR 22-007-269	Cameron, A. G.	32	2457
HQ-SL	Murphy, R. E.	HARVARD UNIVERSITY	NSG 7095	Pipkin, F. M.	31	2475
HQ-SL	Brunk, W. E.	HARVARD UNIVERSITY	NSG 7332	Goody, R. M.	11	2478
HQ-SL	Dwornik, S. E.	HARVARD UNIVERSITY	NSG 7398	Goody, R. M.	32	2479
HQ-SL	Quaide, W. L.	HARVARD UNIVERSITY	NSG 7513	O'Connell, R. J.	32	2482
HQ-SL	Murphy, R. E.	HOWARD UNIVERSITY	NSG 5071	Jackson, W. M.	12	1888
HQ-SL	Donn, B.	HOWARD UNIVERSITY	NSG 7378	Jackson, W. M.	12	1896
HQ-SL	Murphy, R. E.	JOHNS HOPKINS UNIV	NSG 7382	Feldman, P. D.	11	2326
HQ-SL	Murphy, R. E.	KANSAS STATE UNIV	NGL 17-001-026	Williams, D.	31	2223
HQ-SL	Dwornik, S. E.	KANSAS STATE UNIV	NSG 7478	Underwood, J. R., Jr.	32	2274
HQ-SL	Quaide, W. L.	KANSAS STATE UNIV	NSG 7580	Underwood, J. R., Jr.	32	2225
HQ-SL	Dwornik, S. E.	KANSAS STATE UNIV	NSG 7613	Underwood, J. R., Jr.	32	2226
HQ-SL	French, B. M.	LEHIGH UNIVERSITY	NGR 39-007-043	Goldstein, J. I.	32	3365
HQ-SL	Dwornik, S. E.	LA STATE U-SHREVEPT	NSG 7542	Nummedal, D.	32	2274
HQ-SL	Murphy, R. E.	MASS INST OF TECH	NGL 22-009-521	Lewis, J. S.	31	2525
HQ-SL	Brunk, W. E.	MASS INST OF TECH	NGR 22-009-672	Pettengill, G. H.	11	2536
HQ-SL	Quaide, W. L.	MASS INST OF TECH	NSG 7010	Counselman, C. C., III	32	2590
HQ-SL	Williams, R.	MASS INST OF TECH	NSG 7077	Suomi, V. E.	32	2591
HQ-SL	Quaide, W. L.	MASS INST OF TECH	NSG 7081	Toksoz, M. N.	32	2592
HQ-SL	Dwornik, S. E.	MASS INST OF TECH	NSG 7297	Solomon, S. C.	32	2594
HQ-SL	Quaide, W. L.	MASS INST OF TECH	NSG 7338	Burns, R. G.	32	2598
HQ-SL	Dwornik, S. E.	MASS INST OF TECH	NSG 7432	Biermann, K.	32	2602
HQ-SL	Dwornik, S. E.	MASS INST OF TECH	NSG 7438	Solomon, S. C.	32	2603
HQ-SL	Quaide, W. L.	MASS INST OF TECH	NSG 7467	Pinson, W.	32	2604
HQ-SL	Brunk, W. E.	MASS INST OF TECH	NSG 7526	Elliot, J. L.	11	2605
HQ-SL	Brunk, W. E.	MASS INST OF TECH	NSG 7556	Shapiro, I. I.	11	2606
HQ-SL	Quaide, W. L.	MASS INST OF TECH	NSG 7604	Burns, R. G.	32	2607
HQ-SL	Murphy, R. E.	MASS INST OF TECH	NSG 7638	McCord, T. B.	31	2608
HQ-SL	Brunk, W. E.	NEW MEX ST U-LAS CR	NGL 32-003-001	Beebe, R. F.	11	2890
HQ-SL	Donn, B. D.	NEW MEX ST U-LAS CR	NSG 7346	Beebe, H. A.	11	2891
HQ-SL	Murphy, R. E.	NEW YORK UNIVERSITY	NSG 7591	Hoffert, M. I.	31	3013
HQ-SL	Dwornik, S. E.	NE LOUISIANA UNIV	NSG 7357	Dehon, R. A.	32	2275
HQ-SL	Quaide, W. L.	NE LOUISIANA UNIV	NSG 7420	Dehon, R. A.	32	2276
HQ-SL	Dwornik, S. E.	NE LOUISIANA UNIV	NSG 7534	Dehon, R. A.	32	2277
HQ-SL	Dwornik, S. E.	NE LOUISIANA UNIV	NSG 7628	Dehon, R. A.	32	2278
HQ-SL	Bryson, R. P.	OREGON STATE UNIV	NGL 38-002-020	Schmitt, R. A.	32	3322
HQ-SL	Dwornik, S. E.	OREGON STATE UNIV	NSG 7178	Komar, P. D.	32	3329
HQ-SL	Quaide, W. L.	PENN STATE U-UNIV PK	NGL 39-009-010	Gold, D. P.	32	3391

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	AGREEMENT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-SL	Goldstein, B. E.	PENN STATE U-UNIV PK	NSG 7120	Muan, A.	32	3416
HQ-SL	Goldstein, B. E.	PENN STATE U-UNIV PK	NSG 7193	Alexander, S. S.	32	3417
HQ-SL	Quaide, W. E.	PENN STATE U-UNIV PK	NSG 7465	Eggler, D.	32	3419
HQ-SL	Murphy, R. E.	POLY INST OF NY	NGR 33-006-068	Gross, S. H.	31	3016
HQ-SL	Quaide, W. L.	POMONA COLLEGE	NSG 7566	Baird, A. K.	32	1261
HQ-SL	Quaide, W. L.	PRINCETON UNIVERSITY	NSG 7080	Phinney, R. A.	32	2863
HQ-SL	Dwornik, S. E.	PRINCETON UNIVERSITY	NSG 7283	Smoluchowski, R.	32	2866
HQ-SL	Dwornik, S. E.	PRINCETON UNIVERSITY	NSG 7568	Judson, S.	32	2869
