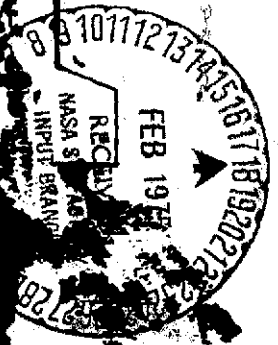


NASA'S UNIVERSITY PROGRAM

ACTIVE GRANTS & RESEARCH CONTRACTS



(NASA-TM-X-72719)	NASA'S UNIVERSITY	N75-16434
PROGRAM: ACTIVE GRANTS AND RESEARCH		
CONTRACTS, FISCAL YEAR 1974 (NASA)	306 p HC	
\$9.25	CSCL 05B	Unclas
		G3/88 09535



OFFICE OF UNIVERSITY AFFAIRS
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D. C. 20546

FISCAL YEAR 1974

PUBLICATIONS RELATED
TO NASA'S UNIVERSITY PROGRAM

1. NASA's UNIVERSITY PROGRAM: ACTIVE GRANTS AND RESEARCH CONTRACTS, FISCAL YEAR 1974. 306 pages. TM-X-72719,

Lists active grants and research contracts with colleges and universities during FY 1974. Includes for each entry: Institution and location, brief description of project, period of performance, principal investigator at institution, NASA technical officer (monitor), sponsoring NASA installation, interagency field of science or engineering classification ("C.A.S.E. category"), grant or contract number, FY 74 obligations, cumulative obligations and most recent RTOP coding. Entries are arranged alphabetically within state or country. Contains four cross indices: By grant or contract number; by C.A.S.E. field of science or engineering; by NASA technical officer location; and by RTOP (Research and Technology Operating Plan designation) code.

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 GRANTS AND RESEARCH CONTRACTS
FISCAL YEAR 1974

National Aeronautics and Space Administration
Office of University Affairs
Washington, D.C. 10546

Acknowledgements

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

Additional Copies

This publication is available from the National Technical Information Service (NTIS), Springfield, Virginia 22151 for \$2.50.

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.

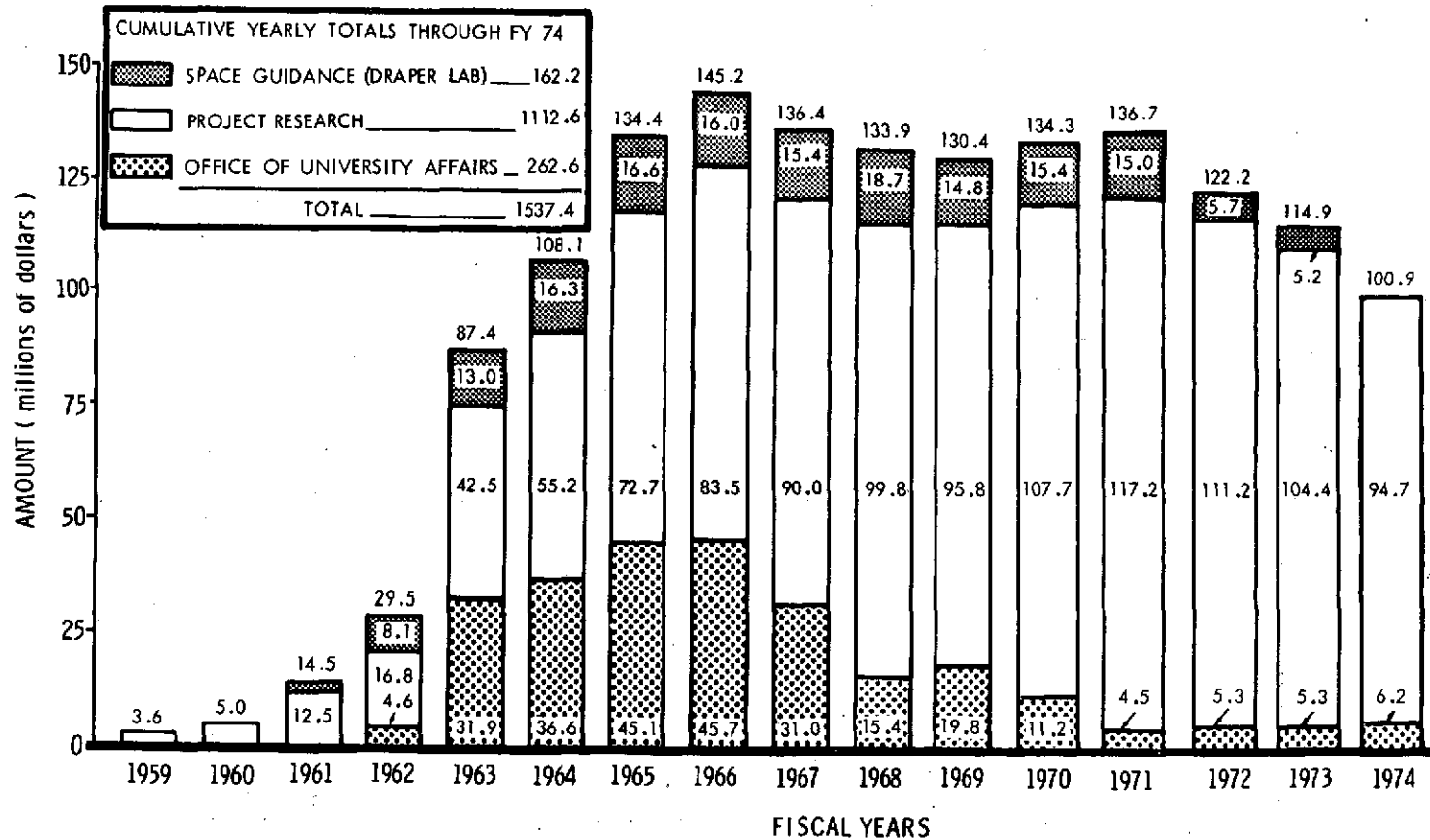
The Office of University Affairs (OUA) serves as a focal point for NASA's relationships with colleges and universities. One of its roles is to provide information on the NASA University Program. The present document is designed to serve several purposes and a wide range of audiences from private individuals to NASA employees. The emphasis is on the technical content of the program, rather than on fiscal data, which is available separately from OUA. 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 Office, Code KS, Washington, DC 20546.



Frank D. Hansing, Director
Office of University Affairs

NASA OBLIGATIONS TO UNIVERSITIES



Notes: 1. Excludes obligations to or through Federally Funded Research and Development Centers (JPL, Lincoln Lab., SREI).

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, ERI, Dudley Observatory).

3. Office of University Affairs includes 1962-1971 Sustaining University Program.

Source: NASA Office of University Affairs

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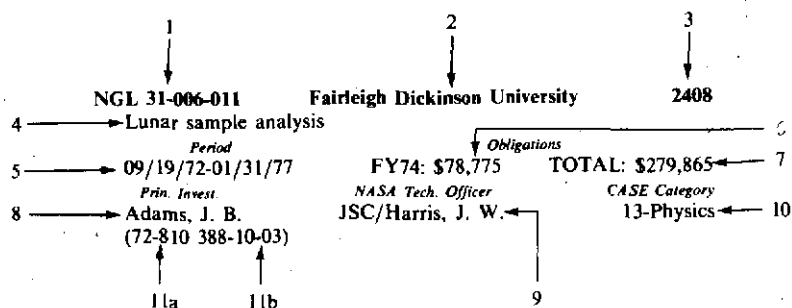
This report includes data on projects active during Fiscal Year 1974.

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USER'S GUIDE

The University Program Report provides current information and related statistics for each grant or research contract 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. Grant or Contract 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 and organizational location.
10. CASE Field of Science and Engineering code and name.
11. Source code (a) and RTOP (b). See Part V.

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II. NASA Installations

NASA installations are included in the citation both as abbreviations (item 9) and as codes (items 11a). The following listing of installations will be useful to those desiring further information on specific projects.

Abbrev.	Code	Installation Name and Address	Telephone Number for Information
ARC	21	Ames Research Center NASA Moffett Field, CA 94035	415/965-5000
FRC	24	Flight Research Center NASA P.O. Box 273 Edwards, CA 93523	805/258-3311
GSFC	51	Goddard Space Flight Center NASA Greenbelt, MD 20771	301/982-5042
JPL	55	Jet Propulsion Laboratory 4800 Oak Grove Drive Pasadena, CA 91103	213/354-4321
JSC	72	Johnson Space Center NASA Houston, TX 77058	713/483-3111
KSC	76	Kennedy Space Center NASA Kennedy Space Center, FL 32899	305/867-7113
LARC	23	Langley Research Center NASA Langley Station Hampton, VA 23665	804/827-1100
LERC	22	Lewis Research Center NASA 21000 Brookpark Road Cleveland, OH 44135	216/433-4000
MSFC	62	Marshall Space Flight Center NASA Marshall Space Flight Center, AL 35812	205/453-2121
NSTL	--	National Space Technology Laboratory NASA Bay St. Louis, MS 39520	601/688-2211
WFC	53	Wallops Flight Center NASA Wallops Island, VA 23337	804/824-3411
WTR	--	Western Test Range P.O. Box 425 Lompoc, CA 93436	805/866-1611
HQ	10	NASA Headquarters Washington, DC 20546	202/755-2320

The abbreviation for NASA Headquarters, HQ, usually carries a suffix, for example HQ-PY, which denotes a particular office and general area of responsibility. (PY is the Office of University Affairs.) 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. Single copy price: \$1.55; \$1.55 additional for foreign mailing.)

III. CASE Fields of Science and Engineering

The National Science Foundation (NSF) on behalf of the Committee on Academic Science and Engineering (CASE) of the Federal Council for Science and Technology (FCST) operates a government-wide system 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, used 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 or contract 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 or contract number this index enables the reader to locate the citation. The first page tells how to distinguish grants from contracts.

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.

Appendix D - This index is included primarily for the convenience of internal NASA readers. However, the RTOP, per se, may be of considerable interest to external users. See V, below.

V. Source Code and RTOP

The last line of the citation (item 11) contains 1-3 sets of numbers in parenthesis. By interpreting the coding a great deal of additional information on a project may be obtained. The first set is current and is the most useful; the second and third sets, if present, generally represent historical data.

Each set of numbers is further divided into two groups separated by a blank space. The first group contains source coding, while the second is the "Research and Technology Operating Plan" (RTOP).

Source Coding (Item 11a)

The first two-digit number identifies the NASA installation (by the code given in II, above) which has most recently added funds to the project. Disagreement between this installation and the technical officer location usually indicates that responsibility for a project is being transferred.

The second number identifies the major NASA Program Office responsible for the research, as follows: 200-299, Office of Technology Utilization; 300-399, Office of University Affairs; 400-499, Office of Energy Programs; 500-599, Office of Tracking and Data Acquisition; 600-699, Office of Applications; 700-799, Office of Aeronautics and Space Technology; 800-899, Office of Space Science; and 900-999, Office of Manned Space Flight.

RTOP (Item 11b)

The RTOP, "Research and Technology Operating Plan" number indicates a broad technical area in which NASA desires to achieve certain objectives. Numerous projects, conducted both in-house and out-of-house and with all classes of performers may contribute to the objective of a single RTOP. Detailed descriptions of the RTOPs, including names of responsible individuals and extensive cross-indexing are published annually. The FY74 edition entitled *Research and Technology Operating Plan Summary* may be purchased from the National Technical Information Service (NTIS), Springfield, Virginia 22151, for \$3.00. (\$2.50 additional for Foreign mailing.)

NASA'S UNIVERSITY PROGRAM

ALABAMA

NGR 01-001-013	Alabama A&M University	1000			
MHZ shuttle, station and satellite communications analysis					
<i>Period</i>	<i>Obligations</i>				
03/30/71-03/31/74	FY74:	TOTAL:	\$37,698		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lowsine, L.	HQ-PY/Pohly, J. G.	41-Aero Engr			
(62-920 982-52-00)	(62-920 982-00-00)	(62-920 976-30-00)			
NGR 01-001-017	Alabama A&M University	1001			
Development of an adhesion criterion in gas solid interface					
<i>Period</i>	<i>Obligations</i>				
03/13/72-05/31/73	FY74:	TOTAL:	\$15,969		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
George, M. C.	HQ-PY/Pohly, J. G.	13-Physics			
	MSFC/Peters, P. N.				
(10-371 340-00-00)					
NGR 01-001-018	Alabama A&M University	1002			
Investigation of water quality parameters and selected points on the Tennessee River					
<i>Period</i>	<i>Obligations</i>				
08/03/72-05/01/73	FY74:	TOTAL:	\$19,690		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Manger, M. C.	HQ-PY/Pohly, J. G.	39-Env Sci, NEC			
	MSFC/Kent, M. I.				
(10-371 340-00-00)					
NGR 01-001-020	Alabama A&M University	1003			
Degradation effect on space communication and energy transmission by laser beams due to the variation of atmospheric refractive index					
<i>Period</i>	<i>Obligations</i>				
09/07/72-08/31/74	FY74:	TOTAL:	\$31,139		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lee, C. T.	HQ-PY/Pohly, J. G.	13-Physics			
	MSFC/Kurtz, R. L.				
(10-371 340-00-00)					
NGR 01-001-021	Alabama A&M University	1004			
Performance analysis & preliminary system configuration					
<i>Period</i>	<i>Obligations</i>				
03/05/73-07/31/74	FY74:	TOTAL:	\$21,491		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Weathers, G. D.	HQ-PY/Pohly, J. G.	46-Mech Engr			
(10-371 340-00-00)					
NGR 01-001-023	Alabama A&M University	1005			
Development of remote sensing applications for natural resource study and management					
<i>Period</i>	<i>Obligations</i>				
06/13/73-07/15/75	FY74: \$21,175	TOTAL: \$44,453			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Golden, M. S.	MSFC/Downs, S. W., Jr.	39-Env Sci, NEC			
(62-371 340-00-00)	(10-371 340-00-00)				
NGR 01-001-024	Alabama A&M University	1006			
Rocket engine thrust calculation and analysis					
<i>Period</i>	<i>Obligations</i>				
07/01/73-06/30/74	FY74: \$21,428	TOTAL: \$21,428			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Saha, H.	HQ-PY/Pohly, J. G.	41-Aero Engr			
	MSFC/Gross, K. W.				
(10-371 340-00-00)					
NGR 01-001-025	Alabama A&M University	1007			
Investigation of water quality parameters at selected points on Tennessee River					
<i>Period</i>	<i>Obligations</i>				
09/01/73-09/14/74	FY74: \$22,558	TOTAL: \$22,558			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Manger, M. C.	MSFC/McDonough, G. F.	39-Env Sci, NEC			
	MSFC/Kent, M. I.				
(62-371 340-00-00)					
NSG 8001	Alabama A&M University	1008			
Application of transition radiations for detection of charged particles in cosmic rays					
<i>Period</i>	<i>Obligations</i>				
01/02/74-02/28/75	FY74: \$16,818	TOTAL: \$16,818			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
George, M. C.	MSFC/Parnell, T. A.	11-Astronomy			
	MSFC/Kent, M. I.				
(62-371 340-00-00)					
NSG 8011	Alabama A&M University	1009			
Application of self-induced transparency and self-trapping to reduce the degradation of laser pulses					
<i>Period</i>	<i>Obligations</i>				
07/01/74-07/01/75	FY74: \$19,644	TOTAL: \$19,644			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lee, C. T.	MSFC/Kurtz, R. L.	13-Physics			
	MSFC/Kent, M. I.				
(62-371 340-00-00)					
NSG 8013	Alabama A&M University	1010			
Performance analysis and design study for a proposed HEAO tracking and data relay satellite data communications link					
<i>Period</i>	<i>Obligations</i>				
07/01/74-07/01/75	FY74: \$24,118	TOTAL: \$24,118			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Weathers, G.	MSFC/Lowrey, D. O.	45-Elec Engr			
(62-371 340-00-00)					
NAS 8-28058	Athens College	1011			
Chemical analysis of outgassing contaminant on spacecraft surfaces					
<i>Period</i>	<i>Obligations</i>				
10/27/71-04/01/75	FY74: \$45,222	TOTAL: \$72,830			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
McNutt, R. C.	MSFC/Jex, D. W.	13-Physics			
	MSFC/Shriver, E. L.				
(62-950 951-00-00)	(62-980 975-72-03)	(62-704 502-01-03)			

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

NAS 8-30561	Athens College	1012	NAS 8-29856	Auburn University	1019
Solidification kinetics			Detection of soil acidity		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/25/74-09/25/75	FY74: \$22,067	TOTAL: \$22,067	07/01/73-07/18/75	FY74: \$29,900	TOTAL: \$29,900
<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>
McNutt, R. C.	MSFC/Zwiener, J. M.	13-Physics	Hagler, T. B.	MSFC/Downs, S. W.	39-Env Sci, NEC
Short, W. A.	MSFC/Ruff, R.			MSFC/Derington, J. C.	
(62-740 114-03-03)			(62-680 160-75-15)		
NAS 8-20765	Auburn University	1013	NAS 8-29881	Auburn University	1020
Frequency modulated (FM) telemetry systems			Econometric analysis of materials processing in space		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/22/67-06/15/74	FY74:	TOTAL: \$216,988	03/12/74-03/12/75	FY74: \$74,324	TOTAL: \$74,324
<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>
Irwin, J. D.	MSFC/Emens, F. H.	45-Elec Engr	Vachon, R. I.	MSFC/McKannan, E. C.	72-Economics
James, S.			MSFC/Cantrell, J. P.		
(62-500 150-22-03)			(62-630 179-53-99)		
NAS 8-26193	Auburn University	1014	NAS 8-30248	Auburn University	1021
Research work pertaining to telemetry measuring and radio frequency systems			Terminal guidance and navigation for comet and asteroid rendezvous		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/18/70-09/17/74	FY74:	TOTAL: \$120,000	12/16/73-12/15/74	FY74: \$25,718	TOTAL: \$25,718
<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>
Honnell, M. A.	MSFC/Lowery, D. O.	45-Elec Engr	Bennett, A. G.	MSFC/Duncan, J. R., Jr.	41-Aero Engr
(62-950 951-15-00)	(62-910 933-50-00)	(62-500 150-00-00)		MSFC/Blair, J. C.	
			(62-840 684-30-90)	(62-840 684-39-60)	
NAS 8-26579	Auburn University	1015	NAS 8-30654	Auburn University	1022
Study of thermal conductivity of heterogeneous mixtures			Development of Alabama Resources Information Management System		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/23/70-05/15/74	FY74: \$3,566	TOTAL: \$43,566	04/23/74-04/22/75	FY74: \$30,000	TOTAL: \$30,000
<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>
Vachon, R. I.	MSFC/Jones, B. P.	13-Physics	Vachon, R. I.	MSFC/Cummings, R. E.	21-Mathematics
	MSFC/Miller, E.		Herring, B. E.	MSFC/Messer, C. W.	
(62-704 502-21-27)	(62-740 129-00-00)		(62-680 177-52-71)		
NAS 8-26930	Auburn University	1016	NGT 01-003-044	Auburn University	1023
Advanced computer system studies and development			Summer fellowship programs in engineering systems design		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/29/71-05/28/74	FY74:	TOTAL: \$55,000	12/16/69-03/31/75	FY74: \$128,825	TOTAL: \$578,036
<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>
Irwin, J. D.	MSFC/White, J. B.	45-Elec Engr	Vachon, R. I.	HQ-PY/Carter, C. H.	49-Engr, NEC
	MSFC/Yearwood, H. E.		(10-371 340-00-00)		
(62-950 951-15-00)	(62-910 933-50-00)	(62-830 180-00-00)			
NAS 8-27664	Auburn University	1017	NGT 01-003-045	Auburn University	1024
Study of effects of uncertainties on comets and asteroid encounter			Summer faculty fellowship program in aeronautics and space research		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/08/71-12/15/73	FY74:	TOTAL: \$70,000	12/16/69-03/31/75	FY74: \$101,142	TOTAL: \$341,562
<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>
Bennett, A. G.	MSFC/Hethcoat, J. P.	42-Astro Engr	O'Brien, J. F.	HQ-PY/Carter, C. H.	49-Engr, NEC
(62-840 186-68-64)	(62-830 180-00-00)		(10-371 340-00-00)	(10-370 181-00-00)	
NAS 8-29852	Auburn University	1018	NSG 1002	Auburn University	1025
Investigation of problems involving calculation of space tug's position in an inertial coordinate system			Analysis and compilation of missile aerodynamic data		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/20/73-06/19/75	FY74:	TOTAL: \$74,394	01/01/74-12/31/74	FY74: \$10,033	TOTAL: \$10,033
<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>
Boland, J. S., III	MSFC/Ellsworth, D. J.	49-Engr, NEC	Nichols, J. O.	LARC/Spearman, M. L.	41-Aero Engr
(62-980 909-55-05)			(23-702 760-17-01)		

NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)

NGR 01-007-004 Talladega College 1026
Strains produced in clean metallic thin films by a gaseous environment
Period Obligations
03/25/71-12/31/73 FY74: TOTAL: \$47,465
Prin. Invest. NASA Tech. Officer CASE Category
Morrison, R. A. HQ-PY/Carter, C. H. 13-Physics
MSFC/Horton, J.
(10-371 340-00-00)

NGR 01-007-009 Talladega College 1027
Far infrared lattice properties of gallium arsenide
Period Obligations
01/01/74-01/01/75 FY74: \$32,009 TOTAL: \$32,009
Prin. Invest. NASA Tech. Officer CASE Category
Breecher, J. MSFC/Dalins, I. 13-Physics
MSFC/Kent, M. I.
(62-371 340-00-00)

NGR 01-007-010 Talladega College 1028
Thermal and solvent stable polymers study
Period Obligations
09/01/73-08/31/74 FY74: \$21,240 TOTAL: \$21,240
Prin. Invest. NASA Tech. Officer CASE Category
Kray, W. O. ARC/Rosser, R. W. 12-Chemistry
ARC/Parker, J. A.
(21-371 340-00-00)

NSG 8010 Talladega College 1029
Strains in clean metallic thin films produced by gaseous environment
Period Obligations
05/23/74-05/23/75 FY74: \$25,056 TOTAL: \$25,056
Prin. Invest. NASA Tech. Officer CASE Category
Morrison, R. A. MSFC/McKannan, E. C. 47-Materials Engr
(62-371 340-00-00)

NAS 9-13844 Tuskegee Institute 1030
Analytical investigation of the heat-pipe radiator as a spacecraft heat rejection system
Period Obligations
01/01/74-08/31/74 FY74: \$12,000 TOTAL: \$12,000
Prin. Invest. NASA Tech. Officer CASE Category
Sellers, J. P. JSC/French, B. O. 46-Mech Engr
(72-980 909-44-02)

NGR 01-005-003 Tuskegee Institute 1031
Growth of insulating magnetic crystals involving second and third transition metal ions
Period Obligations
06/13/69-12/30/72 FY74: TOTAL: \$62,343
Prin. Invest. NASA Tech. Officer CASE Category
Reams, F. M. MSFC/Bannister, T. C. 13-Physics
MSFC/Kent, M. I.
(10-370 183-00-00) (62-910 933-50-00)

NGR 01-005-010 Tuskegee Institute 1032
A study of the co-axial-submerged free jet
Period Obligations
04/07/71-10/30/74 FY74: \$23,780 TOTAL: \$69,537
Prin. Invest. NASA Tech. Officer CASE Category
Lenzo, C. S. MSFC/Guest, S. H. 41-Aero Engr
MSFC/Kent, M. I.
(62-371 340-00-00) (10-371 340-00-00)

NGR 01-005-012 Tuskegee Institute 1033
High temperature deformation of bismuth telluride
Period Obligations
04/07/71-11/30/74 FY74: TOTAL: \$41,532
Prin. Invest. NASA Tech. Officer CASE Category
Terrill, G. R. HQ-PY/Pohly, J. G. 45-Elec Engr
(10-371 340-00-00)

NSG 8003 Tuskegee Institute 1034
Effects of corona and electrical discharges on degradation of insulation materials
Period Obligations
02/01/74-02/01/75 FY74: \$23,891 TOTAL: \$23,891
Prin. Invest. NASA Tech. Officer CASE Category
Doreswamy, C. V. MSFC/Clark, E. E., Jr. 45-Elec Engr
MSFC/Kent, M. I.
(62-371 340-00-00)

NGR 01-010-001 University of Alabama - Birmingham 1035
Model for origin and coevolution of genetic code and the process of protein synthesis
Period Obligations
05/09/73-05/31/75 FY74: \$24,267 TOTAL: \$45,267
Prin. Invest. NASA Tech. Officer CASE Category
Lacey, J. C., Jr. HQ-SL/Young, R. S. 12-Chemistry
(10-840 192-55-61)

NAS 8-24908 University of Alabama - Huntsville 1036
Study of radiation environment in orbit of the Apollo applications satellites
Period Obligations
06/24/69-07/25/74 FY74: \$15,000 TOTAL: \$195,278
Prin. Invest. NASA Tech. Officer CASE Category
Gregory, J. C. MSFC/Parnell, T. A. 11-Astronomy
MSFC/Eby, P. B.
(62-960 964-50-00) (62-910 933-50-00)

NAS 8-24953 University of Alabama - Huntsville 1037
Study of specific light output of CSI crystals
Period Obligations
06/26/69-03/31/75 FY74: \$56,996 TOTAL: \$279,855
Prin. Invest. NASA Tech. Officer CASE Category
Gregory, J. C. MSFC/Parnell, T. A. 13-Physics
MSFC/Quong, H.
(62-920 983-15-00) (62-950 951-00-00)

NAS 8-25750 University of Alabama - Huntsville 1038
In flight atmospheric model criteria monograph
Period Obligations
03/24/70-02/28/74 FY74: TOTAL: \$90,152
Prin. Invest. NASA Tech. Officer CASE Category
Wu, S. T. MSFC/Swenson, G. R. 49-Engr, NEC
(62-850 188-36-56) (62-740 114-03-55)

NAS 8-26055 University of Alabama - Huntsville 1039
Program history of Project Saturn
Period Obligations
04/22/70-01/02/74 FY74: TOTAL: \$146,996
Prin. Invest. NASA Tech. Officer CASE Category
Beltz, J. S. MSFC/Sorensen, V. C. 73-History
MSFC/Akens, D. S.
(62-910 933-50-00)

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

NAS 8-27181	University of Alabama - Huntsville	1040
Mathematical research on spline functions (spline approximations)		
<i>Period</i>	<i>Obligations</i>	
03/25/71-11/30/73	FY74: TOTAL: \$48,663	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Horner, J. M. (62-950 951-16-00)	MSFC/Jones, B. P. (62-910 933-50-00)	13-Physics
NAS 8-27809	University of Alabama - Huntsville	1041
Superconducting compounds & alloys		
<i>Period</i>	<i>Obligations</i>	
06/29/71-08/31/74	FY74: \$20,000 TOTAL: \$92,281	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Otto, G. H. (62-630 179-11-14)	MSFC/Lacy, L. L. (62-980 975-90-95)	13-Physics (62-950 951-16-00)
NAS 8-28097	University of Alabama - Huntsville	1042
Triggering mechanisms for solar flares		
<i>Period</i>	<i>Obligations</i>	
12/06/71-03/30/75	FY74: \$60,000 TOTAL: \$80,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wu, S. T. (62-950 951-00-00)	MSFC/Hagyard, M. J. MSFC/Jones, B. P. (62-950 951-16-00)	13-Physics
NAS 8-28248	University of Alabama - Huntsville	1043
Environmental dynamics at orbital altitudes		
<i>Period</i>	<i>Obligations</i>	
01/24/72-09/30/74	FY74: TOTAL: \$104,332	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hermann, R. (62-980 909-55-47)	MSFC/Smith, R. E. MSFC/Devries, L. L. (62-980 908-54-22)	42-Astro Engr
NAS 8-28304	University of Alabama - Huntsville	1044
Skylab experiment on growth of spherical crystals		
<i>Period</i>	<i>Obligations</i>	
09/19/72-01/31/75	FY74: \$15,000 TOTAL: \$52,547	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Walter, H. U. (62-960 948-90-95)	MSFC/Adams, W. R. MSFC/Bannister, T. C.	19-Phys Sci, NEC
NAS 8-28545	University of Alabama - Huntsville	1045
Imaging processing techniques and application to the ERTS program		
<i>Period</i>	<i>Obligations</i>	
03/22/72-03/21/73	FY74: TOTAL: \$35,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Polge, R. J. (62-980 908-54-33)	MSFC/Hodges, B. MSFC/Wesson, R. L.	13-Physics
NAS 8-28588	University of Alabama - Huntsville	1046
Investigation of the jet noise prediction theory and application utilizing the PAO formulator		
<i>Period</i>	<i>Obligations</i>	
03/17/72-10/31/73	FY74: TOTAL: \$49,946	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pao, S. P. (62-920 982-52-00)	MSFC/Jones, J. H.	46-Mech Engr
NAS 8-28736	University of Alabama - Huntsville	1047
Experimental investigations of relationships between the pressure drop and pertinent flow system parameters of capillary screen channels		
<i>Period</i>	<i>Obligations</i>	
05/17/72-07/17/74	FY74: TOTAL: \$35,194	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shih, C. C. (62-950 951-15-00)	MSFC/Allums, S. L. (62-910 933-40-00)	46-Mech Engr
NAS 8-29316	University of Alabama - Huntsville	1048
Working model of the London moment readout system		
<i>Period</i>	<i>Obligations</i>	
10/06/72-11/30/74	FY74: \$114,000 TOTAL: \$164,241	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hendricks, J. B. (62-850 188-41-54)	MSFC/Decher, R. MSFC/Urban, E. W. (62-850 188-78-51)	13-Physics
NAS 8-29501	University of Alabama - Huntsville	1049
Study analysis of experimental concepts relative to plasma physics and environment perturbations laboratory		
<i>Period</i>	<i>Obligations</i>	
12/22/72-02/28/74	FY74: TOTAL: \$8,997	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wu, S. T. (62-980 975-84-10)	MSFC/Smith, R. E.	13-Physics
NAS 8-29542	University of Alabama - Huntsville	1050
Electrical characterization of single crystals		
<i>Period</i>	<i>Obligations</i>	
01/02/72-05/31/74	FY74: TOTAL: \$83,482	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Castle, J. G. (62-960 948-90-95)	MSFC/Davidson, M. C. MSFC/Zwiener, J. M. (62-980 975-90-95)	47-Materials Engr
NAS 8-29543	University of Alabama - Huntsville	1051
Airglow research		
<i>Period</i>	<i>Obligations</i>	
02/01/73-10/31/74	FY74: TOTAL: \$29,990	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wu, S. T. (62-850 188-36-56)	MSFC/Swenson, G. R.	13-Physics
NAS 8-29650	University of Alabama - Huntsville	1052
Evaluation & comparison of semiconductor specimens by X-ray techniques		
<i>Period</i>	<i>Obligations</i>	
03/20/73-06/30/74	FY74: \$25,000 TOTAL: \$41,999	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Walter, H. U. (62-630 179-12-13)	MSFC/Davidson, M. C. MSFC/Zwiener, Z. M.	13-Physics
NAS 8-30216	University of Alabama - Huntsville	1053
Study of define points of entry for potential contaminants in limestone aquifers		
<i>Period</i>	<i>Obligations</i>	
06/22/73-08/31/74	FY74: \$9,992 TOTAL: \$15,400	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Doyle, F. L. (62-680 176-53-71)	MSFC/Hamby, H. G. (62-680 160-75-98)	39-Env Sci, NEC

NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)

NAS 8-30244 University of Alabama - Huntsville 1054
Study of effect of shock wave compaction on A-15 superconductors

<i>Period</i>	<i>Obligations</i>	
06/27/73-08/15/74	FY74: \$23,720	TOTAL: \$23,720
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Otto, G. H.	MSFC/Urban, E. W.	13-Physics

(62-950 953-37-00)

NAS 8-30247 University of Alabama - Huntsville 1055
Review, study, and evaluation of possible flight experiments relating to cloud physics experiments in space

<i>Period</i>	<i>Obligations</i>	
11/01/73-10/31/74	FY74: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hung, R. J.	MSFC/Smith, R. E.	46-Mech Engr
	MSFC/Vaughan, W. W.	

(62-980 975-61-05)

NAS 8-30286 University of Alabama - Huntsville 1056
Design, fabrication, & installation of safety shield for X-ray apparatus

<i>Period</i>	<i>Obligations</i>	
07/11/73-09/11/73	FY74: \$4,000	TOTAL: \$4,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Walters, H. U.	MSFC/Fields, S. A.	49-Engr, NEC
	MSFC/Davidson, M. C.	

(62-980 975-90-95)

NAS 8-30616 University of Alabama - Huntsville 1057
Tidal and gravity wave propagation

<i>Period</i>	<i>Obligations</i>	
02/14/74-02/13/75	FY74: \$10,000	TOTAL: \$10,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hung, R. J.	MSFC/Smith, R. E.	31-Atmos Sci
Rao, G. L.	MSFC/Swenson, G. R.	

(62-680 175-61-73)

NAS 8-30737 University of Alabama - Huntsville 1058
Educational uses and users for the space transportation system

<i>Period</i>	<i>Obligations</i>	
03/01/74-09/01/74	FY74: \$24,967	TOTAL: \$24,967
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Engle, H. A.	MSFC/Johnson, C.	99-Multi-Discip
Christensen, D. L.		

(62-980 975-50-01)

NAS 8-30772 University of Alabama - Huntsville 1059
Environmental parameters of the Tennessee River

<i>Period</i>	<i>Obligations</i>	
05/16/74-05/15/75	FY74: \$14,762	TOTAL: \$14,762
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rossing, L. M.	MSFC/Morton, R. R.	32-Geological Sci
	MSFC/Hamby, H. G.	

(62-680 176-53-72)

NAS 8-30885 University of Alabama - Huntsville 1060
Demonstrate the feasibility of the mirads for the retrieval of air pollution data

<i>Period</i>	<i>Obligations</i>	
06/26/74-06/29/75	FY74: \$14,997	TOTAL: \$14,997
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
	MSFC/	39-Env Sci, NEC

(62-680 176-81-71)

NGL 01-008-001 University of Alabama - Huntsville 1061
Research in aerospace physical sciences and engineering

<i>Period</i>	<i>Obligations</i>	
09/17/69-02/28/76	FY74: \$500,000	TOTAL: \$500,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rush, J. E.	HQ-PY/Redding, E. R.	99-Multi-Discip
	MSFC/Kent, M. I.	

(10-371 340-00-00) (10-370 183-00-00)

NGR 01-008-015 University of Alabama - Huntsville 1062
Effects of solar flare ionization on terres tria one ionosphere

<i>Period</i>	<i>Obligations</i>	
11/30/73-01/31/75	FY74: \$15,189	TOTAL: \$15,189
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rao, G. L.	HQ-SG/Oertel, G. K.	11-Astronomy

(10-850 385-38-00)

NAS 5-21876 University of Alabama - Tuscaloosa 1063
ERTS-A data user investigation using data from Alabama

<i>Period</i>	<i>Obligations</i>	
10/06/72-10/01/74	FY74: \$50,000	TOTAL: \$250,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Henry, H. R.	GSFC/Stonesifer, G. R.	39-Env Sci, NEC

(51-680 641-14-04)

NAS 8-20172 University of Alabama - Tuscaloosa 1064
Study and analysis of the FM/FM and SS/FM telemetry systems for the Saturn vehicle

<i>Period</i>	<i>Obligations</i>	
06/10/65-07/30/74	FY74: \$529,545	TOTAL: \$529,545
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Houts, R. C.	MSFC/Emens, F. H.	45-Elec Engr

(62-500 150-22-03)

NAS 8-25562 University of Alabama - Tuscaloosa 1065
The study of the effects of atmospheric turbulence on laser communication system

<i>Period</i>	<i>Obligations</i>	
03/03/70-05/12/74	FY74: \$89,824	TOTAL: \$89,824
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Webb, W. E.	MSFC/Randall, J. L.	45-Elec Engr
	MSFC/Marrero, P. J.	

(62-750 115-22-05)

NAS 8-28019 University of Alabama - Tuscaloosa 1066
Active control of primary mirror of an orbiting telescope with thermal excitation

<i>Period</i>	<i>Obligations</i>	
10/18/71-12/31/73	FY74: \$35,000	TOTAL: \$35,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hill, J. L.	MSFC/Clarke, W. D.	49-Engr, NEC
	MSFC/Randall, J. L.	

(62-704 502-23-21)

NAS 8-28098 University of Alabama - Tuscaloosa 1067
Crystal growth

<i>Period</i>	<i>Obligations</i>	
12/02/71-01/21/75	FY74: \$20,000	TOTAL: \$79,826
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miyagawa, I.	MSFC/Bannister, T. C.	13-Physics
	MSFC/Schafer, C. F.	

(62-980 975-90-95)

NASA'S UNIVERSITY PROGRAM

ALASKA

ALASKA

NAS 5-21833 University of Alaska - Fairbanks 1081
ERTS data user investigations

<i>Period</i>	<i>Obligations</i>	
09/13/72-09/01/74	FY74: \$19,321	TOTAL: \$469,321
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Belon, A. E.	GSFC/Crump, E. W.	32-Geological Sci
Branton, C. I.		
Anderson, J. H.		
(51-680 641-14-01)	(51-680 641-14-02)	(51-680 641-14-03)

NAS 6-1932 University of Alaska - Fairbanks 1082
Support services and site use of the geophysical institute facilities to launch rockets for auroral studies

<i>Period</i>	<i>Obligations</i>	
02/11/71-04/30/73	FY74:	TOTAL: \$851,009
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Davis, T. N.	WFC/Gray, J. W.	31-Atmos Sci
Brown, N. B.		
(53-500 311-04-03)	(53-850 874-22-00)	(53-850 879-24-00)

NAS 9-13945 University of Alaska - Fairbanks 1083
Apollo Soyuz test project experiment MA-017-barium cloud

<i>Period</i>	<i>Obligations</i>	
01/21/74-05/05/74	FY74: \$29,509	TOTAL: \$29,509
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wescott, E. M.	JSC/Leblanc, C. M.	32-Geological Sci
Davis, R. N.		
(72-930 966-30-00)		

NGL 02-001-092 University of Alaska - Fairbanks 1084
Application of remote sensing data to surveys of the Alaskan environment

<i>Period</i>	<i>Obligations</i>	
07/26/72-09/30/76	FY74: \$125,000	TOTAL: \$275,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Belon, A. E.	HQ-PY/Vitale, J. A.	39-Env Sci, NEC
Miller, J. M.		
(10-371 340-00-00)		

NGR 02-001-001 University of Alaska - Fairbanks 1085
Theoretical study of the ring current and geomagnetic field phenomena

<i>Period</i>	<i>Obligations</i>	
10/15/61-12/31/73	FY74:	TOTAL: \$518,516
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Akasofu, S. I.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics
	HQ-SG/Hallenbeck, D. R.	
(10-850 385-00-00)	(10-850 188-36-55)	(10-850 188-00-00)

NGR 02-001-087 University of Alaska - Fairbanks 1086
Measurement of electric fields in a rayed auroral arc

<i>Period</i>	<i>Obligations</i>	
03/02/72-03/31/74	FY74: \$101,779	TOTAL: \$175,417
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Davis, T. N.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics
	HQ-SG/Ott, E. J.	
(10-850 879-11-00)		

NGR 02-001-088 University of Alaska - Fairbanks 1087
Field line tracing by shaped charge injection of barium plasma

<i>Period</i>	<i>Obligations</i>	
05/04/72-01/31/74	FY74:	TOTAL: \$160,774
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wescott, E. M.	HQ-SG/Dubin, M.	31-Atmos Sci
	HQ-SG/Kavanagh, L. D., Jr.	
(10-850 879-11-00)		

NGR 02-001-099 University of Alaska - Fairbanks 1088
Research effort by airborne sciences

<i>Period</i>	<i>Obligations</i>	
11/28/72-01/01/75	FY74: \$43,218	TOTAL: \$75,467
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sivjee, C. G.	ARC/Haughney, L. C.	11-Astronomy
(21-850 352-02-02)	(21-850 352-02-01)	

NGR 02-001-106 University of Alaska - Fairbanks 1089
Airborne observations of comet Kohoutek

<i>Period</i>	<i>Obligations</i>	
12/01/73-12/01/74	FY74: \$38,407	TOTAL: \$38,407
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sivjee, C. G.	ARC/Haughney, L. C.	11-Astronomy
Romick, G. J.	ARC/Mulholland, D. R.	
Murcraay, W.		
(21-975 977-10-64)		

NSG 7051 University of Alaska - Fairbanks 1090
Study of the relationship between the ring current and magnetosphere substorms

<i>Period</i>	<i>Obligations</i>	
01/01/74-12/31/74	FY74: \$15,000	TOTAL: \$15,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Akasofu, S. I.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics
	HQ-SG/Schmerling, E. R.	
(10-850 385-36-00)		

ARIZONA

NGL 03-001-001 Arizona State University 1091
Development of improved procedures for sampling, characterizing & classifying meteorite specimens

<i>Period</i>	<i>Obligations</i>	
04/16/63-02/28/77	FY74: \$25,847	TOTAL: \$256,259
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Veziroglu, T. N.	HQ-SM/Bryson, R. P.	32-Geological Sci
Lee, S. S.	HQ-SM/Roberson, F. I.	
(10-810 195-42-67)	(10-840 185-00-00)	

NGR 03-001-057 Arizona State University 1092
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
01/12/71-01/31/75	FY74: \$14,850	TOTAL: \$57,550
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Moore, C. B.	JSC/Harris, J. W.	12-Chemistry
(72-810 388-10-02)		

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

NSG 7019	Arizona State University	1093			
Work function evaluation of iron-nickel alloys and other metals for low temperature thermionic energy converters					
<i>Period</i>	<i>Obligations</i>				
01/01/74-12/31/74	FY74: \$15,543	TOTAL: \$15,543			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Jacobson, D. L.	HQ-RR/Lundholm, J. G.	13-Physics			
Backus, C. E.	HQ-RR/Schwenk, F. C.				
Green, R.					
(10-704 502-12-01)					
NSG 7040	Arizona State University	1094			
A data synthesis proposal to explain the chemical composition of the moon					
<i>Period</i>	<i>Obligations</i>				
04/01/74-03/31/75	FY74: \$35,270	TOTAL: \$35,270			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Larimer, J. W.	HQ-SM/Hanley, J. B.	32-Geological Sci			
Moore, C. B.	HQ-SM/Roberson, F. I.				
(10-810 383-20-04)					
NAS 9-13342	Prescott College	1095			
Hydrology of prehistoric farming systems in Central Arizona ecotone - Skylab EREP investigation					
<i>Period</i>	<i>Obligations</i>				
04/05/73-12/31/74	FY74: \$42,275	TOTAL: \$42,275			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Gumerman, G. J.	JSC/Miller, M. L.	32-Geological Sci			
(72-960 948-63-83)					
NAS 2-6265	University of Arizona	1096			
IPP software & display system					
<i>Period</i>	<i>Obligations</i>				
11/01/70-01/31/75	FY74: \$283,790	TOTAL: \$717,590			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Gehrels, A. M.	ARC/Hall, C. F.	11-Astronomy			
Coffeen, D. L.	ARC/Porter, D. L.				
(21-840 811-22-00)					
NAS 2-7476	University of Arizona	1097			
Real time image display system					
<i>Period</i>	<i>Obligations</i>				
03/01/73-01/15/75	FY74: \$22,360	TOTAL: \$22,360			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Baker, L. R.	ARC/Wirth, M. N.	11-Astronomy			
(21-840 811-23-00)					
NAS 2-7839	University of Arizona	1098			
Pioneer F/G data analysis of shock waves					
<i>Period</i>	<i>Obligations</i>				
10/01/73-06/30/74	FY74: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sonett, C. P.	ARC/Hall, C. F.	13-Physics			
(21-840 811-22-00)					
NAS 2-7883	University of Arizona	1099			
Design and development of a solar radiometer					
<i>Period</i>	<i>Obligations</i>				
11/01/73-08/31/74	FY74: \$96,305	TOTAL: \$96,305			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tomasko, M.	ARC/Tischler, E.	31-Atmos Sci			
ARC/Hall, C. F.					
(21-840 186-68-63)					
NAS 5-11444	University of Arizona	1100			
Analysis and evaluation of scientific results from the E-09 & OGO-5 experiment					
<i>Period</i>	<i>Obligations</i>				
06/02/71-06/30/73	FY74:	TOTAL: \$20,036			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
L'Heureux, J. J.	GSFC/Meesse, K. J.	13-Physics			
(51-850 385-50-00)					
NAS 5-11456	University of Arizona	1101			
Holographic grating study					
<i>Period</i>	<i>Obligations</i>				
06/16/71-04/20/74	FY74: \$20,621	TOTAL: \$80,466			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Maratly, A. S.	GSFC/Chin, E. S.	11-Astronomy			
(51-850 188-41-51)					
NAS 5-20514	University of Arizona	1102			
Visible infrared polarization measurements					
<i>Period</i>	<i>Obligations</i>				
06/06/74-10/01/74	FY74: \$22,530	TOTAL: \$22,530			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
	GSFC/Hansen, J.	39-Env Sci, NEC			
(51-680 611-13-00)					
NAS 5-21812	University of Arizona	1103			
Study to explore the use of orbital remote sensing					
<i>Period</i>	<i>Obligations</i>				
08/17/72-04/01/75	FY74: \$22,487	TOTAL: \$49,975			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
McGinnies, W. G.	GSFC/Stonesifer, G. R.	59-Life Sci, NEC			
Haase, E. F.					
(51-680 641-14-07)					
NAS 5-21819	University of Arizona	1104			
ERTS-A data user investigation to determine desert plant species by spectral signatures					
<i>Period</i>	<i>Obligations</i>				
10/04/72-04/01/74	FY74:	TOTAL: \$14,156			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lowe, C. H.	GSFC/Stonesifer, G. R.	59-Life Sci, NEC			
Lepley, L. K.					
Van Trice, B. J.					
(51-680 641-14-07)					
NAS 5-21820	University of Arizona	1105			
Investigation of use of earth resources technological satellite					
<i>Period</i>	<i>Obligations</i>				
08/17/72-12/01/74	FY74:	TOTAL: \$20,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Smith, E. L., Jr.	GSFC/Stonesifer, G. R.	39-Env Sci, NEC			
Fish, E. B.					
(51-680 641-14-01)					

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NAS 5-21849 University of Arizona 1106
Evaluation of ERTS-A and EREP image sensor spatial resolution in photographic form
Period Obligations
09/18/72-08/16/74 FY74: \$20,000 TOTAL: \$75,000
Prin. Invest. NASA Tech. Officer CASE Category
Slater, P. N. GSFC/Stonesifer, G. R. 99-Multi-Discip
Baker, L. R.
Schoengerdt, R. A.
(51-680 641-14-09)

NAS 5-22263 University of Arizona 1107
Maintenance and operation of the 60' telescope at Mt. Lemmon
Period Obligations
10/01/73-09/30/74 FY74: \$55,227 TOTAL: \$55,227
Prin. Invest. NASA Tech. Officer CASE Category
Kuiper, G. P. GSFC/Stecher, T. P. 11-Astronomy
Lee, T. E. GSFC/Hamilton, T. W.
Wisniewski, W.
(51-950 951-16-00) (51-850 188-41-51)

NAS 5-23176 University of Arizona 1108
Phase C/D for HECRE-HEAO-A
Period Obligations
12/01/72-07/01/76 FY74: TOTAL: \$30,000
Prin. Invest. NASA Tech. Officer CASE Category
Bowen, T. GSFC/Browning, R. K. 11-Astronomy
Delise, D. A.
(51-850 832-00-00)

NAS 8-27804 University of Arizona 1109
Stray light suppression study
Period Obligations
11/20/71-06/30/74 FY74: \$35,000 TOTAL: \$194,950
Prin. Invest. NASA Tech. Officer CASE Category
Tift, W. G. MSFC/Griner, D. B. 19-Phys Sci, NEC
Shack, R. V. MSFC/Zurasky, J. L.
Slater, P. N.
(62-850 188-78-57) (62-980 975-84-20)

NAS 8-27863 University of Arizona 1110
Study on an instrument for sensing errors in a telescope's wavefront
Period Obligations
01/21/72-06/23/74 FY74: \$50,800 TOTAL: \$123,645
Prin. Invest. NASA Tech. Officer CASE Category
Shack, R. V. MSFC/Wyman, C. L. 13-Physics
(62-850 188-78-57)

NAS 8-28661 University of Arizona 1111
Measurement of dimensional stability
Period Obligations
06/06/72-06/05/74 FY74: \$27,683 TOTAL: \$69,256
Prin. Invest. NASA Tech. Officer CASE Category
Jacobs, S. F. MSFC/Moore, W. W. 13-Physics
MSFC/Kurtz, R. L.
(62-850 188-78-57) (62-980 975-84-20)

NAS 8-29566 University of Arizona 1112
Role of gravity in preparative electrophoresis
Period Obligations
02/01/73-07/19/74 FY74: \$49,961 TOTAL: \$149,920
Prin. Invest. NASA Tech. Officer CASE Category
Bier, M. MSFC/Snyder, R. S. 51-Biology
(62-630 179-13-11)

NASR 138 University of Arizona 1113
Development and testing of basic photopolarimeter instrument package at the working breadboard model stage adaptable to future missions
Period Obligations
01/03/63-10/01/74 FY74: TOTAL: \$295,725
Prin. Invest. NASA Tech. Officer CASE Category
Gehrels, A. M. HQ-SL/Brunk, W. E. 31-Atmos Sci
(10-840 185-00-00)

NASW 2283 University of Arizona 1114
Optical studies on large space telescope
Period Obligations
08/16/71-08/16/74 FY74: TOTAL: \$57,050
Prin. Invest. NASA Tech. Officer CASE Category
Meinel, A. B. HQ-SG/Aucremann, M. J. 42-Astro Engr
HQ-SG/Chase, R. H.
(10-850 188-00-00)

NAS10-8518 University of Arizona 1115
Thunderstorm electrical field changes and associated meteorological conditions at KSC
Period Obligations
02/12/74-04/14/75 FY74: \$17,000 TOTAL: \$17,000
Prin. Invest. NASA Tech. Officer CASE Category
Krider, E. P. KSC/Toft, P. D. 31-Atmos Sci
Jacobson, E. A.
(76-980 909-64-09)

NGL 03-002-002 University of Arizona 1116
Planetary, spectroscopic, selenodetic & physical studies of lunar surface
Period Obligations
08/12/61-05/31/77 FY74: TOTAL: \$2,419,460
Prin. Invest. NASA Tech. Officer CASE Category
Kuiper, G. P. HQ-SL/Brunk, W. E. 11-Astronomy
(10-840 196-41-80) (10-840 185-00-00)

NGL 03-002-006 University of Arizona 1117
Application of modern automatic control theory to nuclear rocket dynamics & control
Period Obligations
06/28/63-06/01/74 FY74: TOTAL: \$437,819
Prin. Invest. NASA Tech. Officer CASE Category
Schultz, D. G. HQ-NS/Schwenk, F. C. 45-Elec Engr
HQ-NS/Hintze, A. S.
(10-704 503-04-01) (45-720 112-00-00)

NGL 03-002-017 University of Arizona 1118
Operation of MV Van de Graaff accelerator for basic experiments in atomic optical spectroscopy
Period Obligations
05/21/64-10/31/76 FY74: \$50,000 TOTAL: \$960,061
Prin. Invest. NASA Tech. Officer CASE Category
Bashkin, S. HQ-SG/Roman, N. G. 11-Astronomy
HQ-SG/Oertei, G. K.
(10-850 188-41-51) (10-850 188-00-00)

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NGL 03-002-019	University of Arizona	1119	High resolution electron microscopic techniques to study biological material
<i>Period</i>	<i>Obligations</i>		
06/07/63-08/31/76	FY74: \$30,000	TOTAL: \$381,055	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Hoenig, S. A.	HQ-SL/Fellows, R. F.	31-Atmos Sci	
	HQ-SL/Brunk, W. E.		
(10-840 185-47-80)			
NGL 03-002-032	University of Arizona	1120	Large optical telescope systems suitable for use with manned space systems
<i>Period</i>	<i>Obligations</i>		
08/05/64-03/31/75	FY74: \$6,000	TOTAL: \$746,232	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Tiffit, W. G.	HQ-SG/Roman, N. G.	11-Astronomy	
	HQ-SG/Bogges, N. W.		
(10-850 188-41-51)	(10-850 188-00-00)	(10-980 981-00-00)	
NGL 03-002-081	University of Arizona	1121	Photometry and polarimetry of minor planets
<i>Period</i>	<i>Obligations</i>		
03/14/66-03/31/76	FY74:	TOTAL: \$289,272	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Gehrels, A. M.	HQ-SG/Dubin, M.	11-Astronomy	
	HQ-SL/Brunk, W. E.		
(10-850 188-45-51)	(10-850 188-00-00)		
NGL 03-002-122	University of Arizona	1122	Astrometric and astrophysical investigation of comets, minor planets, and satellites
<i>Period</i>	<i>Obligations</i>		
02/22/67-04/01/75	FY74:	TOTAL: \$188,015	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Roemer, E.	HQ-SL/Brunk, W. E.	11-Astronomy	
(10-840 196-41-80)	(10-840 185-00-00)		
NGL 03-002-191	University of Arizona	1123	Lunar surface and planetology
<i>Period</i>	<i>Obligations</i>		
05/16/69-05/31/76	FY74:	TOTAL: \$389,455	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Strom	HQ-SM/Bryson, R. P.	32-Geological Sci	
	HQ-SM/Allenby, R. J.		
(10-810 383-09-50)	(10-810 195-00-00)	(10-810 383-00-00)	
NGL 03-002-313	University of Arizona	1124	Remote sensing applications for state & local government
<i>Period</i>	<i>Obligations</i>		
03/07/72-02/28/77	FY74: \$75,000	TOTAL: \$275,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Johnson, J. D.	HQ-PY/Vitale, J. A.	39-Env Sci, NEC	
Fostier, K. E.			
(10-371 340-00-00)			
NGR 03-002-071	University of Arizona	1125	Cosmic ray investigations of elementary particle phenomena at very high energies
<i>Period</i>	<i>Obligations</i>		
01/12/66-02/01/75	FY74: \$90,000	TOTAL: \$985,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Bowen, T.	HQ-SG/Opp, A. G.	11-Astronomy	
	HQ-SG/Kavanagh, L. D., Jr.		
(10-850 188-46-56)	(10-850 188-46-52)	(10-850 188-00-00)	
NGR 03-002-107	University of Arizona	1126	Basic research in astrophysics and space science
<i>Period</i>	<i>Obligations</i>		
09/01/67-08/31/74	FY74: \$55,000	TOTAL: \$363,063	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Fan, C. Y.	HQ-SG/Kavanagh, L. D., Jr.	19-Phys Sci, NEC	
	HQ-SG/Schmerling, E. R.		
(10-850 188-36-55)			
NGR 03-002-155	University of Arizona	1127	Optimization of solutions of the equation of radiative transfer for atmospheric processes including emission, absorption, polarization, and multiple MIE scattering
<i>Period</i>	<i>Obligations</i>		
04/08/68-08/31/73	FY74:	TOTAL: \$222,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Herman, B. M.	GSFC/Curran, R. J.	31-Amos Sci	
(51-680 160-44-54)			
NGR 03-002-171	University of Arizona	1128	Analysis of carbonaceous meteorites
<i>Period</i>	<i>Obligations</i>		
10/26/68-09/30/74	FY74: \$50,000	TOTAL: \$342,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Nagy, B.	HQ-SL/Young, R. S.	32-Geological Sci	
Urey, H. C.			
(10-840 192-55-62)			
NGR 03-002-180	University of Arizona	1129	Multicolor photoelectric photometry and interferometric /Fourier transform/ infrared spectroscopy
<i>Period</i>	<i>Obligations</i>		
02/17/69-07/31/73	FY74:	TOTAL: \$62,751	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Lee, T. A.	GSFC/Hoffman, W. F.	11-Astronomy	
	GSFC/Stothers, R. B.		
(51-850 405-02-02)	(51-850 188-00-00)		
NGR 03-002-213	University of Arizona	1130	Flow visualization studies of the fluidistics in a nozzle with large blowing rates
<i>Period</i>	<i>Obligations</i>		
02/05/70-02/28/74	FY74:	TOTAL: \$129,992	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Perkins, H. C.	LERC/Kaplan, G. M.	49-Engr, NEC	
Kinney, R. B.			
(22-704 503-04-01)	(22-720 122-00-00)		
NGR 03-002-219	University of Arizona	1131	Photopolarimetry of Mercury, Mars, and satellites
<i>Period</i>	<i>Obligations</i>		
02/13/70-10/31/74	FY74: \$34,972	TOTAL: \$174,360	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Gehrels, A. M.	HQ-SL/Brunk, W. E.	11-Astronomy	
	HQ-SL/Fellows, R. F.		
(10-840 196-41-80)	(10-840 196-00-00)		
NGR 03-002-237	University of Arizona	1132	Lunar sample analysis
<i>Period</i>	<i>Obligations</i>		
02/04/71-08/01/74	FY74:	TOTAL: \$173,400	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Nagy, B.	JSC/Harris, J. W.	12-Chemistry	
(72-910 914-40-00)			

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NGR 03-002-269 University of Arizona 1133
Operation of a 30 cm flying infrared telescope
Period Obligations
05/04/71-05/31/75 FY74: \$67,645 TOTAL: \$229,171
Prin. Invest. NASA Tech. Officer CASE Category
Low, F. J. HQ-SG/Bogges, N. W. 11-Astronomy
HQ-SG/Ott, E. J.
(10-850 188-41-55) (10-850 188-00-00)

NGR 03-002-309 University of Arizona 1134
Development of a photon-counting silicon intensifier target device
Period Obligations
04/14/72-06/30/73 FY74: TOTAL: \$74,884
Prin. Invest. NASA Tech. Officer CASE Category
Weymann, R. J. HQ-SG/Sobieski, S. 11-Astronomy
HQ-SG/Aucremanne, M. J.
(10-850 188-78-57)

NGR 03-002-331 University of Arizona 1135
Infrared stellar spectroscopy from the NASA 36 inch telescope on board the C-141 aircraft
Period Obligations
03/05/73-08/31/74 FY74: TOTAL: \$20,000
Prin. Invest. NASA Tech. Officer CASE Category
Johnson, H. L. ARC/Cameron, R. M. 11-Astronomy
(21-850 352-02-03)

NGR 03-002-332 University of Arizona 1136
Infrared spectroscopy of the planets from 1-5.6 micron with the medium-resolution LPL Fourier interferometer
Period Obligations
03/05/73-07/04/74 FY74: \$12,300 TOTAL: \$37,300
Prin. Invest. NASA Tech. Officer CASE Category
Larson, H. P. ARC/Cameron, R. M. 11-Astronomy
(21-850 352-02-03)

NGR 03-002-333 University of Arizona 1137
Design, construction & installation of an infrared Fourier-transform spectrometer for spectroscopic observations of stars, planets, satellites and other infrared emitting devices
Period Obligations
03/05/73-07/01/74 FY74: TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
Johnson, H. L. ARC/Cameron, R. M. 11-Astronomy
(21-850 352-02-03)

NGR 03-002-356 University of Arizona 1138
Infrared observations of the planets
Period Obligations
03/09/73-02/28/74 FY74: TOTAL: \$19,000
Prin. Invest. NASA Tech. Officer CASE Category
Low, F. J. HQ-SL/Brunk, W. E. 11-Astronomy
HQ-SL/Fellows, R. F.
(10-840 196-41-80)

NGR 03-002-363 University of Arizona 1139
Diffraction limited camera on the large space telescope
Period Obligations
10/01/73-12/31/74 FY74: \$7,322 TOTAL: \$7,322
Prin. Invest. NASA Tech. Officer CASE Category
Serkowski, K. M. GSFC/Sobieski, S. 11-Astronomy
GSFC/Levin, G. M.
(51-850 188-78-58)

NGR 03-002-370 University of Arizona 1140
An investigation of electromagnetic processes in the early solar system with bearing on thermal evolution and fossil magnetism
Period Obligations
10/01/73-12/30/74 FY74: \$50,000 TOTAL: \$50,000
Prin. Invest. NASA Tech. Officer CASE Category
Sonett, C. P. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Holt, H. E.
(10-840 185-50-81)

NGR 03-002-371 University of Arizona 1141
Far infrared observations of galactic and extra-galactic sources of radiation
Period Obligations
09/01/73-12/30/74 FY74: \$50,000 TOTAL: \$50,000
Prin. Invest. NASA Tech. Officer CASE Category
Hoffman, W. F. HQ-SG/Bogges, N. W. 11-Astronomy
Aannestad, P. A. HQ-SG/Roman, N. G.
(10-850 188-41-55)

NGR 03-002-372 University of Arizona 1142
Silicon intensifier target photon counting spectrograph research
Period Obligations
01/01/74-12/31/74 FY74: \$24,990 TOTAL: \$24,990
Prin. Invest. NASA Tech. Officer CASE Category
Gilbert, G. R. GSFC/Sobieski, S. 11-Astronomy
Weymann, R. J. GSFC/Wright, D. U., Jr.
Strittmatter, P. A.
(51-850 188-78-56)

NGR 03-002-382 University of Arizona 1143
Determination of atmospheric ozone profiles above 20 km
Period Obligations
12/01/73-11/30/74 FY74: \$19,900 TOTAL: \$19,900
Prin. Invest. NASA Tech. Officer CASE Category
Herman, B. M. GSFC/Heath, D. F. 31-Atmos Sci
(51-680 175-21-42)

NGR 03-002-388 University of Arizona 1144
Lunar sample analysis
Period Obligations
02/01/74-01/31/75 FY74: \$30,700 TOTAL: \$30,700
Prin. Invest. NASA Tech. Officer CASE Category
Drake, M. J. JSC/Harris, J. W. 12-Chemistry
(72-810 388-10-01)

NGR 03-002-390 University of Arizona 1145
Mapping structure of galactic center
Period Obligations
10/01/73-10/01/74 FY74: \$21,980 TOTAL: \$21,980
Prin. Invest. NASA Tech. Officer CASE Category
Hoffman, W. F. ARC/Cameron, R. M. 11-Astronomy
(21-850 352-02-03)

NGR 03-002-392 University of Arizona 1146
Investigation of infrared spectroscopy of comet Kohoutek
Period Obligations
12/10/73-09/09/74 FY74: \$9,700 TOTAL: \$9,700
Prin. Invest. NASA Tech. Officer CASE Category
Fink, U. GSFC/Hobbs, R. W. 11-Astronomy
GSFC/Maran, S. P.
(51-840 196-41-53)

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NGR 03-002-393 University of Arizona 1147
 Study of high resolution narrow band photography of comet Kohoutek with an image intensifier

<i>Period</i>	<i>Obligations</i>	
12/10/73-09/09/74	FY74: \$4,300	TOTAL: \$4,300
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Larson, S. M.	GSFC/Hobbs, R. W.	11-Astronomy
	GSFC/Maran, S. P.	

(51-840 196-41-53)

NSG 5001 University of Arizona 1148
 Large space telescope diffraction limited camera investigations

<i>Period</i>	<i>Obligations</i>	
04/01/74-12/31/74	FY74: \$8,944	TOTAL: \$8,944
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Angel, J. R.	GSFC/Sobieski, S.	11-Astronomy

(51-850 188-78-56)

NSG 7011 University of Arizona 1149
 Radiation history of meteorites

<i>Period</i>	<i>Obligations</i>	
03/01/74-02/28/75	FY74: \$18,250	TOTAL: \$18,250
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilkening, L. L.	HQ-SM/Bryson, R. P.	32-Geological Sci
	HQ-SM/Roberson, F. I.	

(10-810 195-42-67)

NSG 7014 University of Arizona 1150
 Comparison of color composite photography with other lunar data

<i>Period</i>	<i>Obligations</i>	
03/01/74-02/28/75	FY74: \$2,000	TOTAL: \$2,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Whitaker, E. A.	HQ-SM/Hanley, J. B.	32-Geological Sci
	HQ-SM/Roberson, F. I.	

(10-810 383-20-03)

NSG 7020 University of Arizona 1151
 Investigation of lunar induced and permanent magnetism in the lunar data analysis and synthesis program

<i>Period</i>	<i>Obligations</i>	
03/01/74-03/01/75	FY74: \$42,291	TOTAL: \$42,291
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sonett, C. P.	HQ-SM/Hanley, J. B.	32-Geological Sci
	HQ-SM/Roberson, F. I.	

(10-810 383-20-03)

NSG 7024 University of Arizona 1152
 Study of the earth's magnetosphere and solar wind

<i>Period</i>	<i>Obligations</i>	
02/01/74-01/31/75	FY74: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sonett, C. P.	HQ-SG/Kavanagh, L. D., Jr.	31-Atmos Sci
	HQ-SG/Schmerling, E. R.	

(10-850 385-36-00)

NSG 7045 University of Arizona 1153
 Interiors of the giant planets

<i>Period</i>	<i>Obligations</i>	
05/22/74-03/31/75	FY74: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hubbard, W. B.	HQ-SL HW-SL/Brunk, W.	11-Astronomy

(10-840 196-41-85)

ARKANSAS

NAS 9-14134 Harding College 1154
 Study of optimal protocol for cardiovascular and muscular efficiency

<i>Period</i>	<i>Obligations</i>	
01/01/74-12/31/74	FY74: \$40,000	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Olree, H.	JSC/Rummel, J. A.	52-Clinical Med

(72-970 970-51-14)

NAS 9-14251 University of Arkansas - Fayetteville 1155
 Remote sensing of soil moisture content

<i>Period</i>	<i>Obligations</i>	
06/01/74-05/31/75	FY74: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Waite, W. P.	JSC/Potter, A. E.	19-Phys Sci, NEC
MacDonald, H. C.	JSC/Whitehead, V. F.	

(72-680 177-51-84)

NGL 04-001-007 University of Arkansas - Fayetteville 1156
 Application of lasers to instrumentation & measurement techniques

<i>Period</i>	<i>Obligations</i>	
06/15/70-11/30/74	FY74: \$19,507	TOTAL: \$329,699
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Testerman, M. K.	ARC/Ragent, B.	13-Physics
Ballard, G. S.	ARC/Givens, J. J.	
Bond, R. L.		

(21-840 186-68-60) (21-750 125-00-00)

NGR 04-001-039 University of Arkansas - Fayetteville 1157
 To further basic research in chronobiology by providing support to the 11th International Meeting of the Society for Study of Biological Rhythms

<i>Period</i>	<i>Obligations</i>	
09/10/71-06/01/73	FY74:	TOTAL: \$4,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pauly, J. E.	HQ-MM/Belleville, R. E.	51-Biology

(10-970 970-14-01)

NAS 9-13196 University of Arkansas - Monticello 1158
 Geologic structure of shallow maria data analysis

<i>Period</i>	<i>Obligations</i>	
11/10/72-07/01/75	FY74: \$3,804	TOTAL: \$38,804
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Delton, R. A.	JSC/Hardec, S. N.	13-Physics

(72-810 383-30-02)

NGR 04-008-001 University of Arkansas - Monticello 1159
 Mars geologic mapping MC-29

<i>Period</i>	<i>Obligations</i>	
03/15/73-05/31/75	FY74: \$13,579	TOTAL: \$13,579
<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/Holt, H. E.	