HQ-SL	French, B. M.	PRINCETON UNIVERSITY	NSG 7602	Hargraves, R. B.	32	2871
HQ-SL	French, B. M.	PURDUE UNIVERSITY	NGL 15-005-140	Lipschutz, M. E.	32	2155
HQ-SL	Quaide, W. L.	QUEENS COLLEGE	NSG 7321	Takahashi, T.	32	3025
HQ-SL	Fellows, R. F.	RENSSELAER POLY-NY	NGL 33-018-007	Harteck, P.	31	3035
HQ-SL	Quaide, W. L.	RICE UNIVERSITY	NSG 7032	Michel, F. C.	31	3558
HQ-SL	Fellows, R. F.	RICE UNIVERSITY	NSG 7043	Chamberlain, J. W.	31	3559
HQ-SL	Quaide, W. L.	RICE UNIVERSITY	NSG 7361	Clayton, D. D.	32	3561
HQ-SL	Quaide, W. L.	RICE UNIVERSITY	NSG 7362	Debremaecker, J. C.	32	3562
HQ-SL	Murphy, R. E.	RICE UNIVERSITY	NSG 7386	Stebbins, R. F.	31	3563
HQ-SL	French, B. M.	RUTGERS U-N BRUNSWK	NSG 7327	Hewins, R. H.	32	2876
HQ-SL	Dwornik, S. E.	RUTGERS U-N BRUNSWK	NSG 7601	Zebib, A.	32	2877
HQ-SL	Murphy, R. E.	STANFORD UNIVERSITY	NGL 05-020-014	Eshleman, V. R.	31	1347
HQ-SL	Dwornik, S. E.	STANFORD UNIVERSITY	NGR 05-020-649	Howard, H. T.	32	1363
HQ-SL	Brunk, W. E.	STANFORD UNIVERSITY	NSG 7395	Tyler, G. L.	11	1404
HQ-SL	Dwornik, S. E.	STANFORD UNIVERSITY	NSG 7538	Levinthal, E. C.	32	1406
HQ-SL	Brunk, W. E.	STANFORD UNIVERSITY	NSG 7561	Tyler, G. L.	11	1408
HQ-SL	Murphy, R. E.	STATE UNIV NY-ALBANY	NSG 7093	Weinberg, J. L.	31	3057
HQ-SL	Dwornik, S. E.	STATE UNIV NY-BUFFAL	NGR 33-015-108	King, J. S.	32	3062
HQ-SL	Murphy, R. E.	STATE U NY-STONY BRK	NGR 33-015-139	Varanasi, P.	31	3073
HQ-SL	Brunk, W. E.	STATE U NY-STONY BRK	NGR 33-015-141	Owen, T.	11	3074
HQ-SL	Brunk, W. E.	STATE U NY-STONY BRK	NSG 7286	Knacke, R. F.	11	3085
HQ-SL	Brunk, W. E.	STATE U NY-STONY BRK	NSG 7320	Caldwell, J. J.	11	3086
HQ-SL	Dwornik, S. E.	STATE U NY-STONY BRK	NSG 7553	Owen, T.	32	3087
HQ-SL	Fellows, R. F.	TEXAS A&M UNIVERSITY	NGR 44-001-117	Plass, G. N.	31	3592
HQ-SL	Goldstein, B. E.	TEXAS A&M UNIVERSITY	NSG 7189	Gangi, A. F.	32	3604
HQ-SL	Murphy, R. E.	TEXAS A&M UNIVERSITY	NSG 7370	Young, A. T.	32	3605
HQ-SL	Quaide, W. L.	TEXAS A&M UNIVERSITY	NSG 7417	Gangi, A. F.	32	3606
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NASW 3262	Unavailable	11	1105
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NGL 03-002-002	Smith, B. A.	11	1110
HQ-SL	Fellows, R. F.	UNIV OF ARIZONA	NGL 03-002-019	Hoening, S. A.	31	1111
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NGL 03-002-081	Gehrels, A.	11	1112
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NGL 03-002-122	Cox, E. L.	11	1113
HQ-SL	Bohlin, J. M.	UNIV OF ARIZONA	NGL 03-002-191	Strom, R. G.	32	1114
HQ-SL	Brunk, W. F.	UNIV OF ARIZONA	NGR 03-002-219	Gehrels, A. M.	11	1118
HQ-SL	Dwornik, S. E.	UNIV OF ARIZONA	NGR 03-002-370	Sonett, C. P.	32	1121
HQ-SL	French, B. M.	UNIV OF ARIZONA	NSG 7011	Wilkening, L. L.	32	1134
HQ-SL	Quaide, W. L.	UNIV OF ARIZONA	NSG 7020	Sonett, C. P.	32	1135
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NSG 7045	Hubbard, W. B.	11	1137
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NSG 7070	Fink, U. W.	11	1138
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NSG 7114	Rieke, G. H.	11	1140
HQ-SL	Boyce, J. M.	UNIV OF ARIZONA	NSG 7146	Strom, R. G.	32	1141
HQ-SL	French, B. M.	UNIV OF ARIZONA	NSG 7246	Gehrels, A. M.	32	1143
HQ-SL	French, B. M.	UNIV OF ARIZONA	NSG 7249	Zellner, B. H.	32	1144
HQ-SL	Murphy, R. E.	UNIV OF ARIZONA	NSG 7374	Hsieh, K. C.	11	1148
HQ-SL	Quaide, W. L.	UNIV OF ARIZONA	NSG 7419	Levy, E. H.	32	1149