(10-840 384-50-80)

NASA'S UNIVERSITY PROGRAM
ARKANSAS (Continued)

NSG 9002 **Univ. of Arkansas - Pine Bluff** **1160**
Identification of crops in Arkansas using visual and infrared spectral reflectance signatures

<i>Period</i>	<i>Obligations</i>	
03/01/74-02/28/75	FY74: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Davis, L. A., Jr.	JSC/Potter, A. E.	39-Env Sci, NEC

(72-371 340-00-00)

NAS 5-23315 **California Institute of Technology** **1167**
Cosmic X-ray experiment for HEAO-2

<i>Period</i>	<i>Obligations</i>	
11/15/73-04/15/78	FY74: \$130,000	TOTAL: \$130,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Garmire, G. P.	GSFC/Wrublik, D. P.	11-Astronomy
	GSFC/Browning, R. K.	

(51-850 832-12-00)

CALIFORNIA

NAS 1-9703 **California Institute of Technology** **1161**
Participation in seismology planning for the Viking 1975 missions

<i>Period</i>	<i>Obligations</i>	
04/08/70-03/31/77	FY74: \$169,680	TOTAL: \$504,980
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, D. L.	LARC/Soffen, G. A.	32-Geological Sci

(23-840 815-20-00) (23-840 815-00-00)

NAS 8-27403 **California Institute of Technology** **1168**
HEAO-Mission B experiment feasibility study & diffuse X-ray measurement

<i>Period</i>	<i>Obligations</i>	
06/29/71-11/30/73	FY74: \$30,000	TOTAL: \$287,045
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stone, E. C.	MSFC/Krome, H. O.	11-Astronomy
	MSFC/Cochran, J.	

(62-850 832-12-00)

NAS 1-12311 **California Institute of Technology** **1162**
Participation in science planning for Viking 1975 mission in the area of biology

<i>Period</i>	<i>Obligations</i>	
07/02/73-03/31/77	FY74: \$61,975	TOTAL: \$95,975
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Horowitz, N. H.	LARC/Soffen, G. A.	51-Biology

(23-840 815-20-00)

NAS 8-27978 **California Institute of Technology** **1169**
Design, development & operation of the ACR-7 heavy nuclei experiment under the HEAO program

<i>Period</i>	<i>Obligations</i>	
06/23/72-01/31/78	FY74:	TOTAL: \$108,560
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stone, E. C.	MSFC/Krome, H. O.	11-Astronomy
	MSFC/Cochran, J.	

(62-850 832-12-00)

NAS 2-6556 **California Institute of Technology** **1163**
Pioneer F/G data analysis

<i>Period</i>	<i>Obligations</i>	
09/17/71-06/30/74	FY74: \$71,321	TOTAL: \$98,647
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Munch, G.	ARC/Hall, C. F.	11-Astronomy
	ARC/Porter, D. L.	

(21-840 811-22-00)

NAS 8-28028 **California Institute of Technology** **1170**
Development instrumentation for observation of solar octine regions

<i>Period</i>	<i>Obligations</i>	
01/21/72-05/20/74	FY74: \$25,175	TOTAL: \$230,175
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zirin, H.	MSFC/Reichman, E. J.	11-Astronomy

(62-960 996-00-00) (62-980 975-84-00)

NAS 5-11066 **California Institute of Technology** **1164**
IMP-H&J electron isotope spectrometer experiment

<i>Period</i>	<i>Obligations</i>	
01/12/68-09/30/75	FY74: \$110,000	TOTAL: \$1,353,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stone, D. C.	GSFC/Davis, M. A.	13-Physics

(51-850 861-42-00)

NAS 8-29313 **California Institute of Technology** **1171**
Dynamics of unsteady cavitating cascades

<i>Period</i>	<i>Obligations</i>	
09/28/72-10/27/74	FY74: \$52,867	TOTAL: \$161,066
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Acosta, A. J.	MSFC/Gross, L. A.	46-Mech Engr
	MSFC/Strong, J. S.	

(62-920 983-15-00) (62-710 113-31-14)

NAS 5-20492 **California Institute of Technology** **1165**
Infrared photometry study

<i>Period</i>	<i>Obligations</i>	
05/10/74-05/10/75	FY74: \$45,300	TOTAL: \$45,300
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Neugebauer, G.	GSFC/Kellsall, T.	39-Env Sci, NEC

(51-850 188-78-56)

NAS 9-12585 **California Institute of Technology** **1172**
Design, development & testing of lunar neutron flux gradient probe prototype unit

<i>Period</i>	<i>Obligations</i>	
04/10/72-05/31/74	FY74: \$18,430	TOTAL: \$244,758
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Burnett, D. S.	JSC/Eichelman, W. F.	19-Phys Sci, NEC

(72-810 383-25-03)

NAS 5-23287 **California Institute of Technology** **1166**
Instrument definition study

<i>Period</i>	<i>Obligations</i>	
08/24/73-12/31/74	FY74: \$19,000	TOTAL: \$19,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Neugebauer, G.	GSFC/Sobieski, S.	11-Astronomy

(51-850 188-78-56) (51-850 188-78-58)

NAS 9-13960 **California Institute of Technology** **1173**
Geologic investigation

<i>Period</i>	<i>Obligations</i>	
03/04/74-08/31/74	FY74: \$27,000	TOTAL: \$27,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Silver, L. T.	JSC/Wilmarth, V. R.	32-Geological Sci

(72-960 948-80-80)

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

NGL 05-002-002	California Institute of Technology	1174			
Investigation of fluid mechanics of rarefied gases utilizing large diameter shock tubes					
<i>Period</i>	<i>Obligations</i>				
08/01/59-01/01/73	FY74:	TOTAL:	\$805,950		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Liepmann, H. W.	HQ-RA/Roudebush, W. H.	41-Aero Engr			
	HQ-RA/Gesson, A.				
(10-740 129-00-00)	(23-740 129-00-00)				
NGL 05-002-003	California Institute of Technology	1175			
Basic scientific research on lunar & planetary exploration					
<i>Period</i>	<i>Obligations</i>				
12/01/59-11/30/76	FY74: \$138,497	TOTAL:	\$2,310,875		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Muhleman, D. O.	HQ-SL/Brunk, W. E.	11-Astronomy			
	HQ-SL/Fellows, R. F.				
(10-840 196-41-80)	(10-840 185-00-00)				
NGL 05-002-005	California Institute of Technology	1176			
Experimental & theoretical research on failure criteria for viscoelastic materials typical of solid rocket propellants					
<i>Period</i>	<i>Obligations</i>				
08/10/61-12/31/73	FY74:	TOTAL:	\$529,102		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Knauss, W. G.	HQ-RP/Wasel, R. A.	13-Physics			
(10-710 128-00-00)					
NGL 05-002-007	California Institute of Technology	1177			
Space related research in cosmic rays, interplanetary magnetic fields, solar physics, theoretical astrophysics, planetary spectroscopy & infrared astronomy					
<i>Period</i>	<i>Obligations</i>				
05/20/63-06/30/74	FY74:	TOTAL:	\$4,645,302		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Neugebauer, G.	HQ-SG/Roman, N. G.	11-Astronomy			
	HQ-SG/Ott, E. J.				
(10-850 188-00-00)	(10-370 183-00-00)	(10-840 185-00-00)			
NGL 05-002-034	California Institute of Technology	1178			
Research in solar flares and the solar atmosphere					
<i>Period</i>	<i>Obligations</i>				
05/18/65-08/31/76	FY74: \$175,000	TOTAL:	\$1,848,353		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Zirin, H.	HQ-SG/Weldon, J. M.	11-Astronomy			
	HQ-SG/Oertel, G. K.				
(10-850 188-38-52)					
NGL 05-002-069	California Institute of Technology	1179			
Theoretical investigation of planetary interiors					
<i>Period</i>	<i>Obligations</i>				
06/12/67-08/01/75	FY74: \$3	TOTAL:	\$509,370		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Anderson, D. L.	HQ-SM/Bryson, R. P.	32-Geological Sci			
	HQ-SM/Allenby, R. J.				
(10-810 195-00-00)	(10-810 383-09-56)	(10-860 849-00-00)			
NGL 05-002-100	California Institute of Technology	1180			
Space charge effects in current transport					
<i>Period</i>	<i>Obligations</i>				
04/18/68-11/01/72	FY74:	TOTAL:	\$97,200		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Nicolett, M. A.	LARC/Kenimer	11-Astronomy			
(25-750 125-00-00)	(23-750 125-00-00)	(23-740 129-00-00)			
NGL 05-002-105	California Institute of Technology	1181			
Shock effects in minerals					
<i>Period</i>	<i>Obligations</i>				
08/16/68-03/31/77	FY74: \$113,404	TOTAL:	\$609,950		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ahrens, T. J.	HQ-SM/Bryson, R. P.	32-Geological Sci			
	HQ-SM/Roberson, F. I.				
(10-810 195-42-65)	(10-810 383-20-03)				
NGL 05-002-134	California Institute of Technology	1182			
Modern astronomical instrument development					
<i>Period</i>	<i>Obligations</i>				
10/27/69-09/30/76	FY74: \$64,382	TOTAL:	\$418,382		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Oke, J. B.	HQ-SG/Bogges, N. W.	11-Astronomy			
	HQ-SG/Roman, N. G.				
(10-850 188-41-51)					
NGL 05-002-136	California Institute of Technology	1183			
Research on turbomachines					
<i>Period</i>	<i>Obligations</i>				
06/02/69-04/30/76	FY74: \$42,000	TOTAL:	\$248,325		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Rannie, W. D.	LERC/Sandercock, D. M.	41-Aero Engr			
(22-704 501-04-03)	(22-762 132-15-05)				
NGL 05-002-140	California Institute of Technology	1184			
Research in planetary astronomy					
<i>Period</i>	<i>Obligations</i>				
04/11/69-03/31/76	FY74: \$20,000	TOTAL:	\$307,505		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Munch, G.	HQ-SL/Brunk, W. E.	11-Astronomy			
	HQ-SL/Fellows, R. F.				
(10-840 196-41-80)	(10-840 185-00-00)				
NGL 05-002-187	California Institute of Technology	1185			
Lunar sample analysis					
<i>Period</i>	<i>Obligations</i>				
02/09/71-01/31/76	FY74: \$17,220	TOTAL:	\$655,485		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Silver, L. T.	JSC/Harris, J. W.	12-Chemistry			
(72-810 388-10-02)					
NGL 05-002-188	California Institute of Technology	1186			
Lunar sample analysis					
<i>Period</i>	<i>Obligations</i>				
02/03/71-01/31/77	FY74: \$302,012	TOTAL:	\$1,971,382		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wasserburg, G. J.	JSC/Harris, J. W.	12-Chemistry			
(72-810 388-10-02)					
NGL 05-002-190	California Institute of Technology	1187			
Lunar sample analysis					
<i>Period</i>	<i>Obligations</i>				
01/19/71-01/31/77	FY74: \$112,970	TOTAL:	\$503,770		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Epstein, S.	JSC/Harris, J. W.	13-Physics			
(72-810 388-10-02)					

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

NGL 05-002-207 California Institute of Technology 1188
 Research in infrared and X-ray astronomy
Period *Obligations*
 02/18/71-09/30/76 FY74: \$95,000 TOTAL: \$380,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Neugebauer, G. HQ-SG/Bogges, N. W. 11-Astronomy
 Garmire, G. P. HQ-SG/Roman, N. G.
 (10-850 188-41-55) (10-850 188-41-59)

NGL 05-002-229 California Institute of Technology 1189
 Experimental study of flow about a stalled two-dimensional
 airflow
Period *Obligations*
 05/11/71-08/01/74 FY74: TOTAL: \$108,020
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Cole, D. ARC/Olson, L. E. 41-Aero Engr
 (10-371 340-00-00)

NGL 05-002-338 California Institute of Technology 1190
 Petrologic and microprobe investigations on isotopically dated
 lunar samples
Period *Obligations*
 02/01/74-01/31/77 FY74: \$113,862 TOTAL: \$113,862
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Albee, A. L. JSC/Harris, J. W. 13-Physics
 (72-810 388-10-01)

NGR 05-002-114 California Institute of Technology 1191
 Radio interferometry of Mars and Venus
Period *Obligations*
 10/11/68-09/30/74 FY74: TOTAL: \$186,816
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Muhleman, D. O. HQ-SL/Brunk, W. E. 11-Astronomy
 (10-840 196-41-82)

NGR 05-002-117 California Institute of Technology 1192
 Analysis and evaluation of alternative approaches to photography
 from a Mercury/Venus flyby
Period *Obligations*
 10/01/68-12/30/74 FY74: \$141,310 TOTAL: \$432,775
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Murray, B. C. HQ-SL/Dwornik, S. E. 32-Geological Sci
 HQ-SL/Holt, H. E.
 (10-840 185-50-81) (10-840 185-00-00)

NGR 05-002-121 California Institute of Technology 1193
 A study of water metabolism in Neurospora crassa
Period *Obligations*
 01/01/69-12/31/74 FY74: \$53,000 TOTAL: \$216,229
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Horowitz, N. H. HQ-SL/Young, R. S. 51-Biology
 (10-840 192-55-64)

NGR 05-002-142 California Institute of Technology 1194
 Research in solar physics
Period *Obligations*
 06/12/69-09/30/73 FY74: TOTAL: \$280,933
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Leighton, R. B. HQ-SG/Weldon, J. M. 11-Astronomy
 HQ-SG/Oertel, G. K.
 (10-850 188-38-51)

NGR 05-002-158 California Institute of Technology 1195
 Determination of optical properties of lunar regolith from Surveyor
 television pictures
Period *Obligations*
 04/30/70-11/30/73 FY74: TOTAL: \$93,466
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ingersoll, A. P. HQ-SM/Bryson, R. P. 32-Geological Sci
 HQ-SM/Allenby, R. J.
 (10-810 383-09-50) (10-810 383-00-00)

NGR 05-002-159 California Institute of Technology 1196
 Calibration and photometric analysis of Hasselblad & lunar
 geological exploration cameras
Period *Obligations*
 12/03/69-05/31/73 FY74: TOTAL: \$67,312
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Silver, L. T. JSC/Bates, J. R. 32-Geological Sci
 (72-910 914-40-00)

NGR 05-002-160 California Institute of Technology 1197
 Research in particles and fields
Period *Obligations*
 10/27/69-09/30/75 FY74: \$295,000 TOTAL: \$1,345,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Vogt, R. E. HQ-SG/Opp, A. G. 11-Astronomy
 HQ-SG/Kavanagh, L. D., Jr.
 (10-850 188-46-56) (10-850 188-46-51)

NGR 05-002-181 California Institute of Technology 1198
 Mariner 6&7 picture analysis
Period *Obligations*
 09/18/70-09/30/73 FY74: TOTAL: \$65,735
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Leighton, R. B. HQ-SL/Dwornik, S. E. 32-Geological Sci
 HQ-SL/Allingham, J. W.
 (10-840 384-50-80)

NGR 05-002-185 California Institute of Technology 1199
 Design and supervision of an infrared sky noise survey
Period *Obligations*
 06/25/70-06/30/74 FY74: TOTAL: \$292,608
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Westphal, J. A. HQ-SL/Brunk, W. E. 11-Astronomy
 (10-840 196-41-80) (10-840 196-00-00)

NGR 05-002-220 California Institute of Technology 1200
 Investigation of finite amplitude sound waves
Period *Obligations*
 07/03/71-01/31/73 FY74: TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Liepmann, H. W. LARC/Lansing, D. L. 13-Physics
 LARC/Hubbard, H. H.
 (23-740 129-00-00)

NGR 05-002-256 California Institute of Technology 1201
 Study and research on experimental tests of gravitation theory
Period *Obligations*
 02/23/72-12/31/74 FY74: \$25,000 TOTAL: \$65,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Thorne, K. S. HQ-SG/Bogges, N. W. 11-Astronomy
 HQ-SG/Roman, N. G.
 (10-850 188-41-54)

**NASA'S UNIVERSITY PROGRAM
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NGR 05-002-281	California Institute of Technology	1202			
High angular resolution of H II regions and associated galactic sources					
<i>Period</i>	<i>Obligations</i>				
03/01/73-09/30/74	FY74: \$19,980	TOTAL: \$39,980			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Werner, M. W.	ARC/Cameron, R. M.	11-Astronomy			
	ARC/Gillespie, C. M., Jr.				
(21-850 352-02-03)					
NGR 05-002-284	California Institute of Technology	1203			
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					
<i>Period</i>	<i>Obligations</i>				
03/05/73-08/31/74	FY74: \$130,000	TOTAL: \$260,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Garmire, G. P.	HQ-SG/Kelsall, T.	11-Astronomy			
	HQ-SG/Boggess, N. W.				
(10-850 879-00-00)					
NGR 05-002-294	California Institute of Technology	1204			
Analysis of OGO-5 and OGO-7 X-ray data					
<i>Period</i>	<i>Obligations</i>				
06/27/73-01/31/75	FY74:	TOTAL: \$30,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Zirin, H.	HQ-SG/Hallenbeck, D. R.	11-Astronomy			
(10-850 385-38-00)					
NGR 05-002-296	California Institute of Technology	1205			
Selected X-ray studies to be performed using data from the UHURU (SAS-A) satellite					
<i>Period</i>	<i>Obligations</i>				
07/01/73-10/31/74	FY74: \$25,046	TOTAL: \$25,046			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Garmire, G. P.	HQ-SG/Hallenbeck, D. R.	11-Astronomy			
(10-850 385-41-00)					
NGR 05-002-302	California Institute of Technology	1206			
Geology and geomorphology of Martian shield volcanos					
<i>Period</i>	<i>Obligations</i>				
02/19/73-06/30/74	FY74:	TOTAL: \$12,119			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Shoemaker, E. M.	HQ-SL/Dwornik, S. E.	32-Geological Sci			
(10-840 185-50-01)					
NGR 05-002-303	California Institute of Technology	1207			
Systematic search program for new Apollo Amor asteroids					
<i>Period</i>	<i>Obligations</i>				
08/01/73-10/31/74	FY74: \$20,005	TOTAL: \$20,005			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Shoemaker, E. M.	HQ-SL/Dwornik, S. E.	32-Geological Sci			
	HQ-SL/Allingham, J. W.				
(10-840 185-50-81)					
NGR 05-002-305	California Institute of Technology	1208			
Analysis of Mariner 9 imaging data					
<i>Period</i>	<i>Obligations</i>				
11/01/73-01/31/75	FY74: \$20,000	TOTAL: \$20,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Murray, B. C.	HQ-SL/Dwornik, S. E.	32-Geological Sci			
	HQ-SL/Holt, H. E.				
(10-840 384-50-80)					
NGR 05-002-308	California Institute of Technology	1209			
Mars related biological studies					
<i>Period</i>	<i>Obligations</i>				
03/06/73-08/31/74	FY74: \$70,000	TOTAL: \$110,855			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Horowitz, N. H.	ARC/Johnson, R. D.	11-Astronomy			
(21-840 192-55-64)					
NGR 05-002-310	California Institute of Technology	1210			
Geochemistry of biomolecules					
<i>Period</i>	<i>Obligations</i>				
03/06/73-06/30/74	FY74: \$45,000	TOTAL: \$62,670			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bonner, J.	HQ-SL/Young, R. S.	32-Geological Sci			
(10-840 192-55-62)					
NGR 05-002-316	California Institute of Technology	1211			
Planetary seismological studies.					
<i>Period</i>	<i>Obligations</i>				
05/25/73-10/31/74	FY74:	TOTAL: \$21,041			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Anderson, D. L.	HQ-SL/Dwornik, S. E.	32-Geological Sci			
(10-840 185-50-81)					
NGR 05-002-333	California Institute of Technology	1212			
Lunar sample analysis					
<i>Period</i>	<i>Obligations</i>				
02/01/74-01/31/75	FY74: \$46,100	TOTAL: \$46,100			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tombrello, T. A.	JSC/Harris, J. W.	13-Physics			
(72-810 388-10-02)					
NGR 05-002-340	California Institute of Technology	1213			
Virtual integration of planetary exploration robot					
<i>Period</i>	<i>Obligations</i>				
12/01/73-11/30/74	FY74: \$30,000	TOTAL: \$30,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
McCann, G. D.	HQ-RE/Pontious, C. E.	49-Engr, NEC			
	Weinstein, M.	JPL/Wedel, J. L.			
(10-704 502-03-31)					
NGR 05-002-345	California Institute of Technology	1214			
A 65-100 cm aperture photo-heliograph for the space shuttle					
<i>Period</i>	<i>Obligations</i>				
10/01/73-12/30/74	FY74: \$160,000	TOTAL: \$160,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Zirin, H.	HQ-SG/Weldon, J. M.	11-Astronomy			
	HQ-SG/Oertel, G. K.				
(10-850 188-38-64)					
NSG 1005	California Institute of Technology	1215			
Utilization of stags to determine knockdown factors from measured initial imperfections					
<i>Period</i>	<i>Obligations</i>				
07/01/74-12/31/75	FY74: \$26,917	TOTAL: \$26,917			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Babcock, C. D., Jr.	LARC/Davis, R. C.	49-Engr, NEC			
	Arbocz, J.	LARC/Stephens, W. B.			
(23-704 502-32-01)					

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NSG 7023 California Institute of Technology 1216
Synthesis of particle exposure data for lunar samples
Period *Obligations*
04/01/74-03/31/75 FY74: \$36,932 TOTAL: \$36,932
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Burnett, D. S. HQ-SM/Bryson, R. P. 32-Geological Sci
Woolum, D. S. HQ-SM/Roberson, F. I.
(10-810 383-20-04)

NSR 05-002-071 California Institute of Technology 1217
Feasibility study for large aperture solar telescope to fly on Apollo
Telescope Mount (ATM) system
Period *Obligations*
01/24/67-08/31/73 FY74: TOTAL: \$943,808
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zirin, H. HQ-SG/Chase, R. H. 11-Astronomy
HQ-SG/Oertel, G. K.
(10-980 975-84-25)

NGL 05-076-001 California State University - Chico 1218
Life formation in planetary atmospheres
Period *Obligations*
02/07/71-01/01/77 FY74: \$8,657 TOTAL: \$50,775
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Regas, J. L. ARC/Boese, R. W. 31-Atmos Sci
(21-680 176-11-11)

NGR 05-071-002 California State University - Fullerton 1219
Spectroscopic studies of interstellar dust
Period *Obligations*
04/29/71-03/31/74 FY74: TOTAL: \$57,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Johnson, F. M. HQ-SG/Dubin, M. 11-Astronomy
Young, R. S. HQ-SL/Young, R. S.
(10-850 188-45-53)

NGR 05-071-005 California State University - Fullerton 1220
Computation of cyclic predictor-corrector methods and application
to satellite orbit problems
Period *Obligations*
07/01/72-06/30/74 FY74: TOTAL: \$20,285
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pierce, S. GSFC/Velez, C. E. 21-Mathematics
(51-500 150-22-22)

NGR 05-071-008 California State University - Fullerton 1221
Electrocyclic reactions in the interstellar media
Period *Obligations*
04/25/73-05/31/74 FY74: TOTAL: \$23,711
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wegner, P. A. HQ-SL/Young, R. S. 12-Chemistry
Bailey, D. T.
(10-840 192-55-61)

NGR 05-062-002 California State University - Northridge 1222
An experimental evaluation of the stresses in hollow rolling
elements
Period *Obligations*
01/25/72-08/31/74 FY74: \$19,337 TOTAL: \$35,690
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nypan, L. J. LERC/Coe, H. H. 46-Mech Engr
LERC/Scibbe, H. W.
(22-704 501-24-10)

NGR 05-058-003 California State University - Sacramento 1223
Development of combustion stability specifications and verification
procedures for liquid propellant rocket engines
Period *Obligations*
02/23/72-01/31/75 FY74: \$6,000 TOTAL: \$9,234
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Reardon, F. H. LERC/Priem, R. J. 41-Aero Engr
(22-704 502-04-25)

NAS 5-23249 California State University - San Diego 1224
Atmospheric transmission measurements
Period *Obligations*
05/25/73-01/25/75 FY74: \$18,999 TOTAL: \$28,999
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Angione, R. J. GSFC/Roosen, R. G. 31-Atmos Sci
(51-850 385-45-00) (51-704 501-24-20)

NSG 7026 California State University - San Diego 1225
Thermodynamic models of lunar meteorite impact incorporating
a target porosity parameter
Period *Obligations*
06/01/74-05/31/75 FY74: \$20,918 TOTAL: \$20,918
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rehfuuss, D. E. HQ-SM/Bryson, R. P. 32-Geological Sci
HQ-SM/Roberson, F. I.
(10-810 195-42-65)

NSG 2033 California State University - San Fran 1226
Partial support for a conference series on Planetary Management
Problems
Period *Obligations*
06/01/74-06/17/75 FY74: \$400,625 TOTAL: \$400,625
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Duckworth, E. L. ARC/Middaugh, C. W. 99-Multi-Discip
ARC/Billingham, J.
(21-840 185-47-69)

NAS 2-7616 California State University - San Jose 1227
Meteorological observations and analysis
Period *Obligations*
06/18/73-12/31/74 FY74: TOTAL: \$31,866
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Miller, A. ARC/Gloria, H. R. 31-Atmos Sci
(21-702 770-18-03)

NGL 05-046-002 California State University - San Jose 1228
Angular acceleration in man
Period *Obligations*
09/01/67-09/30/75 FY74: \$81,776 TOTAL: \$471,148
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Clark, W. B. ARC/Stewart, J. D. 69-Psych, NEC
(21-704 501-16-00) (21-704 501-29-02) (21-704 504-29-02)

NGR 05-046-011 California State University - San Jose 1229
Investigation of transport parameters relating to hyperfiltration
for waste water purification
Period *Obligations*
04/01/70-09/19/74 FY74: \$35,833 TOTAL: \$160,937
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spitze, L. A. ARC/Wydeven, T. J. 12-Chemistry
(21-970 970-22-23)

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NGR 05-046-015 California State University - San Jose 1230
Distribution of chlorophyll in San Francisco bodes of water
Period *Obligations*
04/08/71-06/30/75 **FY74:** **TOTAL: \$52,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weaver, E. C. ARC/Arvesen, J. C. 39-Env Sci, NEC
(21-680 160-75-22)

NGR 05-046-020 California State University - San Jose 1231
Topics in the chemistry of the stratosphere and mesosphere
Period *Obligations*
05/08/72-12/31/73 **FY74:** **TOTAL: \$4,707**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Miller, A. ARC/Whitten, R. C. 31-Atmos Sci
(21-680 160-44-79)

NSG 2005 De Anza College 1232
Geotechnical investigation of landslides
Period *Obligations*
01/15/74-01/15/75 **FY74: \$15,000** **TOTAL: \$15,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cotton, W. R. ARC/Blanchard, M. B. 32-Geological Sci
(21-680 177-53-11)

NSG 2001 Foothill College 1233
Study of instructional and educational motivation techniques for
the teaching of astronomy and astrophysics
Period *Obligations*
02/01/74-02/01/75 **FY74: \$26,631** **TOTAL: \$26,631**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kellman, S. A. ARC/Reynolds, R. T. 11-Astronomy
(21-790 797-00-00)

NAS 2-8143 Harvey Mudd College 1234
Generation of a monodispersed aerosol
Period *Obligations*
02/11/74-06/30/74 **FY74: \$4,150** **TOTAL: \$4,150**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Unavailable ARC/Unavailable 12-Chemistry
(21-704 501-06-12)

NAS 1-11854 Pomona College 1235
Participation in inorganic chemistry planning for the Viking 1975
missions
Period *Obligations*
08/09/72-03/01/77 **FY74: \$5,500** **TOTAL: \$16,435**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Baird, A. K. LARC/Soffen, G. A. 12-Chemistry
(23-840 815-20-00)

NSG 2011 Pomona College 1236
Airborne 91-cm telescope raster scanning system
Period *Obligations*
02/01/74-10/30/74 **FY74: \$1,824** **TOTAL: \$1,824**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Webb, W. ARC/Cameron, R. M. 11-Astronomy
ARC/Gillespie, C. M., Jr.
(21-850 352-02-03)

NGR 05-084-002 Sacramento City College 1237
Correlation of type III radio events with hard X-ray and H
data and analysis of in-process phase of solar flares
Period *Obligations*
11/01/73-01/31/75 **FY74: \$10,000** **TOTAL: \$10,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vorpahl, J. A. HQ-SG/Oertel, G. K. 11-Astronomy
HQ-SG/Weldon, J. M.
(10-850 385-38-00)

NAS 1-9682 Stanford University 1238
Participation in imaging planning for the Viking 1975 missions
Period *Obligations*
03/24/70-03/31/77 **FY74: \$61,132** **TOTAL: \$189,517**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Levinthal, E. C. LARC/Soffen, G. A. 13-Physics
(23-840 815-20-00) (23-840 815-10-00)

NAS 1-9692 Stanford University 1239
Participation in the biology planning for the Viking 1975
missions
Period *Obligations*
04/13/70-03/31/77 **FY74: \$4,769** **TOTAL: \$22,726**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lederberg, J. LARC/Soffen, G. A. 51-Biology
(23-840 815-20-00) (23-840 815-00-00)

NAS 1-9701 Stanford University 1240
Participation in the radio science planning for the Viking 1975
missions
Period *Obligations*
04/21/70-03/31/77 **FY74: \$45,859** **TOTAL: \$98,340**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tyler, G. L. LARC/Soffen, G. A. 45-Elec Engr
(23-840 815-20-00) (23-840 815-00-00)

NAS 2-4671 Stanford University 1241
Pioneer C post launch operations
Period *Obligations*
12/13/67-09/30/74 **FY74:** **TOTAL: \$1,346,988**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Von Eshleman, V. R. ARC/Hall, C. F. 13-Physics
ARC/Nunamaker, R. R.
(21-840 384-47-66) (21-840 811-00-00)

NAS 2-5587 Stanford University 1242
Biology experiment hardware definition
Period *Obligations*
10/31/69-07/31/74 **FY74: \$63,000** **TOTAL: \$372,123**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pittendright, C. S. ARC/Tremor, J. W. 51-Biology
(21-960 948-80-80) (21-960 964-50-00)

NAS 2-6158 Stanford University 1243
Study aerodynamic noise
Period *Obligations*
09/09/70-02/08/74 **FY74: \$7,386** **TOTAL: \$126,925**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Karamcheti, K. ARC/Vause, G. R. 41-Aero Engr
ARC/Schmitz, F. H.
(21-704 501-17-00)

**NASA'S UNIVERSITY PROGRAM
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NAS 2-6706 **Stanford University** **1244**
Electron microscope services
Period *Obligations*
12/06/71-02/06/74 **FY74:** **TOTAL: \$59,999**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bensch, K. G. ARC/Miquel, J. 51-Biology
(21-970 970-21-62) (21-970 970-21-63)

NAS 2-7199 **Stanford University** **1245**
Study short haul aircraft systems
Period *Obligations*
09/27/72-08/31/74 **FY74: \$13,264** **TOTAL: \$34,764**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shevill, R. S. ARC/Kenyon, G. C. 49-Engr, NEC
ARC/Galloway, T. L.
(15-701 791-93-03)

NAS 2-7959 **Stanford University** **1246**
Radio frequency atmospheric measurements
Period *Obligations*
12/01/73-09/31/74 **FY74: \$7,369** **TOTAL: \$7,369**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Croft, T. A. ARC/Hightower, W. D. 31-Atmos Sci
ARC/Hall, C. F.
(21-840 186-68-63)

NAS 3-14336 **Stanford University** **1247**
Research for the fundamental study of full-coverage film cooling
Period *Obligations*
07/13/71-07/12/74 **FY74: \$50,260** **TOTAL: \$145,200**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kays, W. M. LERC/Colladay, R. S. 41-Aero Engr
(22-704 501-24-09)

NAS 5-10102 **Stanford University** **1248**
Radio propagation studies of the ionosphere
Period *Obligations*
06/27/66-02/01/77 **FY74:** **TOTAL: \$395,897**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Villard, O. G. GSFC/Baker, J. 45-Elec Engr
(51-620 630-00-00)

NAS 5-21684 **Stanford University** **1249**
Study the design of a drag-free satellite
Period *Obligations*
12/09/71-02/28/74 **FY74: \$34,967** **TOTAL: \$114,967**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Debra, D. B. GSFC/Lidston, J. M. 42-Astro Engr
Powell, J. D.
(51-630 161-79-68)

NAS 5-21775 **Stanford University** **1250**
Structural and lithologic study of northern coast range using
ERTS-A data
Period *Obligations*
06/20/72-07/30/74 **FY74: \$4,279** **TOTAL: \$30,279**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rich, E. I. GSFC/Crump, E. W. 32-Geological Sci
(51-680 641-14-03) (51-680 641-14-00)

NAS 5-21884 **Stanford University** **1251**
ERTS data user
Period *Obligations*
11/03/72-11/01/74 **FY74: \$48,632** **TOTAL: \$90,632**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lyon, R. P. GSFC/Crump, E. W. 32-Geological Sci
(51-680 641-14-03) (51-680 641-00-00)

NAS 5-21960 **Stanford University** **1252**
Gravity only orbit control subsystem
Period *Obligations*
12/21/73-12/21/75 **FY74: \$110,000** **TOTAL: \$110,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Berra, D. B. GSFC/Lidston, J. M. 42-Astro Engr
(51-630 161-79-68) (51-630 681-06-03)

NAS 5-23117 **Stanford University** **1253**
Systems definition /phase B/ studies for the EGRET experiment
on the HEAO-B spacecraft
Period *Obligations*
06/22/72-09/30/74 **FY74: \$26,000** **TOTAL: \$434,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hofstadter, R. GSFC/Wrublik, D. P. 11-Astronomy
(51-850 832-12-00)