HQ-SL	French, B. M.	UNIV OF ARIZONA	NSG 7436	Boynton, W. V.	32	1150
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NSG 7502	Zellner, B. H.	11	1152
HQ-SL	Dwornik, S. E.	UNIV OF ARIZONA	NSG 7544	Woronow, A.	32	1153
HQ-SL	Murphy, R. E.	UNIV OF ARIZONA	NSG 7558	Hunten, D. M.	31	1154
HQ-SL	Murphy, R. E.	UNIV OF ARIZONA	NSG 7573	Tomasko, M. G.	31	1155

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HQ-SL	Quaide, W. L.	UNIV OF ARIZONA	NSG 7576	Drake, M. J.	32	1157
HQ-SL	Quaide, W. L.	UNIV OF ARIZONA	NSG 7577	Drake, M. J.	32	1158
HQ-SL	Quaide, W. L.	UNIV OF ARIZONA	NSG 7607	Lebofsky, L.	32	1159
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NSG 7634	Brown, R. A.	11	1160
HQ-SL	Roman, N. G.	UNIV ARKANSAS-FAYETV	NSG 7106	Hughes, R. H.	11	1166
HQ-SL	Fellows, R. F.	UNIV CALIF-BERKELEY	NGL 05-003-286	Pimental, G. C.	31	1441
HQ-SL	Brunk, W. E.	UNIV CALIF-BERKELEY	NGR 05-003-452	Townes, C. H.	11	1449
HQ-SL	Quaide, W. L.	UNIV CALIF-BERKELEY	NSG 7127	Anderson, K. A.	39	1469
HQ-SL	Brunk, W. E.	UNIV CALIF-BERKELEY	NSG 7152	Welch, W. J.	11	1470
HQ-SL	Smith, M. J.	UNIV CALIF-BERKELEY	NSG 7277	Lin, R. P.	31	1474
HQ-SL	Brunk, W. E.	UNIV CALIF-BERKELEY	NSG 7635	Townes, C. H.	11	1481
HQ-SL	Quaide, W. L.	UNIV CALIF-L ANGELES	NGL 05-007-002	Kaula, W. M.	32	1515
HQ-SL	Dwornik, S. E.	UNIV CALIF-L ANGELES	NGR 05-007-317	Schubert, G.	32	1522
HQ-SL	French, B. M.	UNIV CALIF-L ANGELES	NGR 05-007-329	Wasson, J. T.	32	1524
HQ-SL	Quaide, W. L.	UNIV CALIF-L ANGELES	NGR 05-007-351	Coleman, P. J., Jr.	32	1525
HQ-SL	Quaide, W. L.	UNIV CALIF-L ANGELES	NSG 7052	Oertel, G.	32	1548
HQ-SL	Murphy, R. E.	UNIV CALIF-L ANGELES	NSG 7164	Schubert, G.	31	1550
HQ-SL	Murphy, R. E.	UNIV CALIF-L ANGELES	NSG 7239	Swinson, W. F.	31	1552
HQ-SL	Quaide, W. L.	UNIV CALIF-L ANGELES	NSG 7282	Kieffer, H. H.	32	1553
HQ-SL	Dwornik, S. E.	UNIV CALIF-L ANGELES	NSG 7295	Coleman, P. J., Jr.	31	1554
HQ-SL	Quaide, W. L.	UNIV CALIF-L ANGELES	NSG 7315	Schubert, G.	32	1555
HQ-SL	French, B. M.	UNIV CALIF-L ANGELES	NSG 7335	Boynnton, W. V.	32	1556
HQ-SL	Quaide, W. L.	UNIV CALIF-L ANGELES	NSG 7484	Busse, F. W.	32	1559
HQ-SL	Quaide, W. L.	UNIV CALIF-L ANGELES	NSG 7581	Kieffer, H. H.	32	1561
HQ-SL	Quaide, W. L.	UNIV CALIF-L ANGELES	NSG 7582	Kieffer, H. H.	32	1562
HQ-SL	Quaide, W. L.	UNIV CALIF-L ANGELES	NSG 7583	Schubert, G.	32	1563
HQ-SL	Murphy, R. E.	UNIV CALIF-L ANGELES	NSG 7594	Martin, T. Z.	31	1564
HQ-SL	Quaide, W. L.	UNIV CALIF-SAN DIEGO	NGL 05-009-002	Arrhenius, G.	32	1586
HQ-SL	French, B. M.	UNIV CALIF-SAN DIEGO	NGL 05-009-004	Arnold, J. R.	32	1587
HQ-SL	Quaide, W. L.	UNIV CALIF-SAN DIEGO	NGL 05-009-005	Suess, H. E.	19	1588
HQ-SL	Quaide, W. L.	UNIV CALIF-SAN DIEGO	NGR 05-005-005	Arnold, J. R.	32	1592
HQ-SL	Murphy, R. E.	UNIV CALIF-SAN DIEGO	NGR 05-009-110	Alfven, H.	11	1594
HQ-SL	Quaide, W. L.	UNIV CALIF-SAN DIEGO	NSG 7027	Arnold, J. R.	32	1612
HQ-SL	Quaide, W. L.	UNIV CALIF-SAN DIEGO	NSG 7102	Alfven, H.	32	1613
HQ-SL	French, B. M.	UNIV CALIF-SAN DIEGO	NSG 7121	MacDougall, J. D.	32	1614
HQ-SL	French, B. M.	UNIV CALIF-SAN DIEGO	NSG 7474	Rudee, M. L.	32	1619
HQ-SL	Quaide, W. L.	UNIV CALIF-S BARBARA	NGR 05-010-062	Peale, S. J.	32	1647
HQ-SL	Quaide, W. L.	UNIV CALIF-S BARBARA	NSG 7586	Fuller, M. D.	32	1657
HQ-SL	Kaluzienski, L. J.	UNIV OF CHICAGO	NGL 14-001-006	Simpson, J. A.	11	2084
HQ-SL	French, B. M.	UNIV OF CHICAGO	NGL 14-001-010	Anders, E.	32	2085