NAS 5-23205 **Stanford University** **1254**
Research in satellite observations of solar & magnetospheric radio
noise
Period *Obligations*
03/16/73-06/30/74 **FY74: \$15,000** **TOTAL: \$39,923**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Peterson, A. M. GSFC/Stone, R. G. 13-Physics
Frankel, M. S.
(51-850 877-12-00)

NAS 9-5632 **Stanford University** **1255**
Active seismic experiment for ALSEP
Period *Obligations*
02/03/66-12/31/74 **FY74:** **TOTAL: \$692,688**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kovach, R. L. JSC/Eichelman, W. F. 39-Env Sci, NEC
(72-910 914-40-00)

NAS 9-13357 **Stanford University** **1256**
Feasibility of using S-191 infrared spectra for geological studies
from space Skylab EREP investigation no. 9641
Period *Obligations*
05/23/73-09/30/74 **FY74:** **TOTAL: \$63,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lyon, R. P. JSC/York, L. B. 19-Phys Sci, NEC
(72-960 948-63-86)

NASW 2216 **Stanford University** **1257**
Biomedical technology transfer
Period *Obligations*
05/19/71-07/01/72 **FY74:** **TOTAL: \$104,576**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harrison HQ-KT/Zimmerman, R. R. 99-Multi-Discip
(10-750 125-00-00)

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NGL 05-020-007	Stanford University	1258			
Guidance and control of flight vehicles					
<i>Period</i>	<i>Obligations</i>				
08/17/72-08/14/76	FY74: \$58,000	TOTAL: \$1,165,064			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bryson, A. E. (21-704 501-03-11)	ARC/Doolin, B. F.	49-Engr, NEC			
NGL 05-020-008	Stanford University	1259			
Investigation of experimental techniques for measurement of low frequency electromagnetic phenomena in the atmosphere					
<i>Period</i>	<i>Obligations</i>				
09/01/61-02/28/77	FY74: \$135,000	TOTAL: \$1,019,443			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Helliwell, R. A. (10-850 188-36-57)	HQ-SG/Kavanagh, L. D., Jr. HQ-SG/Schmerling, E. R.	13-Physics			
NGL 05-020-014	Stanford University	1260			
Theoretical & experimental radio & radar studies of lunar, planetary ionospheres, atmospheres, & surfaces of sun & interplanetary medium					
<i>Period</i>	<i>Obligations</i>				
04/30/63-09/30/76	FY74: \$138,588	TOTAL: \$2,347,959			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Howard, H. T. (10-840 185-47-80)	HQ-SL/Fellows, R. F. HQ-SG/Schmerling, E. R.	31-Atmos Sci			
NGL 05-020-103	Stanford University	1261			
Investigation of laser dynamics, modulation and control by means of intra-cavity time varying perturbation					
<i>Period</i>	<i>Obligations</i>				
05/16/66-03/31/77	FY74: \$90,000	TOTAL: \$877,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Harris, S. E. Siegman, A. E. (10-704 502-03-12)	HQ-RE/Anderton, H. L. GSFC/Plotkin, H. H.	45-Elec Engr			
NGL 05-020-134	Stanford University	1262			
Mass transfer to a turbulent boundary layer with step changes in boundary conditions and variable free-stream velocity					
<i>Period</i>	<i>Obligations</i>				
02/24/66-12/01/74	FY74:	TOTAL: \$251,220			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kays, W. M. Moffat, R. J. (22-704 501-24-07)	LERC/Graham, R. W.	46-Mech Engr			
NGL 05-020-176	Stanford University	1263			
Investigation of space-related whistler propagation phenomena in laboratory plasmas					
<i>Period</i>	<i>Obligations</i>				
03/02/67-06/30/76	FY74: \$100,000	TOTAL: \$699,800			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Crawford, F. W. (10-850 188-36-57)	HQ-SG/Kavanagh, L. D., Jr. HQ-SG/Schmerling, E. R.	13-Physics			
NGL 05-020-232	Stanford University	1264			
Evaluation, and developmental studies of possible active seismic experiments during the post-Apollo period					
<i>Period</i>	<i>Obligations</i>				
06/16/67-06/30/74	FY74:	TOTAL: \$177,468			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kovach, R. L. (10-840 185-00-00)	HQ-SM/Bryson, R. P. HQ-SM/Allenby, R. J.	39-Env Sci, NEC			
NGL 05-020-242	Stanford University	1265			
Research on the effects of structure upon the electronic behavior of materials					
<i>Period</i>	<i>Obligations</i>				
03/26/68-01/31/76	FY74:	TOTAL: \$160,129			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Little, W. A. (10-704 502-01-02)	HQ-RW/Weinberg, I. JPL/Rembaum, A.	13-Physics			
NGL 05-020-243	Stanford University	1266			
Refined methods of aeroelastic analysis and optimization					
<i>Period</i>	<i>Obligations</i>				
08/29/67-08/31/76	FY74: \$10,000	TOTAL: \$80,630			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ashley, H. McIntosh, S. C., Jr. (23-704 501-22-04)	LARC/Doggett, R. V., Jr. LARC/Bland, S. R.	41-Aero Engr			
NGL 05-020-272	Stanford University	1267			
Theoretical study of the solar atmosphere and the structure of active regions					
<i>Period</i>	<i>Obligations</i>				
06/07/68-06/30/76	FY74: \$75,000	TOTAL: \$597,500			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sturrock, P. A. (10-850 188-38-53)	HQ-SG/Weldon, J. M. HQ-SG/Oertel, G. K.	13-Physics			
NGL 05-020-275	Stanford University	1268			
A study of the fluid mechanics of edgetones					
<i>Period</i>	<i>Obligations</i>				
02/08/68-12/01/72	FY74:	TOTAL: \$128,443			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Karamcheti, K. (10-740 129-00-00)	HQ-RL/Unavailable	13-Physics			
NGL 05-020-305	Stanford University	1269			
Evaluation of the cardiovascular system during various circulatory stresses					
<i>Period</i>	<i>Obligations</i>				
09/17/68-08/31/76	FY74: \$139,727	TOTAL: \$816,032			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Harrison, D. C. (21-970 970-21-12)	ARC/Sandler, H.	52-Clinical Med			
NGL 05-020-397	Stanford University	1270			
Dynamics of mechanical systems coupled to energy sources					
<i>Period</i>	<i>Obligations</i>				
02/17/70-03/31/76	FY74:	TOTAL: \$40,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Herrmann, G. (23-760 126-00-00)	LARC/Reed, W. H.	41-Aero Engr			

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NGR 05-020-526	Stanford University	1283	NGR 05-020-632	Stanford University	1290
Research program in air transportation			Analytical methodology for biochemical monitoring		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/25/71-09/01/75	FY74: TOTAL: \$130,000		05/29/73-04/30/75	FY74: \$60,000 TOTAL: \$120,000	
<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>
Bryson, A. R.	ARC/Kelley, M. W.	41-Aero Engr	Lederberg, J.	JSC/Rummel, J. A.	53-Other Medical
(21-760 721-00-00)			(72-970 970-51-45)		
NGR 05-020-559	Stanford University	1284	NGR 05-020-633	Stanford University	1291
Structure of solar magnetic and velocity fields			Lunar sample analysis		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/22/72-08/31/74	FY74: \$80,000 TOTAL: \$220,000		02/01/73-08/31/74	FY74: TOTAL: \$21,460	
<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>
Wilcox, J. M.	HQ-SG/Weldon, J. M.	11-Astronomy	Nur, A.	JSC/Harris, J. W.	13-Physics
	HQ-SG/Oertel, G. K.		(72-910 914-40-00)		
(10-850 188-38-52)	(10-850 188-38-53)				
NGR 05-020-578	Stanford University	1285	NGR 05-020-634	Stanford University	1292
Radiorespirometry studies			Biomedical technology transfer		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/10/72-01/01/75	FY74: \$26,505 TOTAL: \$86,936		12/07/72-08/31/74	FY74: \$179,913 TOTAL: \$259,889	
<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>
Degrazia, J. A.	ARC/Feller, D. D.	52-Clinical Med	Harrison, D. C.	ARC/Sandler, H.	52-Clinical Med
(21-970 970-21-16)			(21-250 141-95-02)	(21-250 141-93-00)	
NGR 05-020-583	Stanford University	1286	NGR 05-020-644	Stanford University	1293
Nonequilibrium shock wave structure kinetics of nitric oxide formation & decomposition			High resolution observations of Jovian magnetospheric microwave synchrotron emission		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
11/09/71-12/31/74	FY74: \$15,000 TOTAL: \$85,584		01/01/73-12/31/73	FY74: TOTAL: \$23,453	
<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>
Kruger, C. H.	ARC/Park, C.	41-Aero Engr	Bracewell, R. N.	HQ-SL/Brunk, W. E.	11-Astronomy
Hanson, R. K.				HQ-SL/Fellows, R. F.	
(21-704 502-37-02)	(21-704 502-07-01)		(10-840 196-41-82)		
NGR 05-020-592	Stanford University	1287	NGR 05-020-649	Stanford University	1294
Navigation and guidance for solar electric missions			Study of lunar and planetary surfaces		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/72-05/31/73	FY74: TOTAL: \$35,190		03/06/73-12/31/74	FY74: \$16,850 TOTAL: \$33,370	
<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>
Breakwell, J. V.	GSFC/Barbieri, R. W.	42-Astro Engr	Howard, H. T.	HQ-SL/Holt, H. E.	32-Geological Sci
(51-830 180-06-50)				HQ-SL/Fellows, R. F.	
			(10-840 185-50-81)		
NGR 05-020-615	Stanford University	1288	NGR 05-020-662	Stanford University	1295
Ultrasonic Doppler measurement of renal artery blood flow			Fracture mechanics of fiber-reinforced composite materials		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/26/72-08/31/74	FY74: \$100,000 TOTAL: \$216,700		03/13/73-04/01/75	FY74: \$39,198 TOTAL: \$74,189	
<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>
Meindl, J. D.	ARC/Sandler, H.	53-Other Medical	Barnett, D. M.	ARC/Williams, D. P.	47-Materials Engr
(21-970 970-23-30)				ARC/Dahms, R. G.	
			(21-704 501-21-21)		
NGR 05-020-622	Stanford University	1289	NGR 05-020-663	Stanford University	1296
Computation of turbulent flows			Investigation of effects of asymmetry on dynamic stability of aircraft		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/20/72-07/14/74	FY74: \$50,215 TOTAL: \$100,432		01/18/73-11/27/74	FY74: \$11,193 TOTAL: \$34,996	
<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>
Reynolds, W. C.	ARC/Rubesin, M. W.	42-Astro Engr	Powell, J. D.	ARC/Thomas, C. L.	41-Aero Engr
(21-704 501-06-02)			(21-702 760-64-01)		

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NSG 2017	Stanford University	1311	NAS 2-8288	University of California - Berkeley	1318
Radio frequency experiments with outer planet entry probes			Fire protection coating for spray-on polyurethane foam		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/74-08/01/74	FY74: \$7,636	TOTAL: \$7,636	06/05/74-11/05/74	FY74: \$5,000	TOTAL: \$5,000
<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>
Croft, T. A.	ARC/Grant, T. L.	45-Elec Engr	Williamson, R. B.	ARC/Ricciello, S. R.	12-Chemistry
(21-840 186-68-65)	ARC/Vojvodich, N. S.		(21-704 561-31-90)		
NSG 2020	Stanford University	1312	NAS 5-11038	University of California - Berkeley	1319
Remote monitoring of physiologic effects of simulated space flight			IMP-I solar particles experiment		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/01/74-04/01/75	FY74: \$99,950	TOTAL: \$99,950	06/30/67-01/31/74	FY74:	TOTAL: \$659,000
<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>
Popp, R.	ARC/Sandler, H.	52-Clinical Med	Anderson, R. A.	GSFC/Madden, J. J.	13-Physics
(21-970 970-23-30)			(51-850 861-52-00)		
NSG 7029	Stanford University	1313	NAS 5-20079	University of California - Berkeley	1320
Radar data from the moon			Energetic particles flux experiment for international sun-earth Explorer mother & daughter spacecraft		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/01/74-03/31/75	FY74: \$72,243	TOTAL: \$72,243	05/23/74-10/30/79	FY74: \$24,152	TOTAL: \$24,152
<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>
Tyler, G. L.	HQ-SM/Bryson, R. P.	32-Geological Sci	Anderson, K. A.	GSFC/Davis, M. A.	13-Physics
Howard, H. T.	HQ-SM/Roberson, F. I.		Lin, R. P.		
(10-810 383-20-03)			Parks, G. K.		
			(51-850 861-62-00)		
NSG 7042	Stanford University	1314	NAS 5-20080	University of California - Berkeley	1321
Modulate the energy of an electron beam with a laser			Quasi-electric fields experiment for ISEE mother/daughter spacecraft		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/01/74-10/31/74	FY74: \$14,550	TOTAL: \$14,550	05/21/74-10/30/79	FY74: \$22,000	TOTAL: \$22,000
<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>
Pantell, R. H.	HQ-RR/Thom, K.	13-Physics	Mozzer, F. S.	GSFC/Davis, M. A.	13-Physics
(10-704 502-10-01)	ARC/Billman, K.		Kelley, M. C.		
			(51-850 861-62-00)		
NAS 2-7562	University of California - Berkeley	1315	NAS 5-21827	University of California - Berkeley	1322
Integrated Skylab study of earth resources in California			ERTS-A data user investigations of California resources		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/26/73-06/30/74	FY74: \$135,000	TOTAL: \$145,000	08/29/72-11/01/74	FY74: \$136,000	TOTAL: \$486,000
<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>
Colwell, R. N.	ARC/Poppoff, I. G.	39-Env Sci, NEC	Colwell, R. N.	GSFC/Crump, E. W.	39-Env Sci, NEC
Thorley, G.	ARC/Tremor, J. W.		(51-680 641-14-01)	(51-680 641-14-07)	
(21-960 948-63-83)					
NAS 2-7567	University of California - Berkeley	1316	NAS 8-27408	University of California - Berkeley	1323
Agricultural interpreter technique development			HEAO-Mission B experiment feasibility study		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/24/73-06/30/74	FY74: \$75,000	TOTAL: \$150,000	06/01/71-02/28/73	FY74:	TOTAL: \$735,954
<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>
Colwell, R. N.	ARC/Poppoff, I. G.	39-Env Sci, NEC	Alvarez, L. W.	MSFC/Dabbs, J. R.	11-Astronomy
(21-960 948-63-83)	ARC/Tremor, J. W.		(62-850 832-12-00)	(62-980 975-84-10)	
NAS 2-7879	University of California - Berkeley	1317	NAS 8-29603	University of California - Berkeley	1324
Study of supply and demand equilibrium in short haul air transportation			Cosmic ray flight experiment on trans-uranic cosmic rays		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/01/74-07/31/75	FY74: \$30,000	TOTAL: \$30,000	03/13/73-06/30/75	FY74: \$80,000	TOTAL: \$179,738
<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>
Horonjeff, R.	ARC/Kenyon, G.	75-Political Sci	Price, P. B.	MSFC/Ondrak, B. T.	13-Physics
Kanafani, A.	ARC/Galloway, T. L.		(62-960 948-80-82)		
(15-701 791-93-03)					

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NAS 8-29704 University of California - Berkeley 1325
HEAO study (BCR-5)

<i>Period</i>	<i>Obligations</i>	
03/16/73-06/30/73	FY74:	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alvarez, L. W.	MSFC/Neuschafer, R. W.	31-Atmos Sci
Smith, L.	MSFC/Jones, J. B.	
Buffington, A.		
(62-850 832-12-00)	(62-850 832-00-00)	

NGL 05-003-016 University of California - Berkeley 1332
Research program in control & information systems

<i>Period</i>	<i>Obligations</i>	
02/26/63-12/01/73	FY74:	TOTAL: \$514,670
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Desoer, C. A.	HQ-RE/Kurzhal, P. R.	41-Aero Engr
Polak, E. A.	ARC/Stewart, E. C.	
Zadeh, L. A.		
(10-750 125-00-00)	(21-750 135-19-01)	(21-750 125-00-00)

NAS 9-7801 University of California - Berkeley 1326
High altitude particle physics experiment (HAPPE) program

<i>Period</i>	<i>Obligations</i>	
03/18/68-08/31/74	FY74: \$43,940	TOTAL: \$4,781,386
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alvarez, L. W.	JSC/Craddock, W. L.	31-Atmos Sci
(72-680 160-75-55)	(72-850 832-12-00)	(72-980 975-84-10)

NGL 05-003-017 University of California - Berkeley 1333
Investigation of high energy solar flare radiation & trapped radiation, including balloon-borne & sounding rocket tests of prototype detectors

<i>Period</i>	<i>Obligations</i>	
04/08/63-01/31/77	FY74: \$115,000	TOTAL: \$1,532,942
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, K. A.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics
	HQ-SG/Schmerling, E. R.	
(10-850 188-36-55)	(10-850 385-36-00)	

NAS 9-10509 University of California - Berkeley 1327
Principal investigator support for particle shadow and boundary layer experiment

<i>Period</i>	<i>Obligations</i>	
04/14/70-06/30/74	FY74: \$75,767	TOTAL: \$526,031
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, K. A.	JSC/Lafferty, P. E.	13-Physics
(72-810 383-30-01)	(72-910 914-49-00)	

NGL 05-003-024 University of California - Berkeley 1334
Primate hemodynamics and metabolism under conditions of weightlessness

<i>Period</i>	<i>Obligations</i>	
08/01/63-10/01/74	FY74: \$89,356	TOTAL: \$2,676,374
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pace, N.	ARC/Newsom, B. D.	51-Biology
(21-970 970-21-61)	(21-970 970-24-02)	

NAS 9-13799 University of California - Berkeley 1328
Search for extreme ultraviolet radiation from celestial observations on the Apollo/Soyuz spacecraft

<i>Period</i>	<i>Obligations</i>	
08/01/73-07/10/76	FY74: \$732,000	TOTAL: \$732,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bowyer, C. S.	JSC/Sanders, J.	11-Astronomy
Lampton, M.	JSC/Baldwin, R.	
(72-930 966-30-00)		

NGL 05-003-079 University of California - Berkeley 1335
An investigation of enzyme assay techniques for life detection in extraterrestrial soil

<i>Period</i>	<i>Obligations</i>	
06/23/64-06/01/73	FY74:	TOTAL: \$331,895
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McLaron, A. D.	HQ-SL/Young, R. S.	51-Biology
(10-870 189-00-00)		

NAS 9-13807 University of California - Berkeley 1329
Measure the intensity of the interplanetary helium glow from Apollo/Soyuz spacecraft

<i>Period</i>	<i>Obligations</i>	
08/01/73-07/10/76	FY74: \$662,600	TOTAL: \$662,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bowyer, C. S.	JSC/Sanders, J.	11-Astronomy
Paresce, F.	JSC/Baldwin, R.	
(72-930 966-30-00)		

NGL 05-003-272 University of California - Berkeley 1336
Research on radiation physics

<i>Period</i>	<i>Obligations</i>	
03/01/68-02/28/76	FY74:	TOTAL: \$626,380
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Townes, C. H.	HQ-SG/Roman, N. G.	19-Phys Sci, NEC
	GSFC/Plotkin, H. H.	
(10-850 188-41-55)	(10-704 502-03-11)	(10-750 115-22-02)

NAS 9-14088 University of California - Berkeley 1330
Skylab visual observation project data

<i>Period</i>	<i>Obligations</i>	
05/01/74-11/30/74	FY74: \$23,500	TOTAL: \$23,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Colwell, R. N.	JSC/Wilmarth, V. R.	39-Env Sci, NEC
Carnegie, D. M.	JSC/Kaltenbach, J. L.	
(72-960 948-80-80)		

NGL 05-003-286 University of California - Berkeley 1337
Orbiting spacecraft infrared spectrometer development for terrestrial and laboratory study of planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
08/08/68-08/31/76	FY74: \$83,596	TOTAL: \$776,504
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pimentel, G. C.	HQ-SL/Fellows, R. F.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	
(10-840 185-47-83)		

NGL 05-003-003 University of California - Berkeley 1331
Study of extraterrestrial life using reflection spectra as a basis

<i>Period</i>	<i>Obligations</i>	
08/01/60-10/31/76	FY74: \$180,000	TOTAL: \$3,218,081
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Calvin, M.	HQ-SL/Young, R. S.	32-Geological Sci
Weaver, H.		
Burlingame, A. L.		
(10-840 192-55-62)		

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

NGL 05-003-404	University of California - Berkeley	1338	Integrated study of earth resources in the state of California using remote sensing techniques		
			<i>Period</i>	<i>Obligations</i>	
			07/13/70-04/30/77	FY74: \$500,000	TOTAL: \$3,000,000
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
			Colewell, R. N.	HQ-PY/Vitale, J. A.	39-Env Sci, NEC
			(10-680 177-71-01)	(10-371 340-00-00)	(10-680 160-75-80)
NGL 05-003-409	University of California - Berkeley	1339	Lunar sample analysis		
			<i>Period</i>	<i>Obligations</i>	
			01/26/71-01/31/77	FY74: \$73,350	TOTAL: \$339,100
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
			Reynolds, J. H.	JSC/Harris, J. W.	13-Physics
			(72-810 388-10-02)		
NGL 05-003-410	University of California - Berkeley	1340	Lunar sample analysis		
			<i>Period</i>	<i>Obligations</i>	
			02/22/71-01/31/77	FY74: \$100,360	TOTAL: \$487,160
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
			Price, P. B.	JSC/Harris, J. W.	12-Chemistry
			(72-810 388-10-03)	(72-910 914-40-00)	
NGL 05-003-497	University of California - Berkeley	1341	Research in space sciences		
			<i>Period</i>	<i>Obligations</i>	
			04/05/72-03/31/77	FY74: \$200,000	TOTAL: \$600,000
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
			Anderson, K. A.	HQ-PY/Redding, E. R.	99-Multi-Discip
			(10-371 340-00-00)		
NGR 05-003-239	University of California - Berkeley	1342	Auroral zone rocket studies of electric fields and precipitating particles		
			<i>Period</i>	<i>Obligations</i>	
			08/26/68-08/01/74	FY74:	TOTAL: \$515,811
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
			Anderson, K. A.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics
			(10-850 879-11-00)	HQ-SG/Ott, E. J.	
NGR 05-003-302	University of California - Berkeley	1343	Martian surface weathering studies		
			<i>Period</i>	<i>Obligations</i>	
			11/25/68-06/30/73	FY74:	TOTAL: \$151,928
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
			Calvin, M.	HQ-SL/Dwornik, S. E.	32-Geological Sci
			(10-840 185-50-81)	HQ-SL/Allingham, J. W.	
				(10-840 185-00-00)	
NGR 05-003-309	University of California - Berkeley	1344	Non-gravitational forces of periodic comets		
			<i>Period</i>	<i>Obligations</i>	
			10/20/70-12/31/74	FY74:	TOTAL: \$20,000
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
			Cunningham, L. E.	HQ-SG/Dubin, M.	31-Atmos Sci
			(10-850 188-00-00)		
NGR 05-003-376	University of California - Berkeley	1345	High resolution studies of cosmic rays and solar particles		
			<i>Period</i>	<i>Obligations</i>	
			04/16/71-10/31/74	FY74: \$85,000	TOTAL: \$253,000
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
			Price, P. B.	HQ-SG/Opp, A. G.	11-Astronomy
			(10-850 879-11-00)	HQ-SG/Kavanagh, L. D., Jr.	
NGR 05-003-402	University of California - Berkeley	1346	High angular resolution and position determinations by infrared interferometry		
			<i>Period</i>	<i>Obligations</i>	
			04/27/70-10/31/73	FY74:	TOTAL: \$69,000
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
			Townes, C. H.	HQ-SG/Bogges, N. W.	11-Astronomy
			(10-850 188-41-55)	HQ-SG/Roman, N. G.	
				(10-680 160-00-00)	(10-850 188-00-00)
NGR 05-003-406	University of California - Berkeley	1347	Lunar soil properties and soil mechanics		
			<i>Period</i>	<i>Obligations</i>	
			06/09/70-12/31/73	FY74:	TOTAL: \$125,510
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
			Mitchell, J. K.	HQ-SM/Bryson, R. P.	32-Geological Sci
			(10-810 383-09-50)	(10-810 195-00-00)	(10-910 914-41-00)
NGR 05-003-432	University of California - Berkeley	1348	Airborne far infrared astronomy		
			<i>Period</i>	<i>Obligations</i>	
			05/10/71-08/31/74	FY74: \$30,000	TOTAL: \$104,121
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
			Townes, C. H.	ARC/Cameron, R. M.	11-Astronomy
			(21-850 352-02-01)	(10-850 352-02-01)	
NGR 05-003-435	University of California - Berkeley	1349	Lunar sample analysis		
			<i>Period</i>	<i>Obligations</i>	
			04/01/71-01/31/77	FY74: \$200,000	TOTAL: \$1,117,800
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
			Burlingame, A. L.	JSC/Harris, J. W.	13-Physics
			(72-810 388-10-02)	(72-910 914-40-00)	
NGR 05-003-445	University of California - Berkeley	1350	Experiment for the Swedish auroral payload		
			<i>Period</i>	<i>Obligations</i>	
			04/06/71-03/31/73	FY74:	TOTAL: \$57,741
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
			Mozzer, F. S.	HQ-SG/Dubin, M.	31-Atmos Sci
			(10-850 879-11-00)	HQ-SG/Kavanagh, L. D., Jr.	
				(10-850 879-00-00)	
NGR 05-003-450	University of California - Berkeley	1351	Study of X-ray emission from galactic and extragalactic sources with emphasis on soft and ultra-soft wavelengths		
			<i>Period</i>	<i>Obligations</i>	
			05/28/71-04/30/75	FY74: \$130,000	TOTAL: \$540,549
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
			Bowyer, C. S.	HQ-SG/Roman, N. G.	11-Astronomy
			(10-850 879-11-00)	HQ-SG/Ott, E. J.	

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

NGR 05-003-451 University of California - Berkeley 1352
Research in aeronautics & air transportation

Period	Obligations	
03/30/71-04/01/75	FY74: \$65,175	TOTAL: \$256,740
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Talbot, L.	ARC/Perkins, E. W.	41-Aero Engr
(21-704 501-06-12)	(21-704 501-15-81)	(21-760 126-00-00)

NGR 05-003-452 University of California - Berkeley 1353
Infrared spectra of planetary atmospheres

Period	Obligations	
02/18/72-06/30/74	FY74:	TOTAL: \$75,744
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Townes, C. H.	HQ-SL/Brunk, W. E.	11-Astronomy
(10-840 196-41-80)	HQ-SL/Fellows, R. F.	(10-840 196-00-00)

NGR 05-003-453 University of California - Berkeley 1354
Theoretical X- and gamma ray astronomy

Period	Obligations	
08/30/71-07/31/73	FY74:	TOTAL: \$55,401
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Silk, J. I.	HQ-SG/Kelsall, T.	11-Astronomy
(10-850 188-41-59)	HQ-SG/Roman, N. G.	

NGR 05-003-460 University of California - Berkeley 1355
The chemistry of living systems

Period	Obligations	
07/21/71-07/31/74	FY74: \$75,000	TOTAL: \$250,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jukes, T. H.	HQ-SL/Young, R. S.	12-Chemistry
(10-840 192-55-61)		

NGR 05-003-462 University of California - Berkeley 1356
Formation of alkaline oxides in electric discharge

Period	Obligations	
05/06/71-08/31/74	FY74:	TOTAL: \$50,473
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bell, A. T.	ARC/Wydeven, T. J.	43-Chem Engr
(21-970 970-22-30)	(21-970 970-22-20)	

NGR 05-003-470 University of California - Berkeley 1357
Invivo measurement of human body measurements

Period	Obligations	
05/11/72-09/30/74	FY74: \$70,000	TOTAL: \$176,508
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pace, N.	ARC/Newsom, B. D.	59-Life Sci, NEC
(21-970 970-21-14)		

NGR 05-003-471 University of California - Berkeley 1358
Sociopolitical assessment of advanced technology

Period	Obligations	
05/21/71-12/01/74	FY74: \$94,469	TOTAL: \$235,801
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Laporte, T. R.	ARC/Tanner, T. A.	79-Soc Sci, NEC
(21-704 504-09-05)	(21-704 504-29-01)	(21-704 501-16-00)

NGR 05-003-478 University of California - Berkeley 1359
Competitive reactivity and poisoning of noble metal catalysts

Period	Obligations	
10/08/71-10/01/74	FY74: \$20,000	TOTAL: \$71,207
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Merrill, R. P.	ARC/Wydeven, T. J.	43-Chem Engr
(21-970 970-22-21)	(21-970 970-22-20)	

NGR 05-003-480 University of California - Berkeley 1360
Continued reduction and analysis of data obtained by the DME experiment on ATS-5

Period	Obligations	
04/01/72-09/30/74	FY74:	TOTAL: \$80,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mozer, F. S.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics
(10-850 385-36-00)	(10-850 385-00-00)	

NGR 05-003-499 University of California - Berkeley 1361
Photometric study of sun spots

Period	Obligations	
03/12/73-05/31/73	FY74:	TOTAL: \$17,624
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Phillips, J. G.	HQ-SG/Weldon, J. M.	11-Astronomy
(10-850 188-38-53)	HQ-SG/Oertel, G. K.	

NGR 05-003-510 University of California - Berkeley 1362
OGO-5 solar X-ray measurements and related solar flare emissions

Period	Obligations	
11/17/72-10/31/74	FY74: \$20,000	TOTAL: \$45,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, K. A.	HQ-SG/Oertel, G. K.	11-Astronomy
(10-850 385-38-00)	HQ-SG/Weldon, J. M.	

NGR 05-003-511 University of California - Berkeley 1363
Spectrographic observation of infrared lines

Period	Obligations	
03/01/73-08/31/74	FY74:	TOTAL: \$70,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Townes, C. H.	ARC/Cameron, R. M.	11-Astronomy
(21-850 352-02-03)		

NGR 05-003-513 University of California - Berkeley 1364
Heavy ion fragment experiments at the Bevatron

Period	Obligations	
10/01/73-12/30/74	FY74: \$135,000	TOTAL: \$135,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heckman, H. H.	HQ-SG/Opp, A. G.	11-Astronomy
(10-850 188-46-56)	HQ-SG/Kavanagh, L. D., Jr.	