HQ-SL	Quaide, W. L.	UNIV OF CHICAGO	NGR 14-001-135	Turkevich, A. L.	32	2091
HQ-SL	Fellows, R. F.	UNIV OF CHICAGO	NGR 14-001-194	Clayton, R. N.	31	2093
HQ-SL	French, B. M.	UNIV OF CHICAGO	NGR 14-001-249	Grossman, L.	32	2096
HQ-SL	Quaide, W. L.	UNIV OF CHICAGO	NSG 7212	Schramm, D. N.	32	2102
HQ-SL	Quaide, W. L.	UNIV OF CHICAGO	NSG 7532	Turkevich, A. L.	32	2106
HQ-SL	French, B. M.	UNIV OF CHICAGO	NSG 7550	Smith, J. V.	32	2107
HQ-SL	Brunk, W. E.	UNIV COLORADO-BOLDR	NGL 06-003-052	Barth, C. A.	31	1754
HQ-SL	Murphy, R. E.	UNIV COLORADO-BOLDR	NGR 06-003-127	Barth, C. A.	31	1757
HQ-SL	Flinn, E. A.	UNIV COLORADO-BOLDR	NSG 7319	Smith, M. L.	32	1781
HQ-SL	Strickland, A. T.	UNIV COLORADO-BOLDR	NSG 7344	Levine, J.	13	1782
HQ-SL	Quaide, W. L.	UNIV COLORADO-BOLDR	NSG 7584	Spetzler, H. A.	32	1790
HQ-SL	Roman, N. G.	UNIV COLORADO-BOLDR	NSG 7637	Ashby, N.	11	1792
HQ-SL	Quaide, W. L.	UNIV OF DAYTON	NSG 7444	Pickutowski, A. J.	32	3270
HQ-SL	Donn, B.	UNIV OF FLORIDA	NGL 10-005-008	Green, A. S.	31	1937
HQ-SL	Boyce, J. M.	UNIV OF GEORGIA	NGR 11-003-037	Howard, J. H.	32	2024
HQ-SL	Quaide, W. L.	UNIV OF GEORGIA	NSG 7433	Wenner, D. B.	32	2025
HQ-SL	Dwornik, S. E.	UNIV OF GEORGIA	NSG 7539	Brook, G.	32	2026
HQ-SL	Strickland, A. T.	UNIV OF HAWAII-MANOA	NASW 2326	Jefferies, J. T.	11	2031

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HQ-SL	Brunk, W. E.	UNIV OF HAWAII-MANOA	NASW 3159	Jefferies, J. T.	11	2033
HQ-SL	Brunk, W. E.	UNIV OF HAWAII-MANOA	NGL 12-001-057	Jefferies, J. T.	11	2036
HQ-SL	Finley, C. J.	UNIV OF HAWAII-MANOA	NSG 7179	Berg, E.	19	2045
HQ-SL	Brunk, W. E.	UNIV OF HAWAII-MANOA	NSG 7310	McCord, T. B.	11	2046
HQ-SL	Quaide, W. L.	UNIV OF HAWAII-MANOA	NSG 7312	McCord, T. B.	32	2047
HQ-SL	Brunk, W. E.	UNIV OF HAWAII-MANOA	NSG 7323	McCord, T. B.	11	2048
HQ-SL	Dwornik, S. E.	UNIV OF HAWAII-MANOA	NSG 7403	Kafatos, M.	32	2049
HQ-SL	Quaide, W. L.	UNIV OF HAWAII-MANOA	NSG 7423	Russ, G. P.	32	2050
HQ-SL	Dwornik, S. E.	UNIV OF HAWAII-MANOA	NSG 7443	McCord, T. B.	32	2051
HQ-SL	Quaide, W. L.	UNIV OF HAWAII-MANOA	NSG 7462	Gaffey, M. J.	32	2052
HQ-SL	Quaide, W. L.	UNIV OF HAWAII-MANOA	NSG 7590	McCord, T. B.	31	2054
HQ-SL	Quaide, W. L.	UNIV OF HAWAII-MANOA	NSG 7597	Gaffey, M. J.	32	2055
HQ-SL	Dwornik, S. E.	UNIV OF HAWAII-MANOA	NSG 7633	Morrison, D.	13	2056
HQ-SL	Dwornik, S. E.	UNIV HOUSTON-HOUSTON	NSG 7228	King, E. A.	32	3627
HQ-SL	Dwornik, S. E.	UNIV HOUSTON-HOUSTON	NSG 7410	Smith, R. S.	32	3629
HQ-SL	Dwornik, S. E.	UNIV HOUSTON-HOUSTON	NSG 7551	Smith, R.	32	3631
HQ-SL	French, B. M.	UNIV HOUSTON-HOUSTON	NSG 7617	King, E. A.	32	3633
HQ-SL	Brunk, W. E.	UNIV ILLINOIS-URBANA	NGR 14-005-176	Dickei, J. R.	11	2117
HQ-SL	Brunk, W. E.	UNIV OF IOWA	NSG 7412	Neff, J. S.	11	2218
HQ-SL	Goldstein, B. E.	UNIV OF KANSAS	NSG 7351	VanSchmus, W. R.	32	2251
HQ-SL	Quaide, W. L.	UNIV MARYLAND-COL PK	NSG 7046	Adler, I.	32	2404
HQ-SL	Brunk, W. E.	UNIV MARYLAND-COL PK	NSG 7322	A'Hearn, M. F.	11	2409
HQ-SL	Quaide, W. L.	UNIV MARYLAND-COL PK	NSG 7365	Pai, S. I.	32	2411
HQ-SL	Quaide, W. E.	UNIV MARYLAND-COL PK	NSG 7482	Towell, J.	32	2414
HQ-SL	Brunk, W. E.	UNIV OF MASS-AMHERST	NGL 22-010-023	Irvine, W. M.	11	2613
HQ-SL	Dwornik, S. E.	UNIV OF MASS-AMHERST	NGR 22-010-076	McGill, G. F.	32	2615
HQ-SL	Dwornik, S. E.	UNIV OF MASS-AMHERST	NSG 7405	Huguenin, R. L.	32	2617
HQ-SL	Dwornik, S. E.	UNIV OF MASS-AMHERST	NSG 7571	Wise, D.	32	2618
HQ-SL	French, B. M.	UNIV OF MIAMI	NSG 7309	Fisher, D. E.	32	1964
HQ-SL	Quaide, W. L.	UNIV OF MIAMI	NSG 7510	Brass, G. B.	32	1965
HQ-SL	Murphy, R. E.	UNIV MICH-ANN ARBOR	NGR 23-005-094	Liu, V. C.	31	2659
HQ-SL	Murphy, R. E.	UNIV MICH-ANN ARBOR	NSG 7404	Atreya, S. K.	31	2688
HQ-SL	Murphy, R. E.	UNIV MICH-ANN ARBOR	NSG 7587	Carignan, G. R.	31	2691
HQ-SL	Murphy, R. E.	U MINN-MNPLS-ST PAUL	NGL 24-005-009	Nier, A. O.	31	2706
HQ-SL	Murphy, R. E.	U MINN-MNPLS-ST PAUL	NSG 7575	Nier, A. O.	31	2727
HQ-SL	Quaide, W. L.	UNIV MO-ST LOUIS	NSG 7563	James, P. B.	32	2776
HQ-SL	Fellows, R. F.	UNIV NEBRASKA-LINCOLN	NGR 28-004-021	Samson, J. A.	31	2798
HQ-SL	Dwornik, S. E.	UNIV OF NEW MEXICO	NGL 32-004-011	Elston, W. F.	32	2897
HQ-SL	French, B. M.	UNIV OF NEW MEXICO	NGL 32-004-064	Keil, K.	32	2899
HQ-SL	Dwornik, S. E.	UNIV OF NEW MEXICO	NGR 32-004-062	Elston, W. F.	32	2900
HQ-SL	Quaide, W. L.	UNIV OF NEW MEXICO	NSG 7579	Keil, K.	31	2902
HQ-SL	Quaide, W. L.	UNIV OREGON-EUGENE	NGR 38-003-020	Weill, D. F.	32	3332
HQ-SL	Brunk, W. E.	UNIV OREGON-EUGENE	NSG 7531	Kemp, J. C.	11	3334
HQ-SL	Murphy, R. E.	UNIV OF PITTSBURGH	NGL 39-011-013	Fite, W. L.	31	3436
HQ-SL	Murphy, R. E.	UNIV OF PITTSBURGH	NGL 39-011-030	Zipf, F. C.	31	3437
HQ-SL	Quaide, W. L.	UNIV OF PITTSBURGH	NGL 39-011-085	Cassidy, W. A.	32	3438
HQ-SL	Murphy, R. E.	UNIV OF PITTSBURGH	NGR 39-011-137	Biondi, M. A.	31	3439
HQ-SL	Dwornik, S. E.	UNIV OF PITTSBURGH	NSG 7147	Hapke, B. W.	11	3449
HQ-SL	Quaide, W. L.	UNIV OF PITTSBURGH	NSG 7631	Hapke, B. W.	32	3450
HQ-SL	Dwornik, S. E.	UNIV OF RHODE ISLAND	NSG 7414	Boothroyd, J. C.	32	3465
HQ-SL	Quaide, W. L.	UNIV OF SANTA CLARA	NSG 7330	Aggarwal, H. R.	32	1688
HQ-SL	Fellows, R. F.	UNIV SO CAROLINA-COL	NGL 41-002-003	Durig, J. R.	31	3473
HQ-SL	Dwornik, S. E.	UNIV SO CAROLINA-COI	NSG 7076	Nummedal, D.	32	3474
HQ-SL	Murphy, R. E.	UNIV OF SOUTHERN CAL	NGR 05-018-178	Maxworthy, T.	31	1694
HQ-SL	Murphy, R. E.	UNIV OF SOUTHERN CAL	NGR 05-018-180	Judge, D. I.	31	1695
HQ-SL	Quaide, W. L.	UNIV OF SOUTHERN CAL	NSG 7535	Huth, G. C.	32	1706
HQ-SL	Murphy, R. E.	UNIV OF SOUTHERN CAL	NSG 7595	Shemansky, D. F.	31	1707
HQ-SL	Fellows, R. F.	UNIV TENNESSEE-KNOXV	NGL 43-001-006	Gatlar, N. M.	31	3510

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HQ-SL	French, B. M.	UNIV TENNESSEE-KNOXV	NSG 7413	McSween, H. Y.	32	3517
HQ-SL	Brunk, W. E.	UNIV TEXAS-AUSTIN	NGL 44-012-006	Wilson, W. J.	11	3653
HQ-SL	Brunk, W. E.	UNIV TEXAS-AUSTIN	NGL 44-012-055	Douglas, J. N.	11	3654
HQ-SL	Brunk, W. E.	UNIV TEXAS-AUSTIN	NGR 44-012-152	Smith, H. J.	11	3655
HQ-SL	Brunk, W. E.	UNIV TEXAS-AUSTIN	NGR 44-012-282	Mulholland, J. D.	11	3657
HQ-SL	Dwornik, S. E.	UNIV TEXAS-AUSTIN	NSG 7326	Baker, V. R.	32	3681
HQ-SL	Dwornik, S. E.	UNIV TEXAS-AUSTIN	NSG 7363	Muehlberger, W. R.	32	3683
HQ-SL	Brunk, W. E.	UNIV TEXAS-AUSTIN	NSG 7408	Jefferys, W. H.	11	3686
HQ-SL	Quaide, W. L.	UNIV TEXAS-AUSTIN	NSG 7505	Smoluchowski, R.	32	3688
HQ-SL	Dwornik, S. E.	UNIV TEXAS-AUSTIN	NSG 7557	Baker, V. R.	32	3689
HQ-SL	Murphy, R. E.	UNIV TEXAS-DALLAS	NGL 44-004-026	Johnson, F. S.	31	3701
HQ-SL	Quaide, W. L.	UNIV TEXAS-DALLAS	NSG 7034	Hodges, R. R., Jr.	31	3709
HQ-SL	Murphy, R. E.	UNIV TEXAS-DALLAS	NSG 7599	Hanson, W. B.	31	3710
HQ-SL	Quaide, W. L.	UNIV TEXAS-GALVESTON	NSG 7418	Makamura, Y.	32	3716
HQ-SL	Murphy, R. E.	UNIV OF TOLEDO	NSG 7301	Delsemme, A. H.	11	3286
HQ-SL	Fellows, R. F.	UNIV OF TOLEDO	W-14168	Delsemme, A. H.	19	3291