NGR 05-003-538 University of California - Berkeley 1365
Source encoding of images for efficient transmission

Period	Obligations	
12/18/72-04/17/73	FY74:	TOTAL: \$7,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Algazi, V. R.	GSFC/Lynch, T. J.	45-Elec Engr
Sakrison, D. J.		
(51-620 164-06-58)	(51-620 164-00-00)	

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

<p>NGR 05-003-553 University of California - Berkeley 1366 High energy primary cosmic radiation measured by superconducting magnetic spectrometer</p> <table border="0"> <tr> <td><i>Period</i></td> <td colspan="2"><i>Obligations</i></td> </tr> <tr> <td>05/10/73-12/31/74</td> <td>FY74: \$250,000</td> <td>TOTAL: \$250,000</td> </tr> <tr> <td><i>Prin. Invest.</i></td> <td><i>NASA Tech. Officer</i></td> <td><i>CASE Category</i></td> </tr> <tr> <td>Alvarez, L. W.</td> <td>HQ-SG/Opp, A. G.</td> <td>11-Astronomy</td> </tr> <tr> <td></td> <td colspan="2">HQ-SG/Kavanagh, L. D., Jr.</td> </tr> </table> <p>(10-850 188-46-56)</p>	<i>Period</i>	<i>Obligations</i>		05/10/73-12/31/74	FY74: \$250,000	TOTAL: \$250,000	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	Alvarez, L. W.	HQ-SG/Opp, A. G.	11-Astronomy		HQ-SG/Kavanagh, L. D., Jr.		<p>NSG 2026 University of California - Berkeley 1373 Fire testing of aircraft interiors</p> <table border="0"> <tr> <td><i>Period</i></td> <td colspan="2"><i>Obligations</i></td> </tr> <tr> <td>05/01/74-04/30/75</td> <td>FY74: \$60,000</td> <td>TOTAL: \$60,000</td> </tr> <tr> <td><i>Prin. Invest.</i></td> <td><i>NASA Tech. Officer</i></td> <td><i>CASE Category</i></td> </tr> <tr> <td>Williamson, R. B.</td> <td>ARC/Kourtides, D. A.</td> <td>44-Civil Engr</td> </tr> <tr> <td></td> <td colspan="2">(21-704 501-21-22)</td> </tr> </table>	<i>Period</i>	<i>Obligations</i>		05/01/74-04/30/75	FY74: \$60,000	TOTAL: \$60,000	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	Williamson, R. B.	ARC/Kourtides, D. A.	44-Civil Engr		(21-704 501-21-22)										
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<p>NGR 05-003-559 University of California - Berkeley 1367 Metal barrier metal optical diodes</p> <table border="0"> <tr> <td><i>Period</i></td> <td colspan="2"><i>Obligations</i></td> </tr> <tr> <td>03/19/73-04/01/75</td> <td>FY74: \$39,000</td> <td>TOTAL: \$73,524</td> </tr> <tr> <td><i>Prin. Invest.</i></td> <td><i>NASA Tech. Officer</i></td> <td><i>CASE Category</i></td> </tr> <tr> <td>Gustafson, T. K.</td> <td>ARC/Billman, K. W.</td> <td>13-Physics</td> </tr> <tr> <td></td> <td colspan="2">(21-704 502-11-11)</td> </tr> </table>	<i>Period</i>	<i>Obligations</i>		03/19/73-04/01/75	FY74: \$39,000	TOTAL: \$73,524	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	Gustafson, T. K.	ARC/Billman, K. W.	13-Physics		(21-704 502-11-11)		<p>NSG 3028 University of California - Berkeley 1374 Techniques for stabilization of lean combustion systems</p> <table border="0"> <tr> <td><i>Period</i></td> <td colspan="2"><i>Obligations</i></td> </tr> <tr> <td>07/01/74-06/30/75</td> <td>FY74: \$72,380</td> <td>TOTAL: \$72,380</td> </tr> <tr> <td><i>Prin. Invest.</i></td> <td><i>NASA Tech. Officer</i></td> <td><i>CASE Category</i></td> </tr> <tr> <td>Branch, M. C.</td> <td>LERC/Marek, C. J.</td> <td>46-Mech Engr</td> </tr> <tr> <td></td> <td colspan="2">Oppenheim, A. K.</td> </tr> <tr> <td></td> <td colspan="2">Sawyer, R. F.</td> </tr> <tr> <td></td> <td colspan="2">(22-704 501-24-02)</td> </tr> </table>	<i>Period</i>	<i>Obligations</i>		07/01/74-06/30/75	FY74: \$72,380	TOTAL: \$72,380	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	Branch, M. C.	LERC/Marek, C. J.	46-Mech Engr		Oppenheim, A. K.			Sawyer, R. F.			(22-704 501-24-02)				
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	(22-704 501-24-02)																																							
<p>NGR 05-003-562 University of California - Berkeley 1368 Development of iron base alloys with superior strength and fracture toughness for use at cryogenic temperatures</p> <table border="0"> <tr> <td><i>Period</i></td> <td colspan="2"><i>Obligations</i></td> </tr> <tr> <td>08/15/73-08/15/74</td> <td>FY74: \$30,000</td> <td>TOTAL: \$30,000</td> </tr> <tr> <td><i>Prin. Invest.</i></td> <td><i>NASA Tech. Officer</i></td> <td><i>CASE Category</i></td> </tr> <tr> <td>Zackay, V. F.</td> <td>LERC/Stephens, J. R.</td> <td>47-Materials Engr</td> </tr> <tr> <td></td> <td colspan="2">(22-704 502-21-20)</td> </tr> </table>	<i>Period</i>	<i>Obligations</i>		08/15/73-08/15/74	FY74: \$30,000	TOTAL: \$30,000	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	Zackay, V. F.	LERC/Stephens, J. R.	47-Materials Engr		(22-704 502-21-20)		<p>NAS 2-6633 University of California - Davis 1375 Study influence of gravity on the metabolism of various amino acids in higher plants</p> <table border="0"> <tr> <td><i>Period</i></td> <td colspan="2"><i>Obligations</i></td> </tr> <tr> <td>10/01/72-09/30/74</td> <td>FY74: \$24,976</td> <td>TOTAL: \$59,276</td> </tr> <tr> <td><i>Prin. Invest.</i></td> <td><i>NASA Tech. Officer</i></td> <td><i>CASE Category</i></td> </tr> <tr> <td>Mazelis, M.</td> <td>ARC/Taketa, S. T.</td> <td>39-Env Sci, NEC</td> </tr> <tr> <td></td> <td colspan="2">(21-970 970-21-61)</td> </tr> </table>	<i>Period</i>	<i>Obligations</i>		10/01/72-09/30/74	FY74: \$24,976	TOTAL: \$59,276	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	Mazelis, M.	ARC/Taketa, S. T.	39-Env Sci, NEC		(21-970 970-21-61)										
<i>Period</i>	<i>Obligations</i>																																							
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<p>NGR 05-003-578 University of California - Berkeley 1369 Theoretical X-ray and gamma-ray astronomy</p> <table border="0"> <tr> <td><i>Period</i></td> <td colspan="2"><i>Obligations</i></td> </tr> <tr> <td>08/01/73-10/31/74</td> <td>FY74: \$29,858</td> <td>TOTAL: \$29,858</td> </tr> <tr> <td><i>Prin. Invest.</i></td> <td><i>NASA Tech. Officer</i></td> <td><i>CASE Category</i></td> </tr> <tr> <td>Silk, J. I.</td> <td>HQ-SG/Kelsall, T.</td> <td>11-Astronomy</td> </tr> <tr> <td></td> <td colspan="2">HQ-SG/Roman, N. G.</td> </tr> </table> <p>(10-850 188-41-59)</p>	<i>Period</i>	<i>Obligations</i>		08/01/73-10/31/74	FY74: \$29,858	TOTAL: \$29,858	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	Silk, J. I.	HQ-SG/Kelsall, T.	11-Astronomy		HQ-SG/Roman, N. G.		<p>NAS 2-7152 University of California - Davis 1376 Social interaction study</p> <table border="0"> <tr> <td><i>Period</i></td> <td colspan="2"><i>Obligations</i></td> </tr> <tr> <td>08/24/72-10/30/74</td> <td>FY74: \$58,771</td> <td>TOTAL: \$166,250</td> </tr> <tr> <td><i>Prin. Invest.</i></td> <td><i>NASA Tech. Officer</i></td> <td><i>CASE Category</i></td> </tr> <tr> <td>Beljan, J. R.</td> <td>ARC/Winget, C. M.</td> <td>53-Other Medical</td> </tr> <tr> <td></td> <td colspan="2">Chapman, L. F.</td> </tr> <tr> <td></td> <td colspan="2">(21-970 970-21-45)</td> </tr> <tr> <td></td> <td colspan="2">(21-970 970-21-52)</td> </tr> <tr> <td></td> <td colspan="2">(21-970 970-21-53)</td> </tr> </table>	<i>Period</i>	<i>Obligations</i>		08/24/72-10/30/74	FY74: \$58,771	TOTAL: \$166,250	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	Beljan, J. R.	ARC/Winget, C. M.	53-Other Medical		Chapman, L. F.			(21-970 970-21-45)			(21-970 970-21-52)			(21-970 970-21-53)	
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<p>NGR 05-003-587 University of California - Berkeley 1370 Investigation of strong features in the spectrum of procyon</p> <table border="0"> <tr> <td><i>Period</i></td> <td colspan="2"><i>Obligations</i></td> </tr> <tr> <td>12/01/73-11/30/74</td> <td>FY74: \$1,015</td> <td>TOTAL: \$1,015</td> </tr> <tr> <td><i>Prin. Invest.</i></td> <td><i>NASA Tech. Officer</i></td> <td><i>CASE Category</i></td> </tr> <tr> <td>Spinrad, H.</td> <td>GSFC/Kupperian, J. E.</td> <td>11-Astronomy</td> </tr> <tr> <td></td> <td colspan="2">(51-850 831-43-00)</td> </tr> </table>	<i>Period</i>	<i>Obligations</i>		12/01/73-11/30/74	FY74: \$1,015	TOTAL: \$1,015	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	Spinrad, H.	GSFC/Kupperian, J. E.	11-Astronomy		(51-850 831-43-00)		<p>NAS 2-7503 University of California - Davis 1377 Plasma-heart-temperature determinations</p> <table border="0"> <tr> <td><i>Period</i></td> <td colspan="2"><i>Obligations</i></td> </tr> <tr> <td>04/03/73-04/03/74</td> <td>FY74:</td> <td>TOTAL: \$9,900</td> </tr> <tr> <td><i>Prin. Invest.</i></td> <td><i>NASA Tech. Officer</i></td> <td><i>CASE Category</i></td> </tr> <tr> <td>Evans, J. W.</td> <td>ARC/Winget, C. M.</td> <td>59-Life Sci, NEC</td> </tr> <tr> <td></td> <td colspan="2">ARC/Danellis, J. V.</td> </tr> <tr> <td></td> <td colspan="2">(21-970 970-21-52)</td> </tr> </table>	<i>Period</i>	<i>Obligations</i>		04/03/73-04/03/74	FY74:	TOTAL: \$9,900	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	Evans, J. W.	ARC/Winget, C. M.	59-Life Sci, NEC		ARC/Danellis, J. V.			(21-970 970-21-52)							
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<p>NGR 05-003-598 University of California - Berkeley 1371 Microwave and infrared observations of molecular spectra in comet Kohoutek</p> <table border="0"> <tr> <td><i>Period</i></td> <td colspan="2"><i>Obligations</i></td> </tr> <tr> <td>12/10/73-09/09/74</td> <td>FY74: \$3,600</td> <td>TOTAL: \$3,600</td> </tr> <tr> <td><i>Prin. Invest.</i></td> <td><i>NASA Tech. Officer</i></td> <td><i>CASE Category</i></td> </tr> <tr> <td>Townes, C. H.</td> <td>GSFC/Hobbs, R. W.</td> <td>11-Astronomy</td> </tr> <tr> <td></td> <td colspan="2">GSFC/Maran, S. P.</td> </tr> </table> <p>(51-840 196-41-53)</p>	<i>Period</i>	<i>Obligations</i>		12/10/73-09/09/74	FY74: \$3,600	TOTAL: \$3,600	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	Townes, C. H.	GSFC/Hobbs, R. W.	11-Astronomy		GSFC/Maran, S. P.		<p>NAS 2-7513 University of California - Davis 1378 Analysis of muscle and bone mineral content by direct photon absorptiometry</p> <table border="0"> <tr> <td><i>Period</i></td> <td colspan="2"><i>Obligations</i></td> </tr> <tr> <td>04/17/73-11/30/73</td> <td>FY74: \$8,237</td> <td>TOTAL: \$8,237</td> </tr> <tr> <td><i>Prin. Invest.</i></td> <td><i>NASA Tech. Officer</i></td> <td><i>CASE Category</i></td> </tr> <tr> <td>Unavailable</td> <td>ARC/Unavailable</td> <td>13-Physics</td> </tr> <tr> <td></td> <td colspan="2">(21-970 970-21-61)</td> </tr> </table>	<i>Period</i>	<i>Obligations</i>		04/17/73-11/30/73	FY74: \$8,237	TOTAL: \$8,237	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	Unavailable	ARC/Unavailable	13-Physics		(21-970 970-21-61)										
<i>Period</i>	<i>Obligations</i>																																							
12/10/73-09/09/74	FY74: \$3,600	TOTAL: \$3,600																																						
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Unavailable	ARC/Unavailable	13-Physics																																						
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<p>NSG 2003 University of California - Berkeley 1372 Remote sensing and large-scale movements regarding water truth measurements</p> <table border="0"> <tr> <td><i>Period</i></td> <td colspan="2"><i>Obligations</i></td> </tr> <tr> <td>01/15/74-01/15/75</td> <td>FY74: \$17,221</td> <td>TOTAL: \$17,221</td> </tr> <tr> <td><i>Prin. Invest.</i></td> <td><i>NASA Tech. Officer</i></td> <td><i>CASE Category</i></td> </tr> <tr> <td>Horne, A. J.</td> <td>ARC/Wrigley, R. C.</td> <td>39-Env Sci, NEC</td> </tr> <tr> <td></td> <td colspan="2">(21-680 176-53-11)</td> </tr> </table>	<i>Period</i>	<i>Obligations</i>		01/15/74-01/15/75	FY74: \$17,221	TOTAL: \$17,221	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	Horne, A. J.	ARC/Wrigley, R. C.	39-Env Sci, NEC		(21-680 176-53-11)		<p>NAS 2-7516 University of California - Davis 1379 Water sampling & analysis</p> <table border="0"> <tr> <td><i>Period</i></td> <td colspan="2"><i>Obligations</i></td> </tr> <tr> <td>05/01/73-10/31/74</td> <td>FY74: \$2,000</td> <td>TOTAL: \$2,000</td> </tr> <tr> <td><i>Prin. Invest.</i></td> <td><i>NASA Tech. Officer</i></td> <td><i>CASE Category</i></td> </tr> <tr> <td>Goldman, C. R.</td> <td>ARC/Wrigley, R. C.</td> <td>31-Atmos Sci</td> </tr> <tr> <td></td> <td colspan="2">(21-680 176-53-11)</td> </tr> </table>	<i>Period</i>	<i>Obligations</i>		05/01/73-10/31/74	FY74: \$2,000	TOTAL: \$2,000	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	Goldman, C. R.	ARC/Wrigley, R. C.	31-Atmos Sci		(21-680 176-53-11)										
<i>Period</i>	<i>Obligations</i>																																							
01/15/74-01/15/75	FY74: \$17,221	TOTAL: \$17,221																																						
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>																																						
Horne, A. J.	ARC/Wrigley, R. C.	39-Env Sci, NEC																																						
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05/01/73-10/31/74	FY74: \$2,000	TOTAL: \$2,000																																						
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**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAS 2-7519 University of California - Davis 1380
Biotelemetry from instrumented simians
Period Obligations
04/10/73-12/31/74 FY74: TOTAL: \$13,000
Prin. Invest. NASA Tech. Officer CASE Category
Chapman, L. F. ARC/Winget, C. M. 53-Other Medical
ARC/Danellis, J. V.
(21-970 970-00-00)

NAS 9-13504 University of California - Davis 1381
Endocrinological and nutritional consequences of group interactions
Period Obligations
06/28/73-08/31/74 FY74: TOTAL: \$15,977
Prin. Invest. NASA Tech. Officer CASE Category
Beljan, J. R. JSC/Leach, C. S. 52-Clinical Med
(72-970 970-51-16)

NAS 9-13589 University of California - Davis 1382
Study of bone mineral measurement medical experiment M078
Period Obligations
07/02/73-09/30/74 FY74: \$120,000 TOTAL: \$120,000
Prin. Invest. NASA Tech. Officer CASE Category
Vogel, J. M. JSC/Smith, M. C., Jr. 59-Life Sci, NEC
(72-960 948-60-90)

NGL 05-004-008 University of California - Davis 1383
Physiological effects of chronic acceleration
Period Obligations
03/01/65-02/01/77 FY74: \$50,000 TOTAL: \$740,807
Prin. Invest. NASA Tech. Officer CASE Category
Smith, A. H. ARC/Oyama, J. 51-Biology
(21-970 970-21-61) (10-870 189-00-00)

NGR 05-004-006 University of California - Davis 1384
Self-consistent study of trapped radiation in the geomagnetic field
Period Obligations
02/01/66-02/01/77 FY74: TOTAL: \$19,177
Prin. Invest. NASA Tech. Officer CASE Category
McIlwain, C. E. HQ-SG/Mead, G. 32-Geological Sci
(51-850 188-00-00)

NGR 05-004-035 University of California - Davis 1385
The role of brown fat in the thermogenesis of animals and man
Period Obligations
10/27/67-10/31/72 FY74: TOTAL: \$219,458
Prin. Invest. NASA Tech. Officer CASE Category
Smith, R. E. WFC/Holton, E. M. 51-Biology
WFC/Jackson, E. B.
(53-970 970-71-61) (53-970 970-00-00)

NGR 05-004-074 University of California - Davis 1386
High pressure Hugoniot measurements on lunar rocks collected on Apollo missions
Period Obligations
06/12/70-03/31/74 FY74: TOTAL: \$21,272
Prin. Invest. NASA Tech. Officer CASE Category
Borg, R. J. HQ-SM/Bryson, R. P. 32-Geological Sci
HQ-SM/Allenby, R. J.
(10-810 195-00-00)

NGR 05-004-099 University of California - Davis 1387
Investigation of the effect of altered gravity on temperature regulation in mammals
Period Obligations
11/20/73-11/19/74 FY74: \$15,000 TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
Horowitz, B. A. ARC/Holton, E. M. 51-Biology
Horowitz, J. M.
(21-970 970-21-61) (53-970 970-71-61)

NGR 05-041-012 University of California - Irvine 1388
Diagnosis of preclinical viral illness and prophylaxis against viral disease
Period Obligations
07/13/71-12/07/74 FY74: \$39,996 TOTAL: \$100,692
Prin. Invest. NASA Tech. Officer CASE Category
Tilles, J. G. ARC/Mandel, A. D. 52-Clinical Med
(21-970 970-21-25)

NAS 2-6791 University of California - Los Angeles 1389
Lunar magnetometer network support
Period Obligations
01/14/72-12/31/73 FY74: TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
Schubert, G. ARC/Dyal, P. 13-Physics
(21-910 914-00-00)

NAS 2-7251 University of California - Los Angeles 1390
Pioneer FG data analysis
Period Obligations
10/13/72-06/30/74 FY74: \$69,670 TOTAL: \$114,670
Prin. Invest. NASA Tech. Officer CASE Category
Coleman, P. J., Jr. ARC/Hall, C. F. 13-Physics
(21-840 811-22-00)

NAS 2-7440 University of California - Los Angeles 1391
Stable isotope ratio measurements
Period Obligations
02/28/73-12/31/74 FY74: \$9,084 TOTAL: \$20,484
Prin. Invest. NASA Tech. Officer CASE Category
Kaplan, I. R. ARC/Chang, S. 12-Chemistry
(21-810 388-10-02) (21-840 192-55-62) (21-910 914-40-00)

NAS 2-7785 University of California - Los Angeles 1392
Computer studies
Period Obligations
09/13/73-08/20/74 FY74: \$7,500 TOTAL: \$7,500
Prin. Invest. NASA Tech. Officer CASE Category
Britt, P. ARC/Polentz, P. P. 41-Aero Engr
ARC/Erickson, L. L.
(21-790 797-00-00)

NAS 4-1995 University of California - Los Angeles 1393
Computer studies
Period Obligations
05/24/73-06/30/74 FY74: \$5,000 TOTAL: \$35,000
Prin. Invest. NASA Tech. Officer CASE Category
Unavailable FRC/Carter, A. L. 41-Aero Engr
(24-702 766-72-01) (24-704 501-22-01)

NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)

NAS 5-11674	University of California - Los Angeles	1394	Magnetometer experiment for the ATS-F
<i>Period</i>	<i>Obligations</i>		
04/29/69-04/30/76	FY74: TOTAL: \$407,500		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Coleman, P. J., Jr. (51-620 630-22-00)	GSFC/Wales, R. O.	32-Geological Sci	
NAS 5-20064	University of California - Los Angeles	1395	Magnetic field investigation for ISEE mother/daughter spacecraft
<i>Period</i>	<i>Obligations</i>		
06/05/74-10/30/79	FY74: \$19,618 TOTAL: \$19,618		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Russell, C. T. McPherron, R. L. (51-850 861-62-00)	GSFC/Davis, M. A.	13-Physics	
NAS 5-21968	University of California - Los Angeles	1396	Report of proceedings of international conference on radiation and remote probing of atmosphere
<i>Period</i>	<i>Obligations</i>		
08/29/73-12/30/73	FY74: \$5,000 TOTAL: \$5,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Kuriyan, J. G. (51-680 160-44-54)	GSFC/Bandeen, W. R.	31-Atmos Sci	
NAS 6-2463	University of California - Los Angeles	1397	GEOS-C research into tectonics of ocean regions
<i>Period</i>	<i>Obligations</i>		
04/18/74-04/17/76	FY74: \$21,000 TOTAL: \$21,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Kaula, W. M. Lingenfelter, R. E. Schubert, G. (53-630 855-33-00)	WFC/Stanley, H. R. WFC/Rossi, L. C.	33-Oceanography	
NAS 8-28310	University of California - Los Angeles	1398	Metal and halide eutectics, Skylab experiment
<i>Period</i>	<i>Obligations</i>		
11/02/72-04/30/74	FY74: TOTAL: \$34,967		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Yue, A. S. (62-960 948-90-95)	MSFC/Adams, W. R. MSFC/Aldrich, B. R.	19-Phys Sci, NEC	
NAS 8-28358	University of California - Los Angeles	1399	Study of control systems for advanced space vehicles
<i>Period</i>	<i>Obligations</i>		
02/15/72-12/14/74	FY74: \$27,947 TOTAL: \$66,818		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Likins, P. W. (62-850 188-78-57)	MSFC/Seltzer, S. M.	49-Engr, NEC	
NAS 8-29854	University of California - Los Angeles	1400	Directional solidification of interctic composites in space
<i>Period</i>	<i>Obligations</i>		
08/07/73-11/06/74	FY74: \$23,645 TOTAL: \$23,645		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Yue, A. S. (62-980 975-90-95)	MSFC/McPherson, W. B.	12-Chemistry	
NAS 8-30579	University of California - Los Angeles	1401	Zero solidification of a sodium chloride-lithium fluoride eutectic mixture
<i>Period</i>	<i>Obligations</i>		
01/11/74-03/31/76	FY74: \$54,700 TOTAL: \$54,700		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Yue, A. S. (62-930 966-30-00)	MSFC/Adams, W. R. MSFC/Boese, A.	19-Phys Sci, NEC	
NAS 9-12236	University of California - Los Angeles	1402	Apollo lunar orbit subsatellite magnetometer experiment
<i>Period</i>	<i>Obligations</i>		
10/19/71-06/30/74	FY74: \$57,900 TOTAL: \$402,900		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Coleman, P. J., Jr. (72-810 383-30-01)	JSC/Lafferty, P. E.	39-Env Sci, NEC	
NAS 9-12757	University of California - Los Angeles	1403	Lunar photo and altimetry analysis
<i>Period</i>	<i>Obligations</i>		
05/08/72-07/01/75	FY74: \$30,419 TOTAL: \$90,419		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Kaula, W. M. (72-810 383-30-02)	JSC/Hardee, S. N.	13-Physics	
NGL 05-007-002	University of California - Los Angeles	1404	Theoretical evaluation of the internal structures and atmospheres of planets and the moon
<i>Period</i>	<i>Obligations</i>		
01/01/62-12/31/76	FY74: \$72,638 TOTAL: \$546,053		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Kaula, W. M. (10-810 195-42-65)	HQ-SM/Bryson, R. P. HQ-SM/Roberson, F. I.	32-Geological Sci	
NGL 05-007-003	University of California - Los Angeles	1405	Interdisciplinary space oriented research in physical, biological and engineering sciences
<i>Period</i>	<i>Obligations</i>		
03/01/62-03/31/75	FY74: TOTAL: \$4,840,654		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Libby, W. F. (10-860 190-00-00)	HQ-PY/Redding, E. R.	99-Multi-Discip (10-860 849-00-00)	
NGL 05-007-004	University of California - Los Angeles	1406	Theoretical & experimental investigations of particles & fields in space, including construction of prototype instrumentation
<i>Period</i>	<i>Obligations</i>		
03/01/62-09/30/76	FY74: \$155,000 TOTAL: \$2,030,554		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Coleman, P. J., Jr. (10-850 188-36-55)	HQ-SG/Kavanagh, L. D., Jr. HQ-SG/Schmerling, E. R.	13-Physics (10-850 385-36-00)	
NGL 05-007-005	University of California - Los Angeles	1407	Isotopic chemistry of meteorites, including studies of variation in isotopic abundances among discrete specimens
<i>Period</i>	<i>Obligations</i>		
09/20/62-08/31/76	FY74: \$15,475 TOTAL: \$143,475		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Wetherill, G. W. (10-850 188-45-52)	HQ-SG/Dubin, M. HQ-SM/Bryson, R.	11-Astronomy (10-810 383-09-50)	

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

NGL 05-007-006 University of California - Los Angeles 1408
Studies on the high pressure solid phases of inert gases, particularly as they might relate to planetary interiors

<i>Period</i>	<i>Obligations</i>	
09/24/62-09/30/76	FY74: \$38,084	TOTAL: \$470,622
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kennedy, G. C.	HQ-SM/Bryson, R. P.	32-Geological Sci
	HQ-SM/Roberson, F. I.	
(10-810 195-42-68)	(10-810 195-42-65)	

NGL 05-007-046 University of California - Los Angeles 1409
Solar elements, their physical parameters and abundances

<i>Period</i>	<i>Obligations</i>	
10/06/65-06/30/74	FY74:	TOTAL: \$373,081
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alley, L. H.	HQ-SG/Weldon, J. M.	11-Astronomy
(10-850 188-00-00)		

NGL 05-007-190 University of California - Los Angeles 1410
Theoretical space plasma physics

<i>Period</i>	<i>Obligations</i>	
06/27/68-09/30/76	FY74: \$35,000	TOTAL: \$248,380
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kennel, C. F.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics
	HQ-SG/Schmerling, E. R.	
(10-850 188-36-55)	(10-850 188-00-00)	

NGL 05-007-195 University of California - Los Angeles 1411
Phenomena underlying behavior of complex living systems in space

<i>Period</i>	<i>Obligations</i>	
04/01/68-06/30/74	FY74:	TOTAL: \$1,132,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
French, J. D.	ARC/Winter, D. L.	51-Biology
(10-870 189-00-00)		

NGL 05-007-287 University of California - Los Angeles 1412
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
01/12/71-01/31/75	FY74: \$25,124	TOTAL: \$284,794
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wetherill, G. W.	JSC/Harris, J. W.	13-Physics
(72-910 914-40-00)		

NGL 05-007-330 University of California - Los Angeles 1413
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
05/18/71-01/31/75	FY74: \$8,800	TOTAL: \$180,050
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Warren, N.	JSC/Harris, J. W.	13-Physics
(72-810 388-10-03)		

NGL 05-007-367 University of California - Los Angeles 1414
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
06/30/72-01/31/77	FY74: \$62,950	TOTAL: \$202,950
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wasson, J. T.	JSC/Harris, J. W.	12-Chemistry
(72-810 388-10-02)		

NGL 05-007-379 University of California - Los Angeles 1415
Flight dynamics analysis and system identification

<i>Period</i>	<i>Obligations</i>	
12/01/72-11/30/76	FY74: \$25,000	TOTAL: \$109,548
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Balakrishnan, A. V.	FRC/Rediess, H. A.	41-Aero Engr
(24-704 501-26-01)		

NGR 05-007-091 University of California - Los Angeles 1416
Investigation of optimum meteorological satellite techniques by numerical simulation experiments

<i>Period</i>	<i>Obligations</i>	
11/09/64-09/30/74	FY74:	TOTAL: \$590,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mintz, Y.	GSFC/Wexler, R.	31-Atmos Sci
Arakawa, A.		
Webster, P. J.		
(51-620 610-11-00)		

NGR 05-007-215 University of California - Los Angeles 1417
Support of group for the analysis of carbon compounds

<i>Period</i>	<i>Obligations</i>	
04/01/68-12/31/73	FY74:	TOTAL: \$145,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Libby, W. F.	HQ-SL/Young, R. S.	32-Geological-Sci
(10-840 192-55-62)	(10-870 189-00-00)	

NGR 05-007-221 University of California - Los Angeles 1418
Nature and changes of organic matter in deep ocean cores

<i>Period</i>	<i>Obligations</i>	
08/08/69-12/31/74	FY74: \$54,000	TOTAL: \$276,415
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kaplan, I. R.	HQ-SL/Young, R. S.	32-Geological Sci
(10-840 192-55-62)		

NGR 05-007-276 University of California - Los Angeles 1419
Data analysis on the OGO-3 and OGO-4 search coil magnetometers

<i>Period</i>	<i>Obligations</i>	
04/03/70-09/30/74	FY74: \$20,000	TOTAL: \$140,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Holzer, R. E.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics
	HQ-SG/Schmerling, E. R.	
(10-850 385-36-00)		

NGR 05-007-283 University of California - Los Angeles 1420
Analysis of laser ranging to the moon

<i>Period</i>	<i>Obligations</i>	
04/16/70-09/30/74	FY74: \$12,182	TOTAL: \$51,473
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kaula, W. M.	HQ-SM/Strickland, A. T.	32-Geological Sci
(10-810 387-30-01)	(10-810 383-09-56)	

NGR 05-007-289 University of California - Los Angeles 1421
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
12/29/70-01/31/75	FY74: \$67,900	TOTAL: \$238,780
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kaplan, I. R.	JSC/Harris, J. W.	13-Physics
(72-810 388-10-04)		

**NASA'S UNIVERSITY PROGRAM
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NGR 05-007-317 University of California - Los Angeles 1422
Photogeologic interpretation of Mariner Mars 1969 imagery
Period *Obligations*
03/09/71-04/15/75 FY74: \$12,960 TOTAL: \$56,881
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lingenfelter, R. E. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Holt, H. E.
(10-840 384-50-80)

NGR 05-007-323 University of California - Los Angeles 1423
Research in aeronautics & air transportation
Period *Obligations*
03/25/71-10/01/77 FY74: \$49,905 TOTAL: \$179,889
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Meecham, W. C. ARC/Hodder, B. K. 41-Aero Engr
ARC/Hickey, D. A.
(21-704 501-15-81)

NGR 05-007-327 University of California - Los Angeles 1424
Definition phase of Grand Tour mission magnetic fields
investigation for outer planet missions
Period *Obligations*
04/05/71-10/31/72 FY74: TOTAL: \$46,362
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Coleman, P. J., Jr. HQ-SL/Mitz, M. A. 13-Physics
HQ-SL/Keller, J. W.
(10-840 186-68-68)

NGR 05-007-328 University of California - Los Angeles 1425
Numerical modeling of the global atmosphere and the world
oceans
Period *Obligations*
08/15/71-12/31/74 FY74: \$39,000 TOTAL: \$239,309
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mintz, Y. GSFC/Halem, M. 31-Atmos Sci
Arakawa, A. GSFC/Somerville, R. C.
Yanai, M.
(51-680 175-11-41) (51-680 160-44-52)

NGR 05-007-329 University of California - Los Angeles 1426
Elemental variations in genetically related meteorites
Period *Obligations*
04/27/71-04/30/75 FY74: \$3,439 TOTAL: \$121,661
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wasson, J. T. HQ-SM/Bryson, R. P. 32-Geological Sci
Scott, R. D. HQ-SM/Roberson, F. I.
(10-810 195-42-67)

NGR 05-007-337 University of California - Los Angeles 1427
Approximation concepts in structural synthesis
Period *Obligations*
04/05/72-06/30/75 FY74: \$64,235 TOTAL: \$169,464
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schmit, L. A. LARC/Stroud, W. J. 41-Aero Engr
(23-704 502-22-01) (23-704 501-22-01)

NGR 05-007-338 University of California - Los Angeles 1428
Biocompatibility and other essential characteristics of several new
plastics and new metal alloys for possible use in total joint
replacements
Period *Obligations*
12/01/71-07/31/75 FY74: \$21,120 TOTAL: \$41,120
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Amstutz, H. C. LERC/Johnson, R. L. 47-Materials Engr
LERC/Swikert, M. A.
(22-704 502-21-24)

NGR 05-007-351 University of California - Los Angeles 1429
Correlative studies of Apollo 15 and 16 satellite magnetometer
data with the Explorer 35 and lunar surface magnetometer data
Period *Obligations*
05/25/72-01/31/75 FY74: \$157,899 TOTAL: \$207,899
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Coleman, P. J., Jr. HQ-SM/Bryson, R. P. 32-Geological Sci
Schubert, G. HQ-SM/Roberson, F. I.
(10-810 383-20-03)

NGR 05-007-395 University of California - Los Angeles 1430
Computational techniques for unsteady transflow
Period *Obligations*
02/07/73-09/01/74 FY74: TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cole, J. D. LARC/Bland, S. R. 41-Aero Engr
(23-704 501-22-04)

NGR 05-007-407 University of California - Los Angeles 1431
Paleobiologic studies of the antiquity and precambrian evolution
of life
Period *Obligations*
04/10/73-05/31/75 FY74: \$57,440 TOTAL: \$57,440
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schopf, J. W. HQ-SL/Young, R. S. 32-Geological Sci
(10-840 192-55-62)

NGR 05-007-414 University of California - Los Angeles 1432
Aeroelastic stability of helicopter blades in hover and in forward
flight using various unsteady aerodynamic theories
Period *Obligations*
09/01/73-09/01/74 FY74: \$29,159 TOTAL: \$29,159
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Friedman, P. P. LARC/Hammond, C. E. 41-Aero Engr
LARC/Kvaternik, R. G.
(23-702 760-63-00)

NGR 05-007-416 University of California - Los Angeles 1433
Research on interaction of satellite-speed helium atoms with
aluminum and quartz surfaces
Period *Obligations*
10/09/73-10/08/74 FY74: \$37,363 TOTAL: \$37,363
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Knuth, E. L. LARC/Keating, G. M. 13-Physics
(23-850 385-36-00) (23-850 863-11-00)

NGR 05-007-418 University of California - Los Angeles 1434
Utricular influences on visual motor control research
Period *Obligations*
09/01/73-08/31/74 FY74: \$29,450 TOTAL: \$29,450
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Markham, C. H. ARC/Daunton, N. G. 59-Life Sci, NEC
(21-970 970-21-11)

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

NGR 05-007-437 University of California - Los Angeles 1435
Analysis of Mariner 71 infrared radiometer data
Period *Obligations*
10/01/73-12/30/74 FY74: \$19,469 TOTAL: \$19,469
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kieffer, H. H. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Dwornik, S. E.
(10-840 384-47-81)

NGR 05-007-489 University of California - Los Angeles 1436
Investigation of shell stars and eclipsing binaries
Period *Obligations*
05/01/74-04/30/75 FY74: \$13,400 TOTAL: \$13,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Plavec, M. GSFC/Kupperian, J. E. 11-Astronomy
(51-850 831-43-00)

NSG 2025 University of California - Los Angeles 1437
Metal corrosion studies
Period *Obligations*
05/01/74-05/01/75 FY74: \$31,635 TOTAL: \$31,635
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Douglass, D. L. ARC/Poppa, H. R. 47-Materials Engr
(21-704 502-01-01)

NSG 4001 University of California - Los Angeles 1438
Short-time climatology related to air turbulence
Period *Obligations*
03/01/74-02/28/75 FY74: \$23,850 TOTAL: \$23,850
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wurtele, M. G. FRC/Ehernberger, L. J. 31-Atmos Sci
(24-704 501-08-10)

NSG 7002 University of California - Los Angeles 1439
Anelastic models of fault-zone tectonics and their measurement by space techniques
Period *Obligations*
11/01/73-01/31/75 FY74: \$59,729 TOTAL: \$59,729
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kaula, W. M. HQ-ES/Murphy, J. P. 99-Multi-Discip
(10-630 161-02-07)

NSG 7008 University of California - Los Angeles 1440
Third Solar Wind Conference
Period *Obligations*
01/01/74-12/31/74 FY74: \$8,000 TOTAL: \$8,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Russell, C. T. HQ-SG/Berks, F. W. 13-Physics
HQ-SG/Schmerling, E. R.
(10-850 188-36-55)

NSG 7052 University of California - Los Angeles 1441
Shock processes in terrestrial analogs of porous lunar & meteoritic materials
Period *Obligations*
04/01/74-03/31/75 FY74: \$25,000 TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kieffer, S. W. HQ-SM/Bryson, R. P. 32-Geological Sci
HQ-SM/Roberson, F. I.
(10-810 195-42-67)

NAS 1-10373 University of California - Riverside 1442
Detection of minor atmospheric constituents by means of the solar infrared spectrum means of the solar infrared spectrum
Period *Obligations*
10/23/70-09/30/72 FY74: TOTAL: \$34,980
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Behar, J. V. LARC/Reichle, H. G., Jr. 31-Atmos Sci
(23-680 160-00-00)

NGL 05-008-005 University of California - Riverside 1443
Atomic scattering theory
Period *Obligations*
11/29/66-02/28/77 FY74: \$10,000 TOTAL: \$110,953
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Poe, R. T. GSFC/Temkin, A. 13-Physics
(51-850 188-48-52) (51-850 188-00-00)

NGR 05-008-022 University of California - Riverside 1444
Measurement of neutrons from sun
Period *Obligations*
05/16/69-08/15/74 FY74: \$40,000 TOTAL: \$230,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
White, R. S. HQ-SG/Opp, A. G. 11-Astronomy
HQ-SG/Kavanagh, L. D., Jr.
(10-850 188-46-56) (10-850 188-46-51)

NGR 05-008-029 University of California - Riverside 1445
Airborne studies of photochemical air pollution in urban atmosphere
Period *Obligations*
03/23/71-09/30/75 FY74: TOTAL: \$107,764
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pitts, J. N. ARC/Reinisch, R. F. 39-Env Sci, NEC
(21-680 160-75-79) (21-702 770-18-03) (21-740 134-03-22)

NAS 2-6552 University of California - San Diego 1446
Data analysis of Jovian trapped radiation by Pioneer F/G
Period *Obligations*
01/25/72-06/05/74 FY74: \$170,201 TOTAL: \$295,071
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fillius, R. W. ARC/Hall, C. F. 11-Astronomy
ARC/Porter, D. L.
(21-840 811-22-00)

NAS 5-11080 University of California - San Diego 1447
Cosmic X-ray experiment OSO-H
Period *Obligations*
09/13/67-06/30/74 FY74: \$169,509 TOTAL: \$1,973,131
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Peterson, L. E. GSFC/Donley, J. L. 39-Env Sci, NEC
Baily, W. A.
Ulmer, A.
(51-850 821-22-00)

NAS 5-11081 University of California - San Diego 1448
Soft & hard solar X-ray experiment for OSO
Period *Obligations*
09/13/67-09/30/74 FY74: \$106,435 TOTAL: \$2,101,543
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Peterson, L. E. GSFC/Donley, J. L. 19-Phys Sci, NEC
(51-850 821-22-00)

**NASA'S UNIVERSITY PROGRAM
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NAS 5-21055	University of California - San Diego	1449
Programmable auroral particles experiment to be flown on the ATS-F		
<i>Period</i>	<i>Obligations</i>	
06/27/69-04/30/76	FY74: \$128,000 TOTAL: \$1,113,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mellwain, C. E.	GSFC/Wales, R. O.	13-Physics
(51-620 630-22-00)	(51-620 630-00-00)	
NAS 8-27974	University of California - San Diego	1450
Design & development of AGR-4 MeV range gamma ray telescope experiment under the HEAO program		
<i>Period</i>	<i>Obligations</i>	
06/22/72-04/15/78	FY74: \$362,000 TOTAL: \$3,089,439	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Peterson, L. E.	MSFC/Jordan, W. E.	11-Astronomy
(62-850 832-12-00)	MSFC/Jones, J. B.	
NAS 8-28015	University of California - San Diego	1451
Solar flare infrared observations		
<i>Period</i>	<i>Obligations</i>	
10/26/71-09/01/74	FY74: \$90,000 TOTAL: \$90,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hudson, H. S.	MSFC/Fountain, W. F.	11-Astronomy
(62-960 996-00-00)	MSFC/Wdowiak, T. J.	
NGL 05-005-003	University of California - San Diego	1452
Laboratory and balloon experiments in X-ray and gamma ray astronomy		
<i>Period</i>	<i>Obligations</i>	
09/15/62-02/28/75	FY74: \$110,000 TOTAL: \$1,630,457	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Peterson, L. E.	HQ-SG/Opp, A. G.	13-Physics
Pelling, R. M.	HQ-SG/Roman, N. G.	
(10-850 188-46-57)	(10-850 188-00-00)	(10-850 188-46-53)
NGL 05-005-004	University of California - San Diego	1453
Theoretical studies in astrophysics		
<i>Period</i>	<i>Obligations</i>	
02/04/63-03/31/77	FY74: \$55,000 TOTAL: \$612,133	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Burbidge, G. R.	HQ-SG/Boggess, N. W.	11-Astronomy
Gould, R. J.	HQ-SG/Roman, N. G.	
(10-850 188-41-51)	(10-850 188-00-00)	
NGL 05-005-007	University of California - San Diego	1454
Study of geomagnetically trapped particles by Explorer & Injun satellite data, refining particle detectors, detector systems & telemetered-data processing equipment		
<i>Period</i>	<i>Obligations</i>	
02/20/64-08/31/76	FY74: \$165,000 TOTAL: \$1,537,894	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mellwain, C. E.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics
(10-850 188-36-55)	(10-850 385-36-00)	
NGL 05-009-002	University of California - San Diego	1455
Studies of the composition and structure of meteorites		
<i>Period</i>	<i>Obligations</i>	
10/02/63-02/28/77	FY74: \$98,060 TOTAL: \$484,024	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arrhenius, G.	HQ-SM/Bryson, R. P.	32-Geological Sci
(10-810 195-42-65)	HQ-SM/Roberson, F. I.	
	(10-840 185-00-00)	
NGL 05-009-004	University of California - San Diego	1456
Research on interaction of meteorites & cosmic rays & consideration of origin & history of meteorites		
<i>Period</i>	<i>Obligations</i>	
12/19/62-03/14/77	FY74: \$37,000 TOTAL: \$884,214	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arnold, J. R.	HQ-SM/Bryson, R. P.	32-Geological Sci
(10-810 195-42-67)	HQ-SM/Roberson, F. I.	
	(10-810 383-09-57)	(10-850 188-00-00)
NGL 05-009-005	University of California - San Diego	1457
Research on general geochemical problems, including meteorite materials, rare gas content of meteorites & separation in gas phase at time of formation of solar system		
<i>Period</i>	<i>Obligations</i>	
10/31/62-02/28/77	FY74: \$30,000 TOTAL: \$440,707	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suess, H. E.	HQ-SM/Bryson, R. P.	32-Geological Sci
(10-810 195-42-65)	HQ-SM/Roberson, F. I.	
	(10-840 185-00-00)	
NGL 05-009-079	University of California - San Diego	1458
The application of signal detection theory to optics		
<i>Period</i>	<i>Obligations</i>	
06/05/68-09/01/72	FY74: \$134,000 TOTAL: \$134,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Helstom, C. W.	GSFC/Carrion, W. J.	13-Physics
(51-750 125-00-00)	(25-750 125-00-00)	
NGL 05-009-103	University of California - San Diego	1459
Radiation measurement of radiological hazards in man and space		
<i>Period</i>	<i>Obligations</i>	
10/01/68-09/01/79	FY74: \$259,321 TOTAL: \$259,321	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Baily, N. A.	HQ-MM/Saunders, J. F.	51-Biology
(23-770 127-00-00)	HQ-MM/Jones, W. L.	
	(10-970 970-11-63)	(72-770 127-00-00)
NGL 05-009-109	University of California - San Diego	1460
In-flight evaluation of weightlessness and gravity on cardiopulmonary function of man		
<i>Period</i>	<i>Obligations</i>	
02/17/69-11/01/76	FY74: \$86,414 TOTAL: \$577,351	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
West, J. B.	ARC/Billingham, J.	53-Other Medical
(21-970 970-21-13)	(21-970 970-21-62)	
NGL 05-009-148	University of California - San Diego	1461
Lunar sample analysis		
<i>Period</i>	<i>Obligations</i>	
02/11/71-01/31/77	FY74: \$94,000 TOTAL: \$486,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arnold, J. R.	JSC/Harris, J. W.	12-Chemistry
(72-810 388-10-02)		

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NGL 05-009-150 University of California - San Diego 1462
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
02/01/71-01/31/77	FY74: \$143,490	TOTAL: \$586,480
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Marti, K. (72-810 388-10-02)	JSC/Harris, J. W.	12-Chemistry

NGR 05-009-081 University of California - San Diego 1469
Theoretical studies of fields, particles and plasmas in space

<i>Period</i>	<i>Obligations</i>	
02/08/68-12/31/74	FY74: \$60,000	TOTAL: \$422,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Axford, W. I. (10-850 188-36-55)	HQ-SG/Kavanagh, L. D., Jr. HQ-SG/Schmerling, E. R.	13-Physics (10-850 188-00-00)

NGL 05-009-154 University of California - San Diego 1463
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
01/06/71-01/31/75	FY74: \$23,670	TOTAL: \$270,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arrhenius, G. O. (72-910 914-40-00)	JSC/Harris, J. W.	13-Physics

NGR 05-009-083 University of California - San Diego 1470
Electrophysiological studies of the nervous system

<i>Period</i>	<i>Obligations</i>	
01/01/68-09/01/78	FY74:	TOTAL: \$113,059
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Galambos, R. (10-870 189-00-00)	ARC/Winter, D. L.	61-Biol Aspects (21-870 189-00-00)

NGL 05-009-230 University of California - San Diego 1464
Infrared astronomy research

<i>Period</i>	<i>Obligations</i>	
03/08/73-11/30/76	FY74: \$45,000	TOTAL: \$89,880
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stein, W. A. (10-850 188-41-55)	HQ-SG/Bogges, N. W. HQ-SG/Roman, N. G.	11-Astronomy (10-850 352-02-03)

NGR 05-009-110 University of California - San Diego 1471
The structure and evolution of the asteroid belt

<i>Period</i>	<i>Obligations</i>	
01/23/70-08/31/74	FY74: \$50,000	TOTAL: \$308,690
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alfven, H. Booker, H. G. (10-840 185-50-81)	HQ-SL/Dwornik, S. E. HQ-SL/Holt, H. E.	32-Geological Sci (10-850 188-45-51)

NGR 05-005-005 University of California - San Diego 1465
Study of lunar gamma ray emission

<i>Period</i>	<i>Obligations</i>	
09/10/63-07/31/74	FY74:	TOTAL: \$440,607
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arnold, J. R. Peterson, L. E. (10-840 185-00-00)	HQ-SM/Bryson, R. P.	32-Geological Sci (10-860 849-00-00)

NGR 05-009-142 University of California - San Diego 1472
Infrared spectrometer investigations of the planets and satellites

<i>Period</i>	<i>Obligations</i>	
06/02/70-03/01/73	FY74:	TOTAL: \$95,824
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gillett, F. C. (10-840 196-00-00)	HQ-SL/Brunk, W. E. HQ-SL/Fellows, R. F.	11-Astronomy (10-840 196-41-02)

NGR 05-005-055 University of California - San Diego 1466
Infrared astronomic observation from high altitude airplane/telescope program

<i>Period</i>	<i>Obligations</i>	
06/05/73-08/31/74	FY74: \$40,217	TOTAL: \$40,217
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stein, W. A. (21-850 352-02-03)	ARC/Cameron, R. M. ARC/Gillespie, C. M., Jr.	11-Astronomy

NGR 05-009-178 University of California - San Diego 1473
Measurement of fluctuations in turbulent boundary layers with heterogeneous composition

<i>Period</i>	<i>Obligations</i>	
04/13/72-08/31/74	FY74:	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Libby, P. A. (23-760 136-13-01)	LARC/Gessow, A. LARC/Bertram, M. H.	41-Aero Engr

NGR 05-009-075 University of California - San Diego 1467
Velocity distributions and electron moment equations

<i>Period</i>	<i>Obligations</i>	
09/13/67-08/31/74	FY74: \$45,000	TOTAL: \$322,784
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Banks, P. M. (10-850 188-36-56)	HQ-SG/Schmerling, E. R. HQ-SG/Kavanagh, L. D., Jr.	31-Atmos Sci

NGR 05-009-188 University of California - San Diego 1474
Construction of a 200 channel photometer for use in low light level astronomy

<i>Period</i>	<i>Obligations</i>	
05/17/72-06/30/75	FY74: \$50,000	TOTAL: \$250,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McIlwain, C. E. Burbidge, M. E. (10-850 188-78-56)	HQ-SG/Aucremmanne, M. J. GSFC/Sobieski, S.	11-Astronomy

NGR 05-009-076 University of California - San Diego 1468
Theory of wave propagation and wave-particle interaction in the earth magnetosphere

<i>Period</i>	<i>Obligations</i>	
10/19/67-09/30/74	FY74: \$35,000	TOTAL: \$288,656
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fejer, J. A. (10-850 188-36-56)	HQ-SG/Schmerling, E. R. HQ-SG/Kavanagh, L. D., Jr.	13-Physics

NGR 05-009-192 University of California - San Diego 1475
Study visual aspects of aircraft operation

<i>Period</i>	<i>Obligations</i>	
02/01/72-05/01/75	FY74: \$50,000	TOTAL: \$157,300
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Harris, J. L. (21-704 504-29-03)	ARC/Haines, R. F. ARC/Huff, E. M.	59-Life Sci, NEC (21-704 501-29-03)

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NGR 05-009-198 University of California - San Diego 1476
Mechanisms of alertness in man

Period	Obligations	
05/24/72-06/01/75	FY74: \$53,479	TOTAL: \$143,479
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hillyard, S. A.	ARC/Anliker, J. E.	59-Life Sci, NEC
(21-970 970-21-11)	(21-970 970-24-01)	

NGR 05-009-257 University of California - San Diego 1483
Single scan television radiography

Period	Obligations	
11/01/73-11/01/74	FY74: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Baily, N. A.	ARC/Sandler, H.	52-Clinical Med
(21-970 970-23-30)		

NGR 05-009-213 University of California - San Diego 1477
Hydrostatic pressure and macro-molecular synthesis in marine bacteria

Period	Obligations	
04/12/73-05/31/75	FY74: \$89,954	TOTAL: \$89,954
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yayanos, A. A.	HQ-SL/Young, R. S.	51-Biology
(10-840 192-55-64)		

NGR 05-009-260 University of California - San Diego 1484
Rapid quality control of photographs

Period	Obligations	
03/18/74-03/17/75	FY74: \$11,000	TOTAL: \$11,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lee, S. H.	GSFC/Shulman, A. R.	13-Physics
(51-500 310-40-39)		

NGR 05-009-218 University of California - San Diego 1478
An automatic analyzer for amino acids purines and pyrimidines to examine lunar and Martian soil samples

Period	Obligations	
09/12/72-08/15/74	FY74: \$41,132	TOTAL: \$81,132
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miller, S. L.	HQ-SL/Young, R. S.	12-Chemistry
(10-840 192-55-61)		

NGR 05-009-264 University of California - San Diego 1485
Optical parallel processing

Period	Obligations	
03/15/74-03/14/75	FY74: \$42,100	TOTAL: \$42,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lee, S. H.	GSFC/Schaefer, D. H.	49-Engr, NEC
(51-704 502-23-32)		

NGR 05-009-226 University of California - San Diego 1479
Absolute GF-value and hydrogen atom collision

Period	Obligations	
04/12/73-08/31/74	FY74: \$27,000	TOTAL: \$27,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Penner, S. S.	HQ-SG/Weldon, J. M.	13-Physics
(10-850 188-38-53)		

NSG 7001 University of California - San Diego 1486
Investigations of auroral phenomena

Period	Obligations	
11/01/73-10/31/74	FY74: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Doupnik, J. R.	HQ-SG/Schmerling, E. R.	31-Atmos Sci
	HQ-SG/Kavanagh, L. D., Jr.	
(10-850 188-36-55)		

NGR 05-009-239 University of California - San Diego 1480
Low resolution spectrograph for the large space telescope

Period	Obligations	
10/01/73-12/31/74	FY74: \$12,000	TOTAL: \$12,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Beaver, E. A.	GSFC/Sobieski, S.	11-Astronomy
	GSFC/Meese, K. J.	
(51-850 188-78-58)		

NSG 7027 University of California - San Diego 1487
Orbital geochemical data analysis and synthesis

Period	Obligations	
03/01/74-02/28/75	FY74: \$74,959	TOTAL: \$74,959
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arnold, J. R.	HQ-SM/Bryson, R. P.	32-Geological Sci
Peterson, L. E.	HQ-SM/Roberson, F. I.	
(10-810 383-20-04)		

NGR 05-009-246 University of California - San Diego 1481
Geophysical perturbations on satellite geodesy

Period	Obligations	
11/01/73-10/31/74	FY74: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Berger, J.	GSFC/Carpenter, L. H.	39-Env Sci, NEC
Haubrich, R. A.		
(51-630 161-03-03)		

NGI 05-025-014 University of California - San Francisco 1488
Structure and function of the purple membrane of halobacterium halobium

Period	Obligations	
05/17/72-04/30/76	FY74:	TOTAL: \$187,903
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stolckenuecs, W.	ARC/Zill, L. P.	59-Life Sci, NEC
	HQ-SL/Young, R. S.	
(10-970 970-14-01)		

NGR 05-009-256 University of California - San Diego 1482
Conference on Magnetospheric-Ionospheric Coupling G

Period	Obligations	
12/01/73-02/28/75	FY74: \$5,000	TOTAL: \$5,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Banks, P. M.	HQ-SG/Schmerling, E. R.	19-Phys Sci, NEC
	HQ-SG/Kavanagh, L. D., Jr.	
(10-850 188-36-55)		

NGR 05-025-008 University of California - San Francisco 1489
Microbial ecology of anterior nares of man

Period	Obligations	
09/01/68-06/01/74	FY74:	TOTAL: \$174,715
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Maibach, H. I.	ARC/Mandel, A. D.	52-Clinical Med
(21-970 970-21-25)		

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NGL 05-010-019 University of California - Santa Barbara 1490
Maar volcanoes and the role of water in their origin
Period Obligations
06/22/67-03/01/73 FY74: TOTAL: \$113,915
Prin. Invest. NASA Tech. Officer CASE Category
Fisher, R. V. HQ-SM/Bryson, R. P. 32-Geological Sci
HQ-SM/Allenby, R. J.
(10-810 195-42-64) (10-810 195-00-00)

NGR 05-010-035 University of California - Santa Barbara 1491
Pre-paleozoic biotas and environments
Period Obligations
08/01/68-07/31/74 FY74: \$35,000 TOTAL: \$210,000
Prin. Invest. NASA Tech. Officer CASE Category
Cloud, P. E. HQ-SL/Young, R. S. 32-Geological Sci
(10-840 192-55-62)

NGR 05-010-062 University of California - Santa Barbara 1492
Planetary geophysics
Period Obligations
03/01/73-07/01/74 FY74: \$2,176 TOTAL: \$32,004
Prin. Invest. NASA Tech. Officer CASE Category
Peale, S. J. HQ-SL/Dwornik, S. E. 32-Geological Sci
(10-840 384-50-80) (10-840 185-00-00)

NGR 05-010-081 University of California - Santa Barbara 1493
Lunar sample analysis
Period Obligations
02/01/73-01/31/75 FY74: \$45,280 TOTAL: \$102,705
Prin. Invest. NASA Tech. Officer CASE Category
Tilton, G. R. JSC/Harris, J. W. 32-Geological Sci
(72-810 388-10-03)

NGR 05-061-015 University of California - Santa Cruz 1494
Infrared instrumentation
Period Obligations
07/06/72-01/31/75 FY74: \$27,714 TOTAL: \$43,341
Prin. Invest. NASA Tech. Officer CASE Category
Rank, D. M. HQ-SG/Bogges, N. W. 11-Astronomy
HQ-SG/Roman, N. G.
(10-850 188-41-55)

NAS 2-7059 University of San Francisco 1495
Apollo radiation dosimetry
Period Obligations
06/14/72-06/30/75 FY74: \$31,800 TOTAL: \$123,931
Prin. Invest. NASA Tech. Officer CASE Category
Benton, E. V. ARC/Taketa, S. T. 13-Physics
ARC/Tremor, J. W.
(21-970 970-21-62) (21-970 970-21-63) (21-970 970-24-02)

NAS 8-26758 University of San Francisco 1496
Study for heavy particle, passive, personnel dosimetry using etched particles
Period Obligations
01/21/71-05/15/75 FY74: \$17,000 TOTAL: \$58,073
Prin. Invest. NASA Tech. Officer CASE Category
Benton, E. V. MSFC/Parnell, T. A. 13-Physics
MSFC/Eby, P. B.
(62-960 964-50-00) (62-740 11 4-03-05)

NAS 9-12466 University of San Francisco 1497
Dosimetry materials
Period Obligations
02/02/72-10/01/74 FY74: TOTAL: \$120,000
Prin. Invest. NASA Tech. Officer CASE Category
Benton, E. V. JSC/Bailey, J. V. 13-Physics
(72-910 914-00-00)

NAS 8-27799 University of Santa Clara 1498
Study of algebraic methods for analysis and design of attitude control systems
Period Obligations
06/30/71-01/31/75 FY74: \$20,835 TOTAL: \$77,029
Prin. Invest. NASA Tech. Officer CASE Category
Siljak, D. D. MSFC/Seltzer, S. M. 49-Engr, NEC
(62-850 188-78-57)

NGR 05-017-010 University of Santa Clara 1499
Extension of mitrovis method for the analysis and design of dynamic systems
Period Obligations
01/01/67-11/01/74 FY74: \$28,985 TOTAL: \$184,881
Prin. Invest. NASA Tech. Officer CASE Category
Siljak, D. D. ARC/Doolin, B. F. 49-Engr, NEC
Thaler, G.
(21-704 501-03-11)

NGR 05-017-027 University of Santa Clara 1500
Planetary geology-stellar evolution
Period Obligations
03/31/71-10/20/74 FY74: \$68,829 TOTAL: \$236,627
Prin. Invest. NASA Tech. Officer CASE Category
Barker, W. A. ARC/Poppoff, I. G. 11-Astronomy
(21-910 914-49-00) (21-910 914-40-00)

NGR 05-017-029 University of Santa Clara 1501
Study of compressible turbulent flow fields
Period Obligations
12/08/71-01/01/73 FY74: TOTAL: \$87,791
Prin. Invest. NASA Tech. Officer CASE Category
Owen, F. K. ARC/Marvin, J. G. 41-Aero Engr
(21-704 502-07-01) (21-702 768-83-01) (21-790 797-00-00)

NGR 05-017-031 University of Santa Clara 1502
Evaluation of STOL navigation avionics
Period Obligations
05/10/72-05/30/75 FY74: TOTAL: \$140,000
Prin. Invest. NASA Tech. Officer CASE Category
Dunn, W. R. ARC/Hruly, R. 41-Aero Engr
(21-760 136-63-02) (21-763 133-17-10)

NGR 05-017-033 University of Santa Clara 1503
Study of viscous flow fields
Period Obligations
09/05/72-09/16/74 FY74: \$45,178 TOTAL: \$88,164
Prin. Invest. NASA Tech. Officer CASE Category
Cheng, D. Y. ARC/Schwartz, I. R. 41-Aero Engr
ARC/Davis, S. S.
(21-704 501-04-01) (21-702 768-83-01)

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NGR 05-017-037 University of Santa Clara 1504
Mapping geology of Mars quadrangle MC-6 cassius
Period *Obligations*
01/01/73-11/30/74 FY74: \$14,000 TOTAL: \$21,531
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greeley, R. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Holt, H. E.
(10-840 384-50-80)

NSG 7013 University of Santa Clara 1505
Descriptive lunar geology
Period *Obligations*
01/01/74-09/31/74 FY74: \$6,905 TOTAL: \$6,905
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greeley, R. HQ-SM/Bryson, R. P. 32-Geological Sci
Schultz, P. H. HQ-SM/Roberson, F. I.
(10-810 383-20-01)

NAS 2-6558 University of Southern California 1506
Pioneer F/G analysis of ultraviolet experiment
Period *Obligations*
09/01/71-05/31/75 FY74: \$153,850 TOTAL: \$299,932
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Judge, D. L. ARC/Hall, C. F. 13-Physics
(21-840 811-22-00)

NAS 2-7969 University of Southern California 1507
Pioneer F/G data analysis
Period *Obligations*
12/05/73-06/30/74 FY74: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Intriligator, D. S. ARC/Porter, D. L. 13-Physics
(21-840 811-22-00)

NAS 3-17857 University of Southern California 1508
Jet noise basic research program
Period *Obligations*
06/29/73-06/28/74 FY74: TOTAL: \$27,290
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Laufer, J. LERC/Dorsch, R. G. 41-Aero Engr
(22-704 501-04-01)

NAS 5-21505 University of Southern California 1509
Pioneer F/G analysis of ultraviolet experiment
Period *Obligations*
06/04/70-12/27/75 FY74: \$46,000 TOTAL: \$220,580
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Davisson, L. D. GSFC/Kutz, R. L. 45-Elec Engr
(51-680 604-42-00) (51-630 369-06-00) (51-680 602-43-00)

NAS 8-28305 University of Southern California 1510
Skylab experiment - Mixed 111-2V crystal growth analysis effort
Period *Obligations*
10/19/72-04/30/74 FY74: TOTAL: \$47,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilcox, W. R. MSFC/Adams, W. R. 19-Phys Sci, NEC
MSFC/Davidson, M. C.
(62-960 948-90-95)

NAS 8-29847 University of Southern California 1511
Study of analytics of crystal growth in space
Period *Obligations*
06/05/73-12/18/74 FY74: \$20,000 TOTAL: \$45,030
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilcox, W. R. MSFC/Bannister, T. C. 13-Physics
MSFC/Facemire, B. E.
(62-630 179-12-23)

NAS 9-6164 University of Southern California 1512
Proton accelerator studies
Period *Obligations*
06/01/66-06/01/77 FY74: TOTAL: \$8,004
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Unavailable JSC/Unavailable 13-Physics
(72-910 914-14-00)

NAS 9-13980 University of Southern California 1513
Global oceanographic studies
Period *Obligations*
03/04/74-09/30/74 FY74: \$15,443 TOTAL: \$15,443
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stone, R. O. JSC/Wilmarth, V. R. 33-Oceanography
(72-960 948-80-80)

NASW 2360 University of Southern California 1514
Regional dissemination center operation in the Western Research
Application Center
Period *Obligations*
04/21/72-01/31/74 FY74: TOTAL: \$452,808
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Oulie, A. K. HQ-KT/Holley, H. L. 99-Multi-Discip
HQ-KT/Carlson, J. M.
(10-250 141-93-01)

NASW 2592 University of Southern California 1515
Operation of the Western Research Application Center
Period *Obligations*
06/18/74-01/31/75 FY74: \$186,500 TOTAL: \$186,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Unavailable HQ-KT/HQ-KT/Holley, H. L. 99-Multi-Discip
(10-250 141-93-01)

NGL 05-018-104 University of Southern California 1516
The study of synchronization techniques for optical communica-
tion systems
Period *Obligations*
11/07/68-08/31/74 FY74: TOTAL: \$34,914
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gagliardi, R. M. GSFC/Premo, D. A. 45-Elec Engr
(51-750 125-00-00) (25-750 125-00-00) (51-750 115-22-08)

NGL 05-018-118 University of Southern California 1517
Advanced communications techniques
Period *Obligations*
10/09/69-11/30/76 FY74: \$20,000 TOTAL: \$110,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Davisson, L. D. GSFC/Kutz, R. L. 45-Elec Engr
(51-680 175-00-00) (51-680 602-43-00)

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

NGR 05-018-178 University of Southern California 1518
Dynamics of rotating-stratified flows with applications to the Jovian atmosphere

<i>Period</i>	<i>Obligations</i>	
09/11/72-08/31/74	FY74: \$38,126	TOTAL: \$75,493
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Maxworthy, T.	HQ-SL/Fellows, R. F.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

(10-840 185-47-81)

NGR 05-018-180 University of Southern California 1519
Photon-molecule interaction studies of the atmospheric gases

<i>Period</i>	<i>Obligations</i>	
08/31/72-10/31/74	FY74: \$36,507	TOTAL: \$62,817
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Judge, D. L.	HQ-SL/Fellows, R. F.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

(10-840 185-47-83)

NGR 05-018-181 University of Southern California 1520
Analysis of Pioneer solar wind observations of the interplanetary medium

<i>Period</i>	<i>Obligations</i>	
10/25/72-12/30/74	FY74: \$40,000	TOTAL: \$80,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Intriligator, D. S.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics
	HQ-SG/Schmerling, E. R.	

(10-850 385-36-00)

NGR 05-018-185 University of Southern California 1521
Study of the structure of magnetopause using simultaneous OGO-5 magnetic field light ion mass

<i>Period</i>	<i>Obligations</i>	
06/27/73-06/30/74	FY74:	TOTAL: \$25,795
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Intriligator, D. S.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics

(10-850 385-36-00)

NGT 05-018-127 University of Southern California 1522
Training of graduate students in the field of communication sciences

<i>Period</i>	<i>Obligations</i>	
08/11/69-08/01/73	FY74:	TOTAL: \$191,400
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kaprielian, Z. A.	HQ-PY/Carter, C. H.	49-Engr, NEC

(10-370 181-00-00)

NSG 3025 University of Southern California 1523
Basic noise research program

<i>Period</i>	<i>Obligations</i>	
06/28/74-06/27/75	FY74: \$32,758	TOTAL: \$32,758
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Laufer, J.	LERC/Dorsch, R. G.	41-Aero Engr

(22-704 501-04-01)

NSR 05-018-087 University of Southern California 1524
Observation of arterial blood pressure of the primate

<i>Period</i>	<i>Obligations</i>	
07/10/68-11/30/72	FY74:	TOTAL: \$382,548
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Meehan, J. P.	HQ-MM/Saunders, J. F.	59-Life Sci, NEC

(10-980 945-82-00) (10-980 975-82-00)

COLORADO

NAS 5-21778 Colorado School of Mines 1525
Investigation of geological, mineral & water resources in Western Colorado

<i>Period</i>	<i>Obligations</i>	
06/30/72-10/15/74	FY74: \$30,242	TOTAL: \$136,242
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Reeves, R. G.	GSFC/Stonesifer, G. R.	32-Geological Sci

(51-680 641-14-03)

NAS 9-13394 Colorado School of Mines 1526
Geologic, mineral, & water resource investigation in western Colorado using EREP, data

<i>Period</i>	<i>Obligations</i>	
05/25/73-06/30/75	FY74:	TOTAL: \$80,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lee, K.	JSC/Miller, M. L.	32-Geological Sci

(72-960 948-63-83)

NGL 06-001-015 Colorado School of Mines 1527
Application of remote sensor data to geologic & economic analyses of the Bonanza test site

<i>Period</i>	<i>Obligations</i>	
03/11/69-03/31/75	FY74:	TOTAL: \$731,980
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lee, K.	HQ-ER/Park, A. B.	39-Env Sci, NEC
	HQ-PY/Vitale, J. A.	

(10-680 160-75-80) (10-370 183-00-00) (10-371 340-00-00)

NAS 1-12106 Colorado State University 1528
Development of data test sets & simulation models for long term zonal earth energy budget experiment

<i>Period</i>	<i>Obligations</i>	
02/06/73-01/31/75	FY74: \$49,548	TOTAL: \$69,732
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vonder Haar, T. H.	LARC/Sweet, G. E.	31-Atmos Sci
	LARC/Woerner, C. V.	

(23-680 638-10-00) (23-680 160-44-9X)

NAS 2-6615 Colorado State University 1529
Study plant tumor tissues on clinostats & in space environment

<i>Period</i>	<i>Obligations</i>	
09/10/71-12/10/74	FY74: \$20,000	TOTAL: \$58,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Baker, R.	ARC/Tremor, J. W.	51-Biology

(21-970 970-21-61) (21-980 975-00-00)

NAS 3-17213 Colorado State University 1530
Remote measuring of lake ice thickness

<i>Period</i>	<i>Obligations</i>	
03/10/73-04/10/73	FY74:	TOTAL: \$14,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vickers, R. S.	LERC/Gedney, R. T.	32-Geological Sci

(22-701 599-85-00) (22-701 598-85-00) (22-701 599-00-00)

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

NAS 8-28590 Colorado State University 1531
Feasibility of remote evaporation and precipitation estimates
Period Obligations
05/18/72-06/30/74 FY74: TOTAL: \$99,000
Prin. Invest. NASA Tech. Officer CASE Category
Sadeh, W. Z. MSFC/Turner, R. E. 39-Env Sci, NEC
Ruff, T. F. (62-950 951-15-00) (62-910 933-50-00)

NAS 8-28655 Colorado State University 1532
Feasibility of aircraft surveys for stream discharge prediction
Period Obligations
05/01/72-09/30/73 FY74: TOTAL: \$40,000
Prin. Invest. NASA Tech. Officer CASE Category
Marschner, B. W. MSFC/Sloan, J. C. 39-Env Sci, NEC
MSFC/Turner, R. E. (62-950 951-15-00) (62-910 933-50-00)

NAS 8-29583 Colorado State University 1533
Wind tunnel investigation of wakes downwind of buildings and natural obstacles
Period Obligations
05/23/73-06/30/75 FY74: \$56,506 TOTAL: \$85,017
Prin. Invest. NASA Tech. Officer CASE Category
Cermak, J. E. MSFC/Camp, D. W. 44-Civil Engr
Peterka, J. A. MSFC/Walker, R. W. (62-704 501-08-10)

NAS 8-30250 Colorado State University 1534
Application of electro-hydrodynamic phenomena to space processing
Period Obligations
02/01/74-01/31/75 FY74: \$15,001 TOTAL: \$15,001
Prin. Invest. NASA Tech. Officer CASE Category
Jones, T. B. MSFC/Adams, G. D. 45-Elec Engr
Wilmsen, C. W. MSFC/Schuerer, P. H. (62-630 179-15-10)

NAS 9-12972 Colorado State University 1535
Investigation of preprocessing transformation
Period Obligations
06/27/72-08/30/74 FY74: TOTAL: \$71,970
Prin. Invest. NASA Tech. Officer CASE Category
Smith, J. JSC/Dragg, J. 31-Atmos Sci (72-680 160-75-56)

NGL 06-002-063 Colorado State University 1536
Stress intensity factors for surface flawed fracture specimens
Period Obligations
02/17/69-01/01/75 FY74: TOTAL: \$143,408
Prin. Invest. NASA Tech. Officer CASE Category
Smith, F. W. LERC/Misencik, J. A. 46-Mech Engr (22-704 502-22-03) (22-742 124-00-00)

NGR 06-002-075 Colorado State University 1537
Metabolic effects of artificial environment
Period Obligations
10/18/68-10/31/74 FY74: \$25,000 TOTAL: \$228,000
Prin. Invest. NASA Tech. Officer CASE Category
Jordan, J. P. ARC/Holton, E. M. 51-Biology
Schatte, C. L. (21-970 970-21-61) (53-970 970-71-61)

NGR 06-002-095 Colorado State University 1538
Combustion instability with partial length acoustic lines
Period Obligations
12/02/69-04/01/76 FY74: \$65,333 TOTAL: \$230,013
Prin. Invest. NASA Tech. Officer CASE Category
Mitchell, C. E. LERC/Priem, R. J. 42-Astro Engr (22-704 502-04-25)

NGR 06-002-098 Colorado State University 1539
Atmospheric transport processes as evaluated from Nimbus III satellite data
Period Obligations
04/13/70-10/31/74 FY74: \$30,000 TOTAL: \$197,787
Prin. Invest. NASA Tech. Officer CASE Category
Reiter, E. R. GSFC/Wexler, R. 31-Atmos Sci (51-680 175-61-41) (51-680 160-44-51)

NGR 06-002-102 Colorado State University 1540
Studies of radiation measurements from polar and geosynchronous satellites
Period Obligations
09/23/70-10/31/74 FY74: \$60,000 TOTAL: \$221,000
Prin. Invest. NASA Tech. Officer CASE Category
Vonder Haar, T. H. GSFC/Wexler, R. 31-Atmos Sci (51-680 175-61-41) (51-680 160-44-51)

NGR 06-002-112 Colorado State University 1541
An experimental investigation of hollow cathode discharge start-up and operation
Period Obligations
12/21/70-11/30/74 FY74: \$50,555 TOTAL: \$187,242
Prin. Invest. NASA Tech. Officer CASE Category
Wilbur, P. J. LERC/Kerslake, W. R. 49-Engr, NEC (22-710 113-31-08) (22-710 113-31-09) (22-704 502-04-01)

NGR 06-002-119 Colorado State University 1542
Mechanism of increased growth response of plants to lunar samples
Period Obligations
06/21/72-06/30/74 FY74: TOTAL: \$95,980
Prin. Invest. NASA Tech. Officer CASE Category
Lindsay, W. A. JSC/Harris, J. W. 13-Physics (72-910 914-40-00)

NGR 06-002-127 Colorado State University 1543
Investigation of electrohydrodynamic heat pipes
Period Obligations
04/29/71-11/01/74 FY74: \$12,874 TOTAL: \$37,819
Prin. Invest. NASA Tech. Officer CASE Category
Jones, T. B. ARC/Kirkpatrick, J. P. 46-Mech Engr (21-704 502-21-27)

NGR 06-002-128 Colorado State University 1544
Effect of cosmic radiation
Period Obligations
08/31/72-08/31/74 FY74: \$65,000 TOTAL: \$130,000
Prin. Invest. NASA Tech. Officer CASE Category
Leti, J. T. JSC/Hoffman, R. A. 51-Biology
Powers, G. P. JSC/Bailey, J. V. (72-970 970-51-63) (10-970 970-11-63)

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

NGR 06-002-147 Colorado State University 1545
Theoretical investigations on plasma processes in the Kaufman thruster
Period Obligations
04/14/72-06/14/75 FY74: \$27,350 TOTAL: \$82,050
Prin. Invest. NASA Tech. Officer CASE Category
Wilhelm, H. E. LERC/Serafini, J. S. 42-Astro Engr
(22-704 502-04-01)

NGR 06-002-159 Colorado State University 1546
Bulk properties of atomic triplet hydrogen & high pressure equation of state for solid hydrogen
Period Obligations
12/04/72-07/22/74 FY74: \$20,351 TOTAL: \$30,299
Prin. Invest. NASA Tech. Officer CASE Category
Eiters, R. D. LERC/Brown, G. V. 13-Physics
(22-704 502-04-35)

NGR 06-002-166 Colorado State University 1547
Course development in space sciences
Period Obligations
12/04/72-12/01/73 FY74: TOTAL: \$7,920
Prin. Invest. NASA Tech. Officer CASE Category
Ogg, J. E. ARC/Winter, D. L. 51-Biology
ARC/Klein, H. P.
(21-970 970-24-01)

NGR 06-002-191 Colorado State University 1548
Impact studies on computer needs for a whole earth dynamical model
Period Obligations
05/01/74-04/30/75 FY74: \$9,000 TOTAL: \$9,000
Prin. Invest. NASA Tech. Officer CASE Category
Thompson, E. G. GSFC/Carpenter, L. H. 32-Geological Sci
Winn, C. B. GSFC/Smith, D. E.
(51-630 161-02-08)

NSG 1023 Colorado State University 1549
Aircraft measurements and analysis of severe storms
Period Obligations
04/01/74-03/31/75 FY74: \$30,000 TOTAL: \$30,000
Prin. Invest. NASA Tech. Officer CASE Category
Sinclair, P. C. LARC/Costen, R. C. 31-Atmos Sci
(23-680 175-21-31)

NSG 2009 Colorado State University 1550
Ultrasonic methods for hemodynamic measurements
Period Obligations
02/01/74-02/01/75 FY74: \$30,000 TOTAL: \$30,000
Prin. Invest. NASA Tech. Officer CASE Category
Hiland, M. B. ARC/Rositano, S. A. 19-Phys Sci, NEC
Miller, C. W. ARC/Sandler, H.
Wells, M. K.
(21-970 970-23-30)

NSG 3011 Colorado State University 1551
Experimental investigations of argon and xenon ion sources
Period Obligations
07/01/74-06/30/75 FY74: \$50,197 TOTAL: \$50,197
Prin. Invest. NASA Tech. Officer CASE Category
Wilbur, P. J. LERC/Mirtich, M. J. 42-Astro Engr
LERC/Byers, D. C.
(22-704 502-04-01)

NSG 5011 Colorado State University 1552
Satellite support to weather modification
Period Obligations
06/15/74-01/14/75 FY74: \$35,000 TOTAL: \$35,000
Prin. Invest. NASA Tech. Officer CASE Category
Grant, L. O. GSFC/Allison, L. J. 31-Atmos Sci
(51-680 611-13-00)

NAS 2-7901 University of Colorado - Boulder 1553
Design and development of ultraviolet spectrometer
Period Obligations
10/29/73-07/10/74 FY74: \$33,657 TOTAL: \$33,657
Prin. Invest. NASA Tech. Officer CASE Category
Stewart, I. ARC/Sinnott, D. 31-Atmos Sci
ARC/Hall, C. F.
(21-840 186-68-63)

NAS 5-11363 University of Colorado - Boulder 1554
OSO-I pointed experiment hardware
Period Obligations
06/22/71-03/30/75 FY74: \$974,200 TOTAL: \$4,004,793
Prin. Invest. NASA Tech. Officer CASE Category
Brunner, E. C. GSFC/Donley, J. L. 31-Atmos Sci
(51-850 821-32-00)

NAS 5-11405 University of Colorado - Boulder 1555
University of Colorado ultraviolet nitric oxide experiment for atmosphere Explorer
Period Obligations
03/17/71-03/31/76 FY74: \$149,000 TOTAL: \$624,000
Prin. Invest. NASA Tech. Officer CASE Category
Barth, C. A. GSFC/Findlay, J. A. 31-Atmos Sci
(51-850 852-22-00)

NAS 5-23274 University of Colorado - Boulder 1556
Development of models for physical properties of stellar chromospheres
Period Obligations
08/01/73-08/01/74 FY74: \$14,000 TOTAL: \$14,000
Prin. Invest. NASA Tech. Officer CASE Category
Linsky, J. L. GSFC/Underhill, A. B. 11-Astronomy
(51-850 385-41-00)

NGL 06-003-052 University of Colorado - Boulder 1557
Theoretical and experimental research program in physics of planetary atmospheres
Period Obligations
06/28/66-06/30/76 FY74: \$349,923 TOTAL: \$2,857,947
Prin. Invest. NASA Tech. Officer CASE Category
Barth, C. A. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.
(10-840 185-47-83)

NGL 06-003-057 University of Colorado - Boulder 1558
Basic research in solar physics
Period Obligations
09/05/67-08/31/76 FY74: \$100,000 TOTAL: \$588,500
Prin. Invest. NASA Tech. Officer CASE Category
Hummer, D. G. HQ-SG/Weldon, J. M. 11-Astronomy
HQ-SG/Oertel, G. K.
(10-850 188-38-53) (10-850 385-38-00)

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

NGL 06-003-064	University of Colorado - Boulder	1559			
Rocket research program in the ultraviolet airglow and aurora of planetary atmospheres					
<i>Period</i>	<i>Obligations</i>				
11/30/67-08/31/76	FY74: \$160,000	TOTAL: \$1,159,122			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Barth, C. A.	HQ-SG/Dubin, M.	31-Atmos Sci			
	HQ-SG/Fellows, R. F.				
(10-850 879-11-00)	(10-850 879-00-00)				
NGL 06-003-200	University of Colorado - Boulder	1560			
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>				
07/11/72-04/30/77	FY74: \$150,000	TOTAL: \$300,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ives, J. D.	HQ-PY/Vitale, J. A.	39-Env Sci, NEC			
(10-371 340-00-00)					
NGR 06-003-069	University of Colorado - Boulder	1561			
Solar physics research					
<i>Period</i>	<i>Obligations</i>				
11/29/67-12/30/74	FY74: \$100,000	TOTAL: \$867,801			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bruner, E. C.	HQ-SG/Weldon, J. M.	11-Astronomy			
Rense, W. A.	HQ-SG/Holtz, J. R.				
(10-850 879-11-00)					
NGR 06-003-092	University of Colorado - Boulder	1562			
Analysis of IMP-C data from the magnetospheric tail					
<i>Period</i>	<i>Obligations</i>				
11/01/68-05/31/73	FY74:	TOTAL: \$33,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Speiser, T. W.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics			
	HQ-SG/Schardt, A. W.				
(10-850 385-00-00)					
NGR 06-003-127	University of Colorado - Boulder	1563			
Data reduction-coordinated experiments					
<i>Period</i>	<i>Obligations</i>				
08/18/69-08/31/74	FY74: \$175,000	TOTAL: \$642,861			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Barth, C. A.	HQ-SL/Fellows, R. F.	31-Atmos Sci			
	HQ-SL/Brunk, W. E.				
(10-840 384-47-81)	(10-840 384-00-00)				
NGR 06-003-160	University of Colorado - Boulder	1564			
Point-contact junction detectors					
<i>Period</i>	<i>Obligations</i>				
06/17/70-08/31/73	FY74:	TOTAL: \$50,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Baird, J. R.	HQ-ER/Lehmann, J.	45-Elec Engr			
	HQ-PY/Vitale, J. A.				
(10-680 160-00-00)					
NGR 06-003-176	University of Colorado - Boulder	1565			
Rocket research program in stellar ultraviolet astronomy					
<i>Period</i>	<i>Obligations</i>				
12/29/71-07/14/74	FY74: \$75,000	TOTAL: \$136,255			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lillie, C. F.	HQ-SG/Roman, N. G.	11-Astronomy			
(10-850 879-11-00)					
NGR 06-003-179	University of Colorado - Boulder	1566			
OAO-II data analysis program					
<i>Period</i>	<i>Obligations</i>				
06/07/71-06/30/74	FY74:	TOTAL: \$41,100			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lillie, C. F.	HQ-SG/Roman, N. G.	11-Astronomy			
(10-850 385-41-00)					
NGR 06-003-181	University of Colorado - Boulder	1567			
Lunar sample analysis					
<i>Period</i>	<i>Obligations</i>				
06/24/71-01/31/75	FY74: \$30,330	TOTAL: \$84,950			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Larson, E. E.	JSC/Harris, J. W.	13-Physics			
(72-810 388-10-03)					
NGR 06-003-199	University of Colorado - Boulder	1568			
Geologic analysis of Martian surface features from Mariner 9 photography as a basis for systematic geologic mapping of Mars					
<i>Period</i>	<i>Obligations</i>				
05/24/72-08/31/74	FY74:	TOTAL: \$25,715			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Peterson, J. E.	HQ-SL/Dwornik, S. E.	32-Geological Sci			
(10-840 384-50-80)	(10-840 384-00-00)				
NGR 06-003-201	University of Colorado - Boulder	1569			
Analysis of data from satellite experiments					
<i>Period</i>	<i>Obligations</i>				
09/11/72-08/31/74	FY74: \$75,361	TOTAL: \$206,913			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Thomas, G. E.	HQ-SL/Fellows, R. F.	31-Atmos Sci			
	HQ-SL/Brunk, W. E.				
(10-840 384-47-81)					
NGR 06-003-205	University of Colorado - Boulder	1570			
Ion-implanted, epitaxially-grown ZnSe					
<i>Period</i>	<i>Obligations</i>				
10/01/72-09/30/74	FY74: \$3,031	TOTAL: \$3,031			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Chernow, F.	LARC/Hutchby, J. A.	13-Physics			
	LARC/Hendricks, H. D.				
(23-704 502-23-56)					
NGR 06-003-208	University of Colorado - Boulder	1571			
Energy transfer in isotropic turbulence					
<i>Period</i>	<i>Obligations</i>				
09/05/72-08/31/74	FY74: \$16,000	TOTAL: \$36,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Uberoi, M. S.	LERC/Deissler, R. G.	41-Aero Engr			
(22-704 502-04-25)					
NGR 06-003-215	University of Colorado - Boulder	1572			
Analysis of satellite data from the magnetosphere and comparison with ground-based data					
<i>Period</i>	<i>Obligations</i>				
07/01/73-12/31/74	FY74: \$29,957	TOTAL: \$29,957			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Speiser, T. W.	HQ-SG/Calahan, H. D.	13-Physics			
(10-850 385-36-00)					

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

NGR 06-003-216 University of Colorado - Boulder 1573
Physical properties of chromospheric active and quiet regions by the analysis of existing OSO-4 and OSO-6 euv data

<i>Period</i>	<i>Obligations</i>	
11/01/73-01/31/75	FY74: \$24,000	TOTAL: \$24,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Linsky, J. L.	HQ-SG/Calahan, H. D.	11-Astronomy
	HQ-SG/Oertel, G. K.	

(10-850 385-38-00)

NGR 06-003-219 University of Colorado - Boulder 1574
High resolution spectrograph of large space telescope

<i>Period</i>	<i>Obligations</i>	
10/01/73-12/31/74	FY74: \$8,805	TOTAL: \$8,805
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lillie, C. F.	GSFC/Sobieski, S.	11-Astronomy
	GSFC/Levin, G. M.	

(51-850 188-78-58)

NGR 06-003-222 University of Colorado - Boulder 1575
Zodiacal light rocket research program

<i>Period</i>	<i>Obligations</i>	
07/01/73-06/30/75	FY74: \$170,000	TOTAL: \$170,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lillie, C. F.	HQ-SG/Dubin, M.	11-Astronomy
	HQ-SG/Holtz, J. R.	

(10-850 879-11-00)

NGR 06-003-236 University of Colorado - Boulder 1576
Seventh U.S. National Congress of Applied Mechanics

<i>Period</i>	<i>Obligations</i>	
01/15/74-01/15/75	FY74: \$6,035	TOTAL: \$6,035
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Essenburg, F.	LERC/Hirschberg, M. H.	21-Mathematics

(22-704 501-21-21) (22-704 501-24-07)

NSG 1027 University of Colorado - Boulder 1577
Solar cells for terrestrial applications

<i>Period</i>	<i>Obligations</i>	
06/01/74-05/31/75	FY74: \$8,000	TOTAL: \$8,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chernow, F.	LARC/Hutchby, J. A.	19-Phys Sci, NEC
	LARC/Hendricks, H. D.	

(23-704 502-03-53)

NSG 1037 University of Colorado - Boulder 1578
Ion-implanted, epitaxially-grown ZnSe

<i>Period</i>	<i>Obligations</i>	
05/01/74-04/30/75	FY74: \$32,255	TOTAL: \$32,255
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chernow, F.	LARC/Hutchby, J. A.	19-Phys Sci, NEC
	LARC/Hendricks, H. D.	

(23-704 502-03-53)

NSG 1056 University of Colorado - Boulder 1579
Theory of hypersonic flight

<i>Period</i>	<i>Obligations</i>	
06/01/74-11/30/75	FY74: \$34,390	TOTAL: \$34,390
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Busemann, A.	LARC/Rainey, R. W.	41-Aero Engr

(23-704 501-15-82)

NAS 2-7794 University of Colorado - Medical Center 1580
Electromilogram amplifier

<i>Period</i>	<i>Obligations</i>	
09/11/73-01/30/74	FY74: \$3,389	TOTAL: \$3,389
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rock, K. C.	ARC/Anliker, J. E.	69-Psych, NEC
(21-970 970-21-11)	(21-970 970-21-51)	

NAS 2-8200 University of Denver 1581
Detectability of atmospheric species

<i>Period</i>	<i>Obligations</i>	
04/01/74-06/30/74	FY74: \$19,858	TOTAL: \$19,858
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Murcay, D. G.	ARC/Boese, R. W.	13-Physics
	ARC/Witteborn, F. C.	

(21-702 743-34-22)

NAS 5-23190 University of Denver 1582
Construction of a 31.4 GHS parametric amplifier

<i>Period</i>	<i>Obligations</i>	
03/16/73-06/15/74	FY74:	TOTAL: \$16,972
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Edrich, J.	GSFC/Hobbs, R. W.	13-Physics

(51-850 188-38-52)

NASW 2362 University of Denver 1583
Collection and analysis of information relating to technology transfer and application

<i>Period</i>	<i>Obligations</i>	
04/05/72-01/13/74	FY74:	TOTAL: \$475,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kottenstette, J. P.	HQ-KT/Orrick, D. W.	99-Multi-Discip
Freeman, J. E.	HQ-KT/Carlson, J. M.	

(10-250 141-94-00)

NASW 2607 University of Denver 1584
The collection and analysis of information relating to technology transfer and application

<i>Period</i>	<i>Obligations</i>	
03/12/74-01/13/75	FY74: \$100,000	TOTAL: \$100,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Unavailable	HQ-KT/Ault, L. A.	75-Political Sci

(10-250 141-94-00)

NGL 06-004-096 University of Denver 1585
Extending the universities role in the exploitation of aerospace technology

<i>Period</i>	<i>Obligations</i>	
09/08/69-03/31/74	FY74:	TOTAL: \$200,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Blackledge, J. P.	HQ-PY/Redding, E. R.	41-Aero Engr

(10-370 183-00-00)

NGR 06-004-058 University of Denver 1586
Study of hydromagnetic disturbances in the geomagnetic field at satellite altitudes

<i>Period</i>	<i>Obligations</i>	
05/02/68-04/30/75	FY74: \$20,000	TOTAL: \$118,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Patel, V. L.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics
	HQ-SG/Schmerling, E. R.	

(10-850 385-36-00) (10-850 385-00-00)

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

NGR 06-004-060 University of Denver 1587
Study of physical processes which govern the dynamics of
geomagnetically trapped radiation
Period Obligations
05/08/68-05/31/75 FY74: \$22,000 TOTAL: \$153,000
Prin. Invest. NASA Tech. Officer CASE Category
Roederer, J. G. HQ-SG/Kavanagh, L. D., Jr. 13-Physics
HQ-SG/Schmerling, E. R.
(10-850 385-36-00) (10-850 385-00-00)

NGR 06-004-123 University of Denver 1588
Study of geomagnetic storms
Period Obligations
10/10/73-01/09/75 FY74: \$19,867 TOTAL: \$19,867
Prin. Invest. NASA Tech. Officer CASE Category
Patel, V. L. HQ-SG/Calahan, H. D. 13-Physics
HQ-SG/Kavanagh, L. D., Jr.
(10-850 385-36-00)

NGR 06-004-125 University of Denver 1589
Space cabin atmospheric environments
Period Obligations
01/22/73-01/14/75 FY74: \$17,360 TOTAL: \$37,010
Prin. Invest. NASA Tech. Officer CASE Category
Ross, L. W. ARC/Quattrone, P. D. 19-Phys Sci, NEC
ARC/Leban, M.
(21-970 970-22-21)

NGR 06-004-128 University of Denver 1590
Quantitative spectroscopic studies of the 11.3 micron and 21.9
micron infrared bands of HNO stratospheric temperatures
Period Obligations
05/23/73-09/30/74 FY74: TOTAL: \$11,232
Prin. Invest. NASA Tech. Officer CASE Category
Murray, D. G. LARC/Russell, J. M., III 31-Atmos Sci
(23-680 160-44-64)

NGR 06-004-131 University of Denver 1591
Measurement of atmospheric emission with a balloon-borne
spectrometer system
Period Obligations
01/01/74-09/01/74 FY74: \$38,373 TOTAL: \$38,373
Prin. Invest. NASA Tech. Officer CASE Category
Murray, D. G. LARC/Russell, J. M., III 31-Atmos Sci
LARC/Davis, R. E.
(23-680 638-10-00)

NGR 06-004-133 University of Denver 1592
Infrared observation of comet Kohoutek
Period Obligations
12/10/73-09/09/74 FY74: \$11,000 TOTAL: \$11,000
Prin. Invest. NASA Tech. Officer CASE Category
Lesh, J. R. GSFC/Hobbs, R. W. 11-Astronomy
GSFC/Maran, S. P.
(51-840 196-41-53)

NGT 06-004-008 University of Denver 1593
Training of graduate students in space-related science and
technology
Period Obligations
04/02/63-08/01/72 FY74: TOTAL: \$430,345
Prin. Invest. NASA Tech. Officer CASE Category
Evers, N. H. HQ-PY/Carter, C. H. 99-Multi-Discip
(10-370 181-00-00)

NSG 5004 University of Denver 1594
Study of Cephei variable stars using data from OAO-2
Period Obligations
05/01/74-04/30/75 FY74: \$7,449 TOTAL: \$7,449
Prin. Invest. NASA Tech. Officer CASE Category
Lesh, J. R. GSFC/Kupperian, J. E. 11-Astronomy
(51-850 831-43-00)

CONNECTICUT

NGR 07-010-002 Fairfield University 1595
Investigation of energy deposition processes in the upper
atmosphere, and the interaction between the mesosphere and the
thermosphere
Period Obligations
04/24/68-09/30/74 FY74: TOTAL: \$49,435
Prin. Invest. NASA Tech. Officer CASE Category
McElaney, J. H. GSFC/Heath, D. F. 31-Atmos Sci
(51-680 607-00-00) (51-680 160-44-67)

NGL 07-009-003 Rensselaer Polytechnic Institute - Conn 1596
Investigation of a quadrupole ultra-high vacuum ion pump
Period Obligations
01/24/69-08/31/74 FY74: TOTAL: \$80,000
Prin. Invest. NASA Tech. Officer CASE Category
Schwarz, H. J. LARC/Yeager, P. R. 13-Physics
LARC/Wood, G. M.
(23-750 125-00-00)

NGR 07-001-004 University of Bridgeport 1597
Cutout reinforcement of stiffened cylindrical shells
Period Obligations
09/10/73-09/30/74 FY74: \$5,000 TOTAL: \$5,000
Prin. Invest. NASA Tech. Officer CASE Category
Palazotto, A. N. LARC/Williams, J. G. 41-Aero Engr
(23-704 501-22-03)

NAS 8-28734 University of Connecticut 1598
Materials-processing in space, sphere-forming & composite-casting
experiment
Period Obligations
05/24/72-06/18/74 FY74: TOTAL: \$27,350
Prin. Invest. NASA Tech. Officer CASE Category
Katahis, T. Z. MSFC/Hasemeyer, E. A. 47-Materials Engr
MSFC/McPherson, W. B.
(62-960 948-90-95)

NAS 9-11941 University of Connecticut 1599
Immunological and physiological effects of microflora in spacecraft
environments
Period Obligations
06/17/71-07/31/74 FY74: TOTAL: \$159,920
Prin. Invest. NASA Tech. Officer CASE Category
Kenyon, A. J. JSC/Mieszkuć, B. J. 59-Life Sci, NEC
(72-970 970-51-25) (72-910 914-51-00)

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

NASW 2307 University of Connecticut **1600**
Operation of the New England Research Application Center
Period *Obligations*
01/20/72-06/30/74 FY74: \$10,464 TOTAL: \$285,464
Prin. Invest. NASA Tech. Officer *CASE Category*
Wilde, D. HQ-KT/Holley, H. L. 99-Multi-Discip
HQ-KT/Hamilton, J. T.
(10-250 141-00-00) (10-250 141-93-01)

NASW 2516 University of Connecticut **1601**
Regional Dissemination Center Operation
Period *Obligations*
06/28/73-06/30/75 FY74: \$165,000 TOTAL: \$178,000
Prin. Invest. NASA Tech. Officer *CASE Category*
Wilde, D. HQ-KT/Holley, H. L. 99-Multi-Discip
(10-250 141-93-01)

NGL 07-002-002 University of Connecticut **1602**
Investigate methods of reducing sensitivity of sampled data systems to parameter variations and disturbances
Period *Obligations*
08/06/62-08/01/73 FY74: TOTAL: \$315,890
Prin. Invest. NASA Tech. Officer *CASE Category*
Lindorff, D. P. HQ-RE/Kurzahls, P. R. 41-Aero Engr
LARC/Creedon, J. F.
(10-750 125-00-00)

NGR 07-002-058 University of Connecticut **1603**
Crystal chemistry of ionic conductors
Period *Obligations*
08/07/72-08/31/74 FY74: TOTAL: \$10,576
Prin. Invest. NASA Tech. Officer *CASE Category*
Wells, A. F. LERC/Antoine, A. C. 12-Chemistry
(22-704 502-05-51)

NGR 07-006-004 Wesleyan University **1604**
Ultraviolet energy distribution of galaxies
Period *Obligations*
05/05/69-04/18/75 FY74: TOTAL: \$14,375
Prin. Invest. NASA Tech. Officer *CASE Category*
Page, T. HQ-SG/Roman, N. G. 11-Astronomy
(10-850 831-00-00)

NGR 07-006-006 Wesleyan University **1605**
Far-UV (extra-atmospheric) observations of galaxies from a lunar observatory
Period *Obligations*
09/26/69-06/30/73 FY74: TOTAL: \$32,550
Prin. Invest. NASA Tech. Officer *CASE Category*
Page, T. JSC/Kondo, Y. 11-Astronomy
(72-910 914-40-00)

NGR 07-006-008 Wesleyan University **1606**
Laser ranging ground station development
Period *Obligations*
03/23/70-09/30/73 FY74: TOTAL: \$223,750
Prin. Invest. NASA Tech. Officer *CASE Category*
Faller, J. E. HQ-SM/Strickland, A. T. 13-Physics
(10-810 195-00-00)

NAS 5-23004 Yale University **1607**
Theoretical investigations for the atmospheric Explorer satellite
Period *Obligations*
09/28/71-11/28/76 FY74: \$40,000 TOTAL: \$120,000
Prin. Invest. NASA Tech. Officer *CASE Category*
Walker, J. W. GSFC/Findlay, J. A. 31-Atmos Sci
(51-850 852-22-00)

NGL 07-004-005 Yale University **1608**
Low-power, low-speed data storage and processing equipment
Period *Obligations*
01/01/71-05/31/77 FY74: TOTAL: \$628,643
Prin. Invest. NASA Tech. Officer *CASE Category*
Barker, R. C. GSFC/Schaefer, D. H. 45-Elec Engr
(51-704 502-23-32) (51-750 125-00-00)

NGL 07-004-035 Yale University **1609**
Investigation of basic foundation of masers and lasers
Period *Obligations*
02/00/32-12/31/74 FY74: \$67,595 TOTAL: \$264,902
Prin. Invest. NASA Tech. Officer *CASE Category*
Lamb, W. E., Jr. GSFC/ 12-Chemistry
(51-704 502-03-11) (51-740 129-00-00) (51-750 115-22-02)

NGL 07-004-043 Yale University **1610**
Chemical reactions in the electron-volt region
Period *Obligations*
10/26/65-12/30/76 FY74: \$31,567 TOTAL: \$363,477
Prin. Invest. NASA Tech. Officer *CASE Category*
Cross, R. J., Jr. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.
(10-840 185-47-84)

NGL 07-004-103 Yale University **1611**
Definition and investigation of the feasibility of geochemical experiments
Period *Obligations*
09/23/69-08/01/74 FY74: TOTAL: \$211,574
Prin. Invest. NASA Tech. Officer *CASE Category*
Skinner, B. J. HQ-SM/Bryson, R. P. 32-Geological Sci
HQ-SM/Allenby, R. J.
(10-810 383-09-53)

NGR 07-004-009 Yale University **1612**
Determination & analysis of properties & characteristics of extremely small free-living self-replicating cells
Period *Obligations*
11/01/61-10/30/74 FY74: \$20,000 TOTAL: \$268,708
Prin. Invest. NASA Tech. Officer *CASE Category*
Morowitz, H. J. HQ-SL/Young, R. S. 51-Biology
(10-840 192-55-63)

NGR 07-004-109 Yale University **1613**
Ionospheric transport processes
Period *Obligations*
11/21/68-06/30/74 FY74: TOTAL: \$121,621
Prin. Invest. NASA Tech. Officer *CASE Category*
Walker, J. C. HQ-SG/Schmerling, E. R. 31-Atmos Sci
(10-850 188-36-56)

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

NGR 07-004-146 Yale University 1614
Infection in closed ecological systems

<i>Period</i>	<i>Obligations</i>	
03/10/71-02/28/75	FY74: TOTAL: \$81,700	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Evans, A. S.	ARC/Mandel, A. D.	52-Clinical Med
(21-970 970-21-25)		

NGR 07-004-157 Yale University 1615
Computative mineralogical composition of Martian surface

<i>Period</i>	<i>Obligations</i>	
07/10/72-05/31/74	FY74: \$15,000 TOTAL: \$43,500	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Skinner, B. J.	HQ-SL/Dwornik, S. E.	32-Geological Sci
(10-840 384-50-80)	HQ-SL/Allingham, J. W.	
	(10-840 384-00-00)	

NGR 07-004-166 Yale University 1616
Nonhomogeneous accumulation origin of pallasites and its bearing on models of lunar and planetary formation

<i>Period</i>	<i>Obligations</i>	
06/15/73-06/14/75	FY74: \$25,888 TOTAL: \$25,888	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Turekian, K. K.	HQ-SM/Kosofsky, L. J.	32-Geological Sci
(10-810 195-42-67)	HQ-SM/Roberson, F. I.	