HQ-SL	Quaide, W. L.	UNIV OF UTAH	NSG 7425	Shorthill, R. W.	32	3733
HQ-SL	Dwornik, S. E.	UNIV OF VIRGINIA	NGR 47-005-172	Howard, A.	32	3851
HQ-SL	Brunk, W. E.	UNIV OF VIRGINIA	NSG 7364	Ianna, P. A.	11	3865
HQ-SL	Dwornik, S. E.	UNIV OF VIRGINIA	NSG 7572	Howard, A.	32	3866
HQ-SL	Brunk, W. E.	UNIV OF WASHINGTON	NGR 48-002-142	Greene, T. F.	11	3934
HQ-SL	Murphy, R. E.	UNIV OF WASHINGTON	NSG 7085	Leovy, C. B.	31	3951
HQ-SL	Quaide, W. L.	UNIV OF WASHINGTON	NSG 7173	Adams, J. B.	32	3952
HQ-SL	Quaide, W. L.	UNIV OF WASHINGTON	NSG 7174	Adams, J. B.	32	3953
HQ-SL	Quaide, W. L.	UNIV OF WASHINGTON	NSG 7313	McCallum, I. S.	32	3954
HQ-SL	Quaide, W. L.	UNIV OF WASHINGTON	NSG 7448	Adams, J. B.	32	3956
HQ-SL	Murphy, R. E.	UNIV OF WASHINGTON	NSG 7611	Leovy, C. B.	31	3957
HQ-SL	Murphy, R. E.	UNIV WISC-MADISON	NGR 50-002-189	Suomi, V. E.	31	3994
HQ-SL	Quaide, W. L.	UNIV WISC-MADISON	NSG 7215	Taylor, J. W.	32	4008
HQ-SL	Dwornik, S. E.	UNIV WISC-PARKSIDE	NGR 50-009-001	Smith, E. I.	32	4011
HQ-SL	Quaide, W. L.	VA MILITARY INSTITUT	NSG 7355	Gates, W. L.	32	3868
HQ-SL	Brunk, W. E.	VIRGINIA POLY INST	NGL 47-004-080	McGee, H. A.	11	3882
HQ-SL	Quaide, W. L.	WASHINGTON UNIVERSTY	NSG 7016	Hohenberg, C. M.	32	2786
HQ-SL	Dwornik, S. E.	WASHINGTON UNIVERSTY	NSG 7087	Arvidson, R. E.	32	2787
HQ-SL	Brunk, W. E.	WASHINGTON UNIVERSTY	NSG 7334	Smith, W. H.	11	2788
HQ-SL	Dwornik, S. E.	WASHINGTON UNIVERSTY	NSG 7545	Arvidson, R. E.	32	2790
HQ-SL	Quaide, W. L.	WASHINGTON UNIVERSTY	NSG 7578	Goettal, K. A.	32	2791
HQ-SL	Murphy, R. E.	YALE UNIVERSITY	NGL 07-004-043	Cross, R. J., Jr.	31	1823
HQ-SL	Quaide, W. L.	YORK COLLEGE NY	NSG 7454	Spergel, M. S.	13	3103
HQ-SM	Shirey, W. H.	UNIV TEXAS-AUSTIN	NASW 2974	Silverberg, E. C.	19	3652
HQ-SP	Tate, F.	HARVARD UNIVERSITY	NSG 7176	Field, G. B.	19	2476
HQ-SP	Tate, F.	MASS INST OF TECH	NGL 22-009-638	Bridge, H. S.	99	2526
HQ-SP	Tate, F.	UNIV CALIF-BERKELEY	NGL 05-003-497	Tole, J. R.	99	1444
HQ-SP	Tate, F.	UNIV OF CHICAGO	NGL 14-001-258	Simpson, J. A.	99	2089
HQ-SP	Tate, F.	UNIV TEXAS-DALLAS	NGL 44-004-130	Johnson, F. S.	99	3702
HQ-ST	Taylor, W. W.	POSTON COLLEGE	NSG 7385	Eather, R. H.	39	2426
HQ-ST	Tomayko, D. W.	BOSTON COLLEGE	NSG 7468	Carovillano, R. L.	39	2427
HQ-ST	Taylor, W. W.	BOSTON UNIVERSITY	NSG 7254	Mendillo, M.	19	2436
HQ-ST	Bohlin, J. D.	CALIF INST OF TECH	NGL 05-002-034	Zirin, H.	11	1186
HQ-ST	Bohlin, J. D.	CALIF INST OF TECH	NSG 7342	Goldreich, P.	13	1223
HQ-ST	Bohlin, J. D.	CAL STATE U-NRTHRIDGE	NSG 7456	Chapman, G. A.	13	1254
HQ-ST	Wiskerchen, M. J.	CATHOLIC UNIVERSITY	NGR 09-005-063	Whang, Y. C.	13	1839
HQ-ST	Bohlin, J. D.	CATHOLIC UNIVERSITY	NSG 7422	Whang, Y. C.	13	1843
HQ-ST	Cauffman, D. P.	COLLEGE OF WM & MARY	NSG 7416	Montgomery, D. C.	19	3771
HQ-ST	Kaiser, M. L.	CORNELL UNIVERSITY	NGR 33-010-161	Farley, D. T.	13	2963
HQ-ST	King, J. H.	DARTMOUTH COLLEGE	NSG 7292	Sonnerup, B. U.	39	2818
HQ-ST	Kakar, R. K.	DUKE UNIVERSITY	NSG 7540	DeLucia, F. C.	31	3109
HQ-ST	King, J. H.	HARVARD UNIVERSITY	NASW 2952	McElroy, M. B.	33	2450



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HQ-ST	Seals, R. K., Jr.	HARVARD UNIVERSITY	NASW 3242	Anderson, J.	31	2451
HQ-ST	Bohlin, J. D.	HARVARD UNIVERSITY	NGL 22-007-006	Parkinson, W. H.	13	2452
HQ-ST	Bohlin, J. D.	HARVARD UNIVERSITY	NGR 22-007-202	Parkinson, W. H.	11	2456
HQ-ST	Kakar, K. K.	HARVARD UNIVERSITY	NSG 2031	McElroy, M. B.	31	2460
HQ-ST	Bohlin, J. D.	HARVARD UNIVERSITY	NSG 5128	Parkinson, W. H.	13	2462
HQ-ST	Bohlin, J. D.	HARVARD UNIVERSITY	NSG 7461	Parkinson, W. H.	11	2480
HQ-ST	Bohlin, J. D.	HARVARD UNIVERSITY	NSG 7497	Vaiana, G. S.	13	2481
HQ-ST	Bohlin, J. D.	HARVARD UNIVERSITY	NSG 7537	Vaiana, G. S.	13	2483
HQ-ST	Hedin, A. E.	JOHNS HOPKINS UNIV	NSG 7055	Krimigis, S. M.	13	2325
HQ-ST	Cauffman, D. P.	MASS INST OF TECH	NGL 22-009-015	Bridge, H. S.	13	2521
HQ-ST	Bohlin, J. D.	MICHIGAN STATE UNIV	NSG 7293	Stein, R. F.	13	2627
HQ-ST	Hedin, A. E.	NEW MEX ST U-LAS CR	NSG 7622	Theimer, O. H.	19	2892
HQ-ST	Simon, N. K.	OHIO STATE UNIV	NASW 3149	Seliga, T. A.	31	3213
HQ-ST	Kakar, R. K.	OHIO STATE UNIV	NSG 7479	Shaw, J. H.	31	3241
HQ-ST	Kaiser, M. L.	PENN STATE U-UNIV PK	NGL 39-009-003	Nisbet, J. S.	13	3389
HQ-ST	Tilferd, S. G.	PENN STATE U-UNIV PK	NSG 7350	Hale, L. C.	31	3418
HQ-ST	Cauffman, D. P.	RICE UNIVERSITY	NGL 44-006-012	Michel, F. C.	13	3553
HQ-ST	Cauffman, D. P.	RICE UNIVERSITY	NGR 44-006-137	Dessler, A. J.	13	3555
HQ-ST	Quaide, W. L.	RICE UNIVERSITY	NSG 7157	Freeman, J. W., Jr	32	3560
HQ-ST	Wiskerchen, M. J.	STANFORD UNIVERSITY	NGL 05-020-008	Helliwell, R. A.	13	1346
HQ-ST	Kaiser, M. L.	STANFORD UNIVERSITY	NGL 05-020-176	Crawford, F. W.	19	1349
HQ-ST	Bohlin, J. D.	STANFORD UNIVERSITY	NGL 05-020-272	Sturrock, P. A.	13	1351
HQ-ST	Kaiser, M. L.	STANFORD UNIVERSITY	NGR 05-020-001	DaRosa, A. V.	19	1354
HQ-ST	Bohlin, J. D.	STANFORD UNIVERSITY	NGR 05-020-559	Wilcox, J. M.	11	1359
HQ-ST	Bohlin, J. D.	STANFORD UNIVERSITY	NSG 7092	Petrosian, V.	11	1402
HQ-ST	Bohlin, J. D.	STANFORD UNIVERSITY	NSG 7552	Tyler, G. L.	13	1407
HQ-ST	Greenwood, L. R.	STATE UNIV NY-ALBANY	NSG 7222	Kiang, C. S.	31	3058
HQ-ST	Timothy, A. F.	STATE U NY-STONY BRK	NSG 7003	Stroke, G. W.	11	3083
HQ-ST	King, J. H.	UNIV ALASKA-FAIRBNKS	NSG 7447	Akasofu, S.	31	1068
HQ-ST	Hedin, A. E.	UNIV ALASKA-FAIRBNKS	NSG 7625	Swift, O. W.	19	1069
HQ-ST	Kaiser, M. L.	UNIV OF ARIZONA	NGR 03-002-107	Hsieh, K. C.	13	1116
HQ-ST	Hedin, A. E.	UNIV OF ARIZONA	NSG 7024	Sonett, C. P.	13	1136
HQ-ST	Bohlin, J. D.	UNIV OF ARIZONA	NSG 7168	Levy, E. H.	13	1142
HQ-ST	Newton, G. P.	UNIV OF ARIZONA	NSG 7485	Hunter, D. M.	31	1151
HQ-ST	King, J. H.	UNIV CALIF-BERKELEY	NGL 05-003-017	Anderson, K. A.	19	1439
HQ-ST	Kaiser, M. L.	UNIV CALIF-BERKELEY	NSG 7401	Mozer, F. S.	19	1476
HQ-ST	Bohlin, J. D.	UNIV CALIF-BERKELEY	NSG 7527	Anderson, K. A.	13	1479
HQ-ST	Bohlin, J. D.	UNIV CALIF-IRVINE	NSG 7375	VanHoven, G.	13	1499
HQ-ST	Cauffman, D. P.	UNIV CALIF-L ANGELES	NGL 05-007-004	Coleman, P. J., Jr	39	1516
HQ-ST	Wiskerchen, M. J.	UNIV CALIF-L ANGELES	NGL 05-007-190	Kennel, C. F.	19	1517
HQ-ST	Taylor, W. W.	UNIV CALIF-L ANGELES	NGR 05-007-276	Holzer, R. E.	13	1520
HQ-ST	Timothy, A. F.	UNIV CALIF-L ANGELES	NSG 7158	Ulrich, R. K.	13	1549
HQ-ST	Cauffman, D. P.	UNIV CALIF-L ANGELES	NSG 7180	Siscoe, G. L.	39	1551
HQ-ST	Bohlin, J. D.	UNIV CALIF-L ANGELES	NSG 7407	Ulrich, R. K.	13	1558
HQ-ST	Schmerling, E. R.	UNIV CALIF-L ANGELES	NSG 7616	Stenzel, R. L.	19	1565
HQ-ST	Hedin, A. E.	UNIV CALIF-SAN DIEGO	NGL 05-005-007	McIlwain, C. E.	13	1585
HQ-ST	Bohlin, J. D.	UNIV CALIF-SAN DIEGO	NSG 7161	Peterson, L. E.	13	1615
HQ-ST	Bohlin, J. D.	UNIV CALIF-SAN DIEGO	NSG 7406	Canfield, R. C.	13	1618
HQ-ST	Schmerling, E. R.	UNIV CALIF-SAN DIEGO	NSG 7623	Alfven, H.	19	1621