DELAWARE

NGR 08-002-001 Delaware State College 1617
Research on the specific heat of platinum

<i>Period</i>	<i>Obligations</i>	
09/25/69-06/30/74	FY74: TOTAL: \$24,767	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Helmy, E. M.	HQ-PY/Pohly, J. G.	13-Physics
(10-371 340-00-00)	(10-370 183-00-00)	

NGR 08-002-003 Delaware State College 1618
Procedure used in measuring bacterial titers in urine samples by the luciferase assay for ATP

<i>Period</i>	<i>Obligations</i>	
01/13/72-01/14/74	FY74: \$3,850 TOTAL: \$38,742	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bush, V. N.	GSFC/Picciolo, G. L.	51-Biology
(51-250 141-93-02)	(10-371 340-00-00)	

NGR 08-002-005 Delaware State College 1619
Research on the photo detachment cross section and threshold energy of negative ions in carbon dioxide

<i>Period</i>	<i>Obligations</i>	
03/16/73-07/31/74	FY74: TOTAL: \$22,105	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Helmy, E. M.	HQ-PY/Pohly, J. G.	13-Physics
(10-371 340-00-00)		

NAS 1-12304 University of Delaware 1620
Skylab earth resources experiment package application to ecological, geological and oceanographic investigation of Delaware bay

<i>Period</i>	<i>Obligations</i>	
06/05/73-02/18/75	FY74: \$43,050 TOTAL: \$78,050	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Klemas, V.	LARC/Johnson, R. W.	39-Env Sci, NEC
Jordan, R. R.		
Kinsman, B.		
(23-680 177-91-00)		

NAS 5-21784 University of Delaware 1621
ERTS-A data user investigation of dynamics of plankton populations in upwelling areas

<i>Period</i>	<i>Obligations</i>	
06/13/72-08/01/74	FY74: TOTAL: \$50,982	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Szekielda, K. H.	GSFC/Gordon, F., Jr.	33-Oceanography
(51-680 641-14-00)	(51-680 641-14-05)	

NAS 5-21837 University of Delaware 1622
ERTS-A data user investigation of the applications of ecological, geological and oceanographic ERTS-A imagery of Delaware coastal resources planning

<i>Period</i>	<i>Obligations</i>	
08/16/72-12/31/74	FY74: \$26,099 TOTAL: \$54,099	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Klemas, V.	GSFC/Gordon, F.	39-Env Sci, NEC
(51-680 641-14-07)		

NAS 9-13344 University of Delaware 1623
Dynamics of plankton populations in upwelling areas - Skylab investigation 518

<i>Period</i>	<i>Obligations</i>	
03/19/73-12/31/74	FY74: TOTAL: \$61,800	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Szekielda, K. H.	JSC/Byrns, Z. H.	33-Oceanography
(72-960 948-63-84)		

NGR 08-001-029 University of Delaware 1624
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
02/22/71-01/31/75	FY74: \$6,820 TOTAL: \$38,780	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Glass, B. P.	JSC/Harris, J. W.	13-Physics
(72-910 914-40-00)		

DISTRICT OF COLUMBIA

NAS 1-12209 The American University 1625
Analytical investigation of data from Skylab/ Earth Resources Experiment Package (EREP) in wetland areas

<i>Period</i>	<i>Obligations</i>	
04/06/73-07/15/75	FY74: \$54,000 TOTAL: \$54,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, R. R.	LARC/Whitman, R. I.	39-Env Sci, NEC
(23-960 948-63-85)		

**NASA'S UNIVERSITY PROGRAM
DISTRICT OF COLUMBIA (Continued)**

NAS 5-21752 **The American University** **1626**
ERTS-A data user investigation of wetland ecology
Period *Obligations*
05/18/72-02/01/75 FY74: \$8,331 TOTAL: \$50,331
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, R. R. GSFC/Gordon, F., Jr. 39-Env Sci, NEC
(51-680 641-14-07) (51-680 641-14-00)

NAS 5-21892 **The American University** **1627**
ERTS-A data user investigation of ERTS information system development for Potomac River basin natural resources management
Period *Obligations*
11/03/72-07/01/74 FY74: TOTAL: \$62,926
Prin. Invest. *NASA Tech. Officer* *CASE Category*
MacLeod, N. H. GSFC/Gordon, F., Jr. 39-Env Sci, NEC
(51-680 641-14-08)

NAS 5-21970 **The American University** **1628**
Study of ERTS imagery of west African countries
Period *Obligations*
10/05/73-02/03/75 FY74: \$87,800 TOTAL: \$87,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
MacLeod, N. H. GSFC/Waiter, L. S. 39-Env Sci, NEC
(51-680 176-52-41) (51-680 177-42-41) (51-680 641-14-00)

NAS 9-13956 **The American University** **1629**
Study of arid lands and desertification processes
Period *Obligations*
05/01/74-12/31/74 FY74: \$14,832 TOTAL: \$14,832
Prin. Invest. *NASA Tech. Officer* *CASE Category*
MacLeod, N. H. JSC/Wilmarth, V. R. 39-Env Sci, NEC
(72-960 948-80-80)

NGR 09-003-014 **The American University** **1630**
Studies of magnetic semiconductors
Period *Obligations*
03/28/69-05/31/74 FY74: \$6,000 TOTAL: \$121,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cullen, E. LARC/Long, E. R., Jr. 45-Elec Engr
(23-704 502-01-03) (10-740 129-00-00) (25-740 129-00-00)

NGR 09-005-022 **Catholic University** **1631**
Genetic studies of hydrogen bacteria & their application to biological life support systems
Period *Obligations*
05/04/65-04/01/76 FY74: TOTAL: \$162,294
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Decicco, B. T. HQ-MM/Saunders, J. F. 51-Biology
HQ-MM/Coburn, K. R.
(10-870 189-00-00)

NGR 09-005-063 **Catholic University** **1632**
Interaction of the solar wind with the moon
Period *Obligations*
04/15/69-05/31/74 FY74: TOTAL: \$104,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Whang, Y. C. HQ-SG/Kavanagh, L. D., Jr. 13-Physics
HQ-SG/Schmerling, E. R.
(10-850 385-36-00) (10-850 385-00-00)

NGR 09-005-076 **Catholic University** **1633**
Experimental study on weak turbulence
Period *Obligations*
11/20/69-12/31/73 FY74: TOTAL: \$11,984
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ling, S. C. LERC/Deissler, R. G. 13-Physics
(22-740 129-00-00)

NGR 09-005-077 **Catholic University** **1634**
Detector development for the study of high energy cosmic rays
Period *Obligations*
09/01/71-08/31/74 FY74: \$43,600 TOTAL: \$144,273
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Crannell, H. GSFC/Fichtel, C. E. 13-Physics
Cowan, C. L.
(51-850 188-46-57) (51-850 188-46-64) (51-850 832-12-00)

NGR 09-005-099 **Catholic University** **1635**
Experimental study of the structure of turbulence with intermediate range of Reynolds number
Period *Obligations*
09/19/72-10/31/74 FY74: TOTAL: \$15,640
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ling, S. C. LERC/Deissler, R. G. 41-Aero Engr
(22-704 502-04-25)

NGR 09-005-103 **Catholic University** **1636**
Kinetics and mechanism of the reactions of o(3p) and h atoms and Ch3Cn and other nitriles
Period *Obligations*
07/01/73-08/31/75 FY74: \$24,867 TOTAL: \$24,867
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Timmons, R. B. GSFC/Stief, L. J. 12-Chemistry
(51-840 185-47-55) (51-850 188-45-51)

NGT 09-005-093 **Catholic University** **1637**
A summer faculty fellowship program in research
Period *Obligations*
12/08/71-03/31/74 FY74: TOTAL: \$211,173
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fang, B. T. HQ-PY/Carter, C. H. 49-Engr, NEC
(10-371 340-00-00)

NSG 2019 **Catholic University** **1638**
Biomedical applications of vibration
Period *Obligations*
05/01/74-05/01/75 FY74: \$15,000 TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lih, M. M. ARC/Newsom, B. D. 59-Life Sci, NEC
(21-970 970-21-17)

NGR 09-053-002 **District of Columbia Teachers College** **1639**
Liquid surface sensing capability of polarized optical techniques
Period *Obligations*
08/01/73-07/31/74 FY74: \$13,500 TOTAL: \$13,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Curtis, W. C. WFC/Holland, A. C. 19-Phys Sci, NEC
WFC/Spinak, A. D.
(53-371 340-00-00)

**NASA'S UNIVERSITY PROGRAM
DISTRICT OF COLUMBIA (Continued)**

NGR 09-053-003	District of Columbia Teachers College	1640			
	Investigation of problems associated with solid encapsulation of high voltage electronic assemblies				
	<i>Period</i>	<i>Obligations</i>			
	04/15/74-04/14/75	FY74: \$21,495	TOTAL: \$21,495		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Bever, R. S.	GSFC/Westrom, J. L.	39-Env Sci, NEC		
		GSFC/Pasciutti, E. R.			
	(51-371 340-00-00)				
NGR 09-050-001	Federal City College	1641			
	Study of detectors for extremely relativistic particles				
	<i>Period</i>	<i>Obligations</i>			
	10/07/69-12/31/74	FY74: \$29,978	TOTAL: \$197,161		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Whiteside, H.	GSFC/McDonald, F. B.	11-Astronomy		
	Rogers, E. H., Jr.	GSFC/Ormes, J. F.			
	(51-371 340-00-00)	(51-850 188-46-56)			
NGR 09-050-003	Federal City College	1642			
	Fundamental and analytical investigations of mechanisms and phenomena related to spacecraft electrochemical devices				
	<i>Period</i>	<i>Obligations</i>			
	10/07/69-06/01/75	FY74: \$15,000	TOTAL: \$95,349		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Nottingham, W. C.	GSFC/Webster, W. H., Jr.	11-Astronomy		
	(51-704 502-25-58)	(10-371 340-00-00)			
NGR 09-050-010	Federal City College	1643			
	Laboratory investigation of different interstellar bands based on the spectra of tetrabenzoporphin				
	<i>Period</i>	<i>Obligations</i>			
	01/25/72-09/30/74	FY74:	TOTAL: \$18,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	McDowell, H.	HQ-PY/Pohly, J. G.	11-Astronomy		
	(10-850 188-41-57)	(10-371 340-00-00)			
NGR 09-050-013	Federal City College	1644			
	Applications of medical information management systems				
	<i>Period</i>	<i>Obligations</i>			
	08/01/72-07/16/74	FY74: \$20,606	TOTAL: \$25,520		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Friedman, C.	GSFC/Alterescu, S.	52-Clinical Med		
		GSFC/Friedman, D. S.			
	(51-250 141-91-00)	(51-371 340-00-00)	(51-620 402-07-01)		
NGR 09-050-019	Federal City College	1645			
	Determination of heavy metals in sediments and benthic species in relation to nuclear power plant operation				
	<i>Period</i>	<i>Obligations</i>			
	02/18/74-02/17/75	FY74: \$24,932	TOTAL: \$24,932		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Phelps, H. L.	GSFC/Nava, D. F.	39-Env Sci, NEC		
	(51-371 340-00-00)				
NGR 09-050-020	Federal City College	1646			
	Application of Alexeev's theorem to two body perturbed problems				
	<i>Period</i>	<i>Obligations</i>			
	03/01/74-02/28/75	FY74: \$10,273	TOTAL: \$10,273		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Bakshi, J.	GSFC/Fuchs, A. J.	21-Mathematics		
		GSFC/Velez, C. E.			
	(51-371 340-00-00)				
NASW 2444	George Washington University	1647			
	Enhancement of aerospace technology transfer to problem areas in biomedicine & public sector				
	<i>Period</i>	<i>Obligations</i>			
	03/09/73-03/31/74	FY74:	TOTAL: \$175,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Talbot, J. M.	HQ-KT/Ault, L. A.	99-Multi-Discip		
		HQ-KT/Hamilton, J. T.			
	(10-250 141-93-02)	(10-250 141-94-00)	(10-250 141-91-00)		
NASW 2587	George Washington University	1648			
	Conducting the 38th Meeting of the Structures and Materials Panel Advisory Group				
	<i>Period</i>	<i>Obligations</i>			
	04/11/74-04/30/74	FY74: \$9,719	TOTAL: \$9,719		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Unavailable	HQ-RW/Maltz, J.	49-Engr, NEC		
	(10-704 501-21-20)				
NGL 09-010-030	George Washington University	1649			
	Multidisciplinary program of policy studies in science and technology				
	<i>Period</i>	<i>Obligations</i>			
	09/09/66-08/01/74	FY74:	TOTAL: \$1,737,628		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Mayo, A. L.	HQ-PY/Redding, E. R.	79-Soc Sci, NEC		
	(10-370 183-00-00)	(10-250 143-00-00)	(10-980 981-60-00)		
NGL 09-010-053	George Washington University	1650			
	Research in space-related areas in engineering and applied science				
	<i>Period</i>	<i>Obligations</i>			
	12/18/68-08/31/76	FY74: \$150,000	TOTAL: \$900,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Liebowitz, H.	LARC/Martin, D. J.	49-Engr, NEC		
	(23-680 638-00-00)	(23-702 768-00-00)	(23-702 770-00-00)		
NGL 09-010-064	George Washington University	1651			
	Research in acoustics at the NASA Langley Research Center				
	<i>Period</i>	<i>Obligations</i>			
	02/04/70-01/31/75	FY74: \$222,900	TOTAL: \$822,448		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Liebowitz, H.	LARC/Margolis, K.	41-Acro Engr		
	(23-704 501-04-01)	(23-702 760-63-02)	(23-704 501-22-04)		
NGL 09-010-074	George Washington University	1652			
	Program in aeronautics				
	<i>Period</i>	<i>Obligations</i>			
	04/06/71-05/31/75	FY74: \$219,500	TOTAL: \$619,800		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Liebowitz, H.	LARC/Mulac, R. W.	41-Acro Engr		
	(23-704 501-15-82)	(23-702 760-61-02)	(23-702 760-63-04)		
NGL 09-010-078	George Washington University	1653			
	Program in computer-aided structural design				
	<i>Period</i>	<i>Obligations</i>			
	01/06/72-04/30/75	FY74: \$166,000	TOTAL: \$383,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Liebowitz, H.	LARC/Fulton, R. E.	41-Acro Engr		
	(23-704 502-32-02)	(23-704 502-22-08)	(23-704 501-22-01)		

**NASA'S UNIVERSITY PROGRAM
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NGR 09-010-085 George Washington University 1654
Aircraft noise reduction research

<i>Period</i>	<i>Obligations</i>	
02/21/73-08/31/74	FY74: TOTAL: \$150,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Hubbard, H. H.	41-Aero Engr
(23-704 501-04-01)	(23-704 501-09-02)	(23-704 501-29-11)

NGR 09-010-090 George Washington University 1655
International ultraviolet Explorer attitude control research

<i>Period</i>	<i>Obligations</i>	
02/01/73-01/31/74	FY74: TOTAL: \$26,200	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kahn, W. K.	GSFC/Moore, J. V.	49-Engr, NEC
(51-850 878-21-00)		

NGR 09-010-096 George Washington University 1656
Research program in microwave remote sensing

<i>Period</i>	<i>Obligations</i>	
09/01/73-08/31/74	FY74: \$30,000 TOTAL: \$30,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Swift, C. T.	33-Oceanography
(23-680 160-20-54)		

NSG 1026 George Washington University 1657
A graduate research program in environmental modeling

<i>Period</i>	<i>Obligations</i>	
03/21/74-03/20/75	FY74: \$110,000 TOTAL: \$110,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Callis, L. B.	31-Atmos Sci
(23-680 176-91-31)	LARC/Olstad, W. B.	

NSR 09-010-027 George Washington University 1658
Scientific communication research in space biology

<i>Period</i>	<i>Obligations</i>	
05/24/66-09/30/74	FY74: TOTAL: \$2,115,538	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schiff, H. I.	LERC/Baker, C. E.	59-Life Sci, NEC
Ridley, B.	HQ-MM/Brownstein, H. S.	
(10-970 970-14-01)	(10-840 193-58-63)	(10-970 970-00-00)

NAS 8-29778 Georgetown University 1659
Differential electrophoretic separation of cells and its effect on cell viability

<i>Period</i>	<i>Obligations</i>	
05/01/73-08/25/74	FY74: \$31,998 TOTAL: \$81,998	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Leise, E. M.	MSFC/Allen, R. E.	47-Materials Engr
(62-630 162-01-03)	MSFC/Krupnick, A. C.	

NAS 8-30252 Howard University 1660
Diffusion in liquid metal systems

<i>Period</i>	<i>Obligations</i>	
12/01/73-01/10/75	FY74: \$17,720 TOTAL: \$17,720	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ukanwa, A. O.	MSFC/Schafer, C. F.	13-Physics
(62-630 179-15-12)	MSFC/Bannister, T. C.	

NASW 2386 Howard University 1661
Summer institute in biomedical engineering

<i>Period</i>	<i>Obligations</i>	
06/06/72-12/01/72	FY74: TOTAL: \$32,227	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Deloatch, E. M.	GSFC/Chen, W. T.	53-Other Medical
Cannon, J. N.	GSFC/Friedman, D. S.	
(10-371 340-00-00)		

NGL 09-011-006 Howard University 1662
Optical, magnetic and electrical properties of tektites, meteorites and other space-related materials

<i>Period</i>	<i>Obligations</i>	
01/04/66-06/01/73	FY74: TOTAL: \$168,031	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Thorpe, A. N.	GSFC/Okeefe, J. A.	13-Physics
(51-810 195-00-00)	(51-840 185-00-00)	(51-810 195-42-63)

NGL 09-011-017 Howard University 1663
Study of neurohumoral control systems operations in adjustment of ventricular performance

<i>Period</i>	<i>Obligations</i>	
04/25/68-01/15/77	FY74: \$85,000 TOTAL: \$667,398	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hawthorne, E. W.	ARC/Sandler, H.	53-Other Medical
(21-970 970-21-12)	(21-770 127-00-00)	

NGL 09-011-046 Howard University 1664
Investigation of radiation detectors for environmental trace elements

<i>Period</i>	<i>Obligations</i>	
04/25/72-07/01/75	FY74: TOTAL: \$33,131	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ferguson, G. A.	HQ-PY/Pohly, J. G.	39-Env Sci, NEC
(10-371 340-00-00)		

NGR 09-011-004 Howard University 1665
Research in space sciences

<i>Period</i>	<i>Obligations</i>	
06/24/65-02/28/75	FY74: \$5,634 TOTAL: \$297,409	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Thorpe, A. N.	GSFC/Mentall, J. E.	13-Physics
(51-840 185-47-55)	(51-840 196-41-53)	(51-850 385-00-00)

NGR 09-011-039 Howard University 1666
Motion and stability of dual-spin satellite

<i>Period</i>	<i>Obligations</i>	
12/29/71-02/28/73	FY74: TOTAL: \$13,389	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bainum, P. M.	GSFC/Fedor, J. V.	41-Aero Engr
(10-371 340-00-00)	HQ-PY/Pohly, J. G.	
	(51-620 164-76-51)	

NGR 09-011-052 Howard University 1667
Isophotometry of comets

<i>Period</i>	<i>Obligations</i>	
05/30/73-09/15/74	FY74: TOTAL: \$15,800	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kumar, C. K.	HQ-PY/Pohly, J. G.	11-Astronomy
(10-371 340-00-00)		

**NASA'S UNIVERSITY PROGRAM
DISTRICT OF COLUMBIA (Continued)**

NGR 09-011-053 **Howard University** **1668**
Three-dimensional motion and stability of rotating space station-cable-counter-weight configuration

<i>Period</i>	<i>Obligations</i>	
05/09/73-05/15/75	FY74: \$22,853	TOTAL: \$37,814
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bainum, P. M.	HQ-MT/Huff, V. N.	46-Mech Engr
(10-371 340-00-00)		

NGR 09-011-056 **Howard University** **1669**
Investigative measurements of magnetic field in comet Kohoutek

<i>Period</i>	<i>Obligations</i>	
12/01/73-11/30/74	FY74: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kumar, C. K.	GSFC/Hobbs, R. W.	11-Astronomy
	GSFC/Maran, S. P.	
(51-371 340-00-00)		

NGR 09-011-057 **Howard University** **1670**
Electron spectroscopy

<i>Period</i>	<i>Obligations</i>	
04/01/74-03/31/75	FY74: \$15,300	TOTAL: \$15,300
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tsang, T.	GSFC/Yin, L. I.	13-Physics
	GSFC/Adler, I.	
(51-371 340-00-00)		

NGT 09-011-051 **Howard University** **1671**
Undergraduate research participation program for 10 students

<i>Period</i>	<i>Obligations</i>	
01/01/73-03/31/75	FY74: \$37,525	TOTAL: \$72,508
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Deloatch, E. M.	HQ-PY/Chen, W. T.	59-Life Sci, NEC
(10-371 340-00-00)		

NGT 09-011-058 **Howard University** **1672**
National aerospace fellowship program

<i>Period</i>	<i>Obligations</i>	
06/01/74-05/31/75	FY74: \$14,000	TOTAL: \$14,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cox, E. L.	HQ-PY/Pohly, J. G.	99-Multi-Discip
	HQ-U/Jenkins, H. G.	
(10-030 010-00-00)		

NSG 9010 **Howard University** **1673**
Theoretical evaluation of linear Kalman filtering techniques for advanced mission state determination

<i>Period</i>	<i>Obligations</i>	
07/01/74-06/30/75	FY74: \$15,960	TOTAL: \$15,960
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Choudhury, A. K.	JSC/Savely, R. T.	45-Elec Engr
(72-371 340-00-00)		

NGR 09-059-002 **Washington Technical Institute** **1674**
Electronics fabrication studies

<i>Period</i>	<i>Obligations</i>	
01/15/74-01/14/75	FY74: \$42,600	TOTAL: \$42,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Brach, P.	GSFC/Ehrmann, C. H.	45-Elec Engr
	GSFC/Abid, G. E.	
(51-371 340-00-00)	(51-840 404-02-01)	(51-850 188-36-53)

FLORIDA

NGR 10-022-001 **Bethune - Cookman College** **1675**
A study of lagoonal and estuarine processes through the beneficial disposal of solid waste

<i>Period</i>	<i>Obligations</i>	
07/26/72-11/01/74	FY74: \$26,442	TOTAL: \$46,326
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Poonai, P.	KSC/Schoenberger, F. B.	9-Env Sci, NEC
Avalos, Z. R.		
Marlins, J. G.		
(76-371 340-00-00)	(10-980 908-94-00)	(10-371 340-00-00)

NGR 10-010-002 **Florida A&M University** **1676**
Development of methods for analysis of hydrocarbons in partially purified waste water

<i>Period</i>	<i>Obligations</i>	
60/17/30-07/31/74	FY74:	TOTAL: \$24,225
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cottrell, P. T.	HQ-PY/Pohly, J. G.	59-Life Sci, NEC
(10-371 340-00-00)		

NSG 901 **Florida A&M University** **1677**
Electron-impact excitation of molecular nitrogen

<i>Period</i>	<i>Obligations</i>	
09/12/74-09/11/75	FY74: \$24,000	TOTAL: \$24,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jones, H. W.	JPL/Trajmar, S.	13-Physics
(56-371 340-00-00)		

NAS10-8399 **Florida Institute of Technology** **1678**
Hypergolic propellants liquid and vapor disposal study

<i>Period</i>	<i>Obligations</i>	
08/08/73-02/15/75	FY74: \$75,000	TOTAL: \$75,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bowman, T. E.	KSC/Franks, H. H.	43-Chem Engr
Newman, R. W.	KSC/Dobson, J. L.	
(76-980 909-64-36)		

NGR 10-015-008 **Florida Institute of Technology** **1679**
Study of lagoonal and estuarine ecological processes

<i>Period</i>	<i>Obligations</i>	
04/11/72-08/31/74	FY74: \$65,000	TOTAL: \$164,930
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nevin, T. A.	KSC/Lee, W. H.	39-Env Sci, NEC
Lasater, J. A.	KSC/Gayle, J. B., Jr.	
Clark, K. B.		
(76-980 909-00-00)		

NAS 1-9693 **Florida State University** **1680**
Participation in the science planning for the Viking 1975 missions in the area of meteorology

<i>Period</i>	<i>Obligations</i>	
03/23/70-03/31/77	FY74: \$24,207	TOTAL: \$195,168
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hess, S. K.	LARC/Soffen, G. A.	31-Atmos Sci
(23-840 815-20-00)		

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NGR 10-004-041 Florida State University 1681
Microbial activity in non-aqueous systems
Period Obligations
07/17/72-08/31/74 FY74: \$26,000 TOTAL: \$161,700
Prin. Invest. NASA Tech. Officer CASE Category
Larock, P. A. HQ-SL/Young, R. S. 51-Biology
(10-840 192-55-64)

NGR 10-004-056 Florida State University 1682
Infrared absorption from 0.8 to 1.5 microns of Nh3, Ch4 and CO2
Period Obligations
03/25/69-01/31/75 FY74: \$25,589 TOTAL: \$186,365
Prin. Invest. NASA Tech. Officer CASE Category
Hunt, R. H. HQ-SL/Brunk, W. E. 11-Astronomy
HQ-SL/Fellows, R. F.
(10-840 196-41-84) (10-840 185-00-00)

NSG 1021 Florida State University 1683
Large scale disturbances mechanism of jet noise generation
Period Obligations
06/01/74-05/31/75 FY74: \$23,023 TOTAL: \$23,023
Prin. Invest. NASA Tech. Officer CASE Category
Tam, C. K. LARC/Hardin, J. C. 13-Physics
(23-704 501-06-13)

NGR 10-019-004 Florida Technological University 1684
Study of a diverse coastal ecosystem on the Atlantic coast of Florida
Period Obligations
04/11/72-08/31/74 FY74: \$68,000 TOTAL: \$153,000
Prin. Invest. NASA Tech. Officer CASE Category
Sweet, H. C. KSC/Lee, W. H. 39-Env Sci, NEC
Ehrhart, L. M. KSC/Gayle, J. B., Jr.
Snelson, F. F.
(76-980 909-64-47) (76-980 909-00-00)

NGR 10-019-009 Florida Technological University 1685
Solid rocket exhaust effects on ecology and environment
Period Obligations
02/03/73-08/31/74 FY74: \$56,718 TOTAL: \$124,378
Prin. Invest. NASA Tech. Officer CASE Category
Nimmo, B. G. KSC/Lee, W. H. 39-Env Sci, NEC
Stout, I. J. KSC/Gayle, J. B., Jr.
Mickus, J.
(76-980 909-62-47) (76-980 909-64-47)

NAS 8-20247 University of Florida 1686
Study of age deterioration of gasket materials installed in simulated launch vehicle hardware
Period Obligations
06/28/65-06/30/76 FY74: TOTAL: \$29,408
Prin. Invest. NASA Tech. Officer CASE Category
Patterson, E. P. MSFC/Schell, J. T. 12-Chemistry
(62-950 951-15-00) (62-910 933-50-00) (62-910 933-31-00)

NAS10-1255 University of Florida 1687
Feasibility study on explosive effects of liquid propellants
Period Obligations
04/22/64-06/30/73 FY74: TOTAL: \$634,619
Prin. Invest. NASA Tech. Officer CASE Category
Farber, E. A. KSC/Deese, J. H. 49-Engn, NIC
KSC/Atkins, J. R.
(76-980 909-00-00) (76-980 908-62-09)

NAS10-7791 University of Florida 1688
Services & material to research & write a narrative history of the JFK's Space Center Apollo launch facilities & operations
Period Obligations
10/15/71-12/31/74 FY74: \$42,828 TOTAL: \$142,017
Prin. Invest. NASA Tech. Officer CASE Category
Benson, C. D. KSC/Schnoor, R. H. 73-History
KSC/Hawkins, G. M.
(76-030 073-36-06) (76-950 953-36-00)

NAS10-8297 University of Florida 1689
KSC ocean beach erosion
Period Obligations
04/19/73-06/15/73 FY74: \$7,000 TOTAL: \$7,000
Prin. Invest. NASA Tech. Officer CASE Category
O'Brien, M. P. KSC/Deese, J. H. 33-Oceanography
(76-950 953-00-00)

NAS10-8404 University of Florida 1690
Remote sensing for evaluating surface temperature freeze conditions
Period Obligations
09/05/73-01/15/74 FY74: \$25,420 TOTAL: \$25,420
Prin. Invest. NASA Tech. Officer CASE Category
Bartholic, J. F. KSC/Michalski, J. P. 31-Atmos Sci
Phung, H. T. KSC/Garò, J. T.
(76-680 160-75-15)

NAS10-8560 University of Florida 1691
Study models to predict earth-air interface temperature regimes during freeze conditions
Period Obligations
05/01/74-11/06/74 FY74: \$50,000 TOTAL: \$50,000
Prin. Invest. NASA Tech. Officer CASE Category
Bartholic, J. F. KSC/Toft, P. D. 39-Env Sci, NEC
(76-680 177-51-91)

NGL 10-005-008 University of Florida 1692
Theoretical atmospheric physics
Period Obligations
06/04/64-04/30/76 FY74: TOTAL: \$464,460
Prin. Invest. NASA Tech. Officer CASE Category
Green, A. S. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.
(10-840 185-00-00) (10-840 185-47-81) (10-850 188-00-00)

NGL 10-005-022 University of Florida 1693
Gas solubilities and transport properties in fuel cell electrolytes
Period Obligations
02/14/66-08/09/74 FY74: \$12,596 TOTAL: \$243,211
Prin. Invest. NASA Tech. Officer CASE Category
Walker, R. D., Jr. LERC/Easter, R. W. 43-Chem Engr
(22-704 502-05-51) (22-710 120-00-00) (22-710 123-00-00)

NGL 10-005-039 University of Florida 1694
Investigation of structures with the field ion microscope
Period Obligations
03/14/66-02/01/75 FY74: TOTAL: \$221,259
Prin. Invest. NASA Tech. Officer CASE Category
Hren, J. J. LERC/Lad, R. A. 47-Materials Engr
LERC/Grimes, H. H.
(10-740 129-00-00) (22-740 129-00-00)

**NASA'S UNIVERSITY PROGRAM
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NGL 10-005-049	University of Florida	1695
Investigation of spectra in the vacuum UV and soft X-ray region		
<i>Period</i>	<i>Obligations</i>	
03/24/66-02/28/74	FY74: TOTAL: \$123,900	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schneider, R. T.	HQ-SG/Oertel, G. K.	49-Engr, NEC
Campbell, H. D.	LERC/Fordyce, J. S.	
(10-850 188-00-00)	(23-740 129-00-00)	
NGL 10-005-080	University of Florida	1696
Electrotransport in thin films		
<i>Period</i>	<i>Obligations</i>	
03/22/68-04/01/75	FY74: TOTAL: \$143,273	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hummel, R. E.	LERC/Lad, R. A.	47-Materials Engr
Guy, A. G.		
(10-740 129-00-00)	(22-740 129-00-00)	
NGL 10-005-089	University of Florida	1697
Experimental investigation of a uranium plasma		
<i>Period</i>	<i>Obligations</i>	
01/30/68-12/01/78	FY74: \$89,000 TOTAL: \$575,795	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schneider, R. T.	HQ-RR/Thom, K.	13-Physics
	LARC/Hohl, F.	
(10-704 502-10-01)	(10-720 112-00-00)	(10-740 129-00-00)
NGL 10-005-127	University of Florida	1698
Experimental investigation of round turbulent jet exhausting into a subsonic cross flow		
<i>Period</i>	<i>Obligations</i>	
12/16/69-10/31/76	FY74: \$30,921 TOTAL: \$148,998	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fearn, R. L.	LARC/Margason, R. J.	41-Aero Engr
(23-702 760-62-01)		
NGR 10-005-057	University of Florida	1699
Studies of electroencephalographic patterns		
<i>Period</i>	<i>Obligations</i>	
05/23/68-01/01/75	FY74: \$55,000 TOTAL: \$334,470	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Webb, W. B.	ARC/Anliker, J. E.	69-Psych, NEC
(21-970 970-21-52)		
NGR 10-005-169	University of Florida	1700
Lightning studies		
<i>Period</i>	<i>Obligations</i>	
01/15/73-01/15/75	FY74: \$7,452 TOTAL: \$16,866	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Uman, M. A.	KSC/Toft, P. D.	31-Atmos Sci
Chenette, E. R.	KSC/Carraway, A. J.	
(76-980 909-64-09)	(76-980 908-62-09)	(76-980 908-67-00)
NGR 10-005-176	University of Florida	1701
Analysis of Jupiter data from the RAE-I satellite		
<i>Period</i>	<i>Obligations</i>	
06/27/73-06/30/74	FY74: TOTAL: \$16,414	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carr, T. D.	HQ-SG/Hallenbeck, D. R.	11-Astronomy
(10-850 385-41-00)		
NGR 10-005-182	University of Florida	1702
Fundamental studies on electrolyte matrix processing		
<i>Period</i>	<i>Obligations</i>	
06/26/73-08/31/74	FY74: TOTAL: \$33,726	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Walker, R. D., Jr.	LERC/Soltis, D. G.	42-Astro Engr
(22-704 502-25-53)		
NGR 10-005-183	University of Florida	1703
Spectrophotometric observation of persei using the Princeton University Observatory spectrometer on the Copernicus satellite		
<i>Period</i>	<i>Obligations</i>	
12/01/73-11/30/74	FY74: \$5,000 TOTAL: \$5,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
	GSFC/	11-Astronomy
(51-850 831-43-00)		
NSG 2028	University of Florida	1704
Mural control of locomotor performance in insects		
<i>Period</i>	<i>Obligations</i>	
07/01/74-07/01/75	FY74: \$29,990 TOTAL: \$29,990	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heath, J. E.	ARC/Williams, B. A.	51-Biology
	ARC/Quattrone, P. D.	
(21-970 970-21-61)		
NSG 3018	University of Florida	1705
Silicon PN junction solar cells		
<i>Period</i>	<i>Obligations</i>	
06/24/74-06/23/75	FY74: \$56,983 TOTAL: \$56,983	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lindholm, F. A.	LERC/Godlewski, M. P.	45-Elec Engr
Sah, C. T.	LERC/Brandhorst, H. B., Jr.	
Li, C. C.		
(22-704 502-05-50)		
NAS10-8402	University of Miami	1706
Thermal pollution study		
<i>Period</i>	<i>Obligations</i>	
09/01/73-12/31/73	FY74: \$27,430 TOTAL: \$27,430	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Veziroglu, T. N.	KSC/Garo, J. T.	39-Env Sci, NEC
Lee, S. S.	KSC/Michalski, J. P.	
(76-680 160-75-98)		
NAS10-8498	University of Miami	1707
Application of remote sensing to detecting thermal pollution		
<i>Period</i>	<i>Obligations</i>	
03/01/74-10/01/74	FY74: \$50,000 TOTAL: \$50,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Veziroglu, T. N.	KSC/Bland, R. A.	39-Env Sci, NEC
Lee, S. S.		
(76-680 177-56-91)		
NAS10-8600	University of Miami	1708
Laser application to measure verticle sea temperature and turbidity		
<i>Period</i>	<i>Obligations</i>	
06/01/74-12/01/74	FY74: \$30,000 TOTAL: \$30,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hirschberg, J. G.	KSC/Bland, R. A.	39-Env Sci, NEC
	KSC/Toft, P.	
(76-680 177-11-91)		

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NGL 10-007-010 University of Miami 1709
Multidisciplinary research in space sciences
Period 02/28/66-10/01/73
Prin. Invest. Man, E. H.
Obligations FY74: TOTAL