HQ-ST	Seals, R. K., Jr.	UNIV OF CHICAGO	NSG 7356	Kaplan, L. D.	31	2104
HQ-ST	Bohlin, J. D.	UNIV COLORADO-BOLDR	NGL 06-003-057	Linsky, J. L.	13	1755
HQ-ST	Bohlin, J. D.	UNIV COLORADO-BOLDR	NSG 7130	Hansen, E. R.	13	1776
HQ-ST	Bohlin, J. D.	UNIV COLORADO-BOLDR	NSG 7165	Chipman, F. G.	13	1777
HQ-ST	Kakar, R. K.	UNIV COLORADO-BOLDR	NSG 7231	Thomas, R. J.	31	1778
HQ-ST	Bohlin, J. D.	UNIV COLORADO-BOLDR	NSG 7287	Dulk, G. A.	13	1779
HQ-ST	Bohlin, J. D.	UNIV COLORADO-BOLDR	NSG 7291	Thomas, R. N.	13	1780
HQ-ST	Bohlin, J. D.	UNIV COLORADO-BOLDR	NSG 7507	Smith, D. F.	13	1787
HQ-ST	Bohlin, J. D.	UNIV COLORADO-BOLDR	NSG 7511	Gebbie, K. B.	13	1788

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HQ-ST	Kakar, R. K.	UNIV COLORADO-BOLDR	NSG 7559	Timothy, J. G.	31	1789
HQ-ST	Kakar, R. K.	UNIV OF DENVER	NSG 7271	Murcray, D. G.	31	1809
HQ-ST	Bohlin, J. D.	UNIV OF HAWAII-MANOA	NGL 12-001-011	Jefferies, J. T.	11	2034
HQ-ST	Bohlin, J. D.	UNIV OF HAWAII-MANOA	NSG 7536	Jefferies, J. T.	13	2053
HQ-ST	Wiskerchen, M. J.	UNIV HOUSTON-HOUSTON	NSG 7609	Sheldon, W. R.	19	3632
HQ-ST	Seals, R. K., Jr.	UNIV ILLINOIS-URBANA	NSG 7506	Bowhill, S. A.	31	2134
HQ-ST	Wiskerchen, M. J.	UNIV OF IOWA	NGL 16-001-002	VanAllen, J. A.	13	2211
HQ-ST	Kaiser, M. L.	UNIV OF IOWA	NGL 16-001-043	Gurnett, D. A.	13	2212
HQ-ST	Hedin, A. E.	UNIV OF IOWA	NSG 7632	Joyce, G.	19	2220
HQ-ST	Hedin, A. E.	UNIV MARYLAND-COL PK	NGL 21-002-005	Wu, C. S.	19	2364
HQ-ST	Bohlin, J. D.	UNIV MARYLAND-COL PK	NGR 21-002-199	Kundu, M. R.	13	2369
HQ-ST	Bohlin, J. D.	UNIV MARYLAND-COL PK	NSG 7427	Spicer, D. S.	13	2412
HQ-ST	Bohlin, J. D.	UNIV MICH-ANN ARBOR	NGL 23-005-275	Mohler, O. C.	11	2657
HQ-ST	Cauffman, D. P.	UNIV MICH-ANN ARBOR	NGR 23-005-015	Nagy, A. F.	31	2658
HQ-ST	Hedin, A. E.	UNIV MICH-ANN ARBOR	NGR 23-005-320	Samir, U.	13	2660
HQ-ST	Newton, G. P.	UNIV MICH-ANN ARBOR	NSG 7209	Donahue, Y. M.	31	2686
HQ-ST	Cauffman, D. P.	UNIV MICH-ANN ARBOR	NSG 7492	Hays, P. B.	31	2690
HQ-ST	King, J. H.	U MINN-MNPLS-ST PAUL	NSG 7005	Winckler, J. R.	39	2722
HQ-ST	Taylor, W. H.	U MINN-MNPLS-ST PAUL	NSG 7108	Kellogg, P. J.	19	2723
HQ-ST	Cauffman, D. P.	U MINN-MNPLS-ST PAUL	NSG 7237	Cahill, L. J., Jr.	19	2725
HQ-ST	Bohlin, J. D.	UNIV NEW HAMP-DURHAM	NGL 30-002-018	Chupp, E. L.	13	2825
HQ-ST	Bohlin, J. D.	UNIV NEW HAMP-DURHAM	NSG 7411	Fisk, L. A.	13	2830
HQ-ST	Kakar, R. K.	UNIV OREGON-EUGENE	NSG 7360	Nolt, I. G.	31	3333
HQ-ST	Kakar, R. K.	UNIV OF PITTSBURGH	NGR 39-011-161	Kaufman, F.	12	3440
HQ-ST	Bohlin, J. D.	UNIV OF ROCHESTER	NSG 7562	Thomas, J. H.	13	3101
HQ-ST	Schmerling, E. R.	UNIV OF SOUTHERN CAL	NGR 05-018-181	Intriligator, D. S.	13	1696
HQ-ST	Cauffman, D. P.	UNIV OF SOUTHERN CAL	NGR 05-018-185	Intriligator, D. S.	13	1697
HQ-ST	Wiskerchen, M. J.	UNIV TEXAS-DALLAS	NGR 44-004-120	Hanson, W. B.	31	3703
HQ-ST	King, J. H.	UNIV WISC-MADISON	NGR 50-002-162	Scherb, F.	13	3993
HQ-ST	Kakar, R. K.	UTAH STATE UNIV	NSG 7206	Megill, L. R.	12	3745
HQ-ST	Tilford, S. G.	UTAH STATE UNIV	NSG 7210	Baker, K. D.	31	3746
HQ-ST	Hedin, A. E.	UTAH STATE UNIV	NSG 7289	Banks, P. M.	31	3747
HQ-ST	Kakar, R. K.	UTAH STATE UNIV	NSG 7388	Megill, L. R.	31	3748
HQ-ST	Newton, G. P.	YORK UNIVERSITY	NGR 52-134-005	Schiff, H. I.	31	4025
HQ-U	Ludi, A. J.	UNIV OF NEW MEXICO	NASW 3243	Sanchez, R. S.	41	2895
HQ-	Corsiglia, V. R.	IOWA STATE UNIV	NCC 2 22	Nogel, J.	41	2189
ARC	Zill, L. P.	PURDUE UNIVERSITY	NSG 2404	Mitchell, C. A.	59	2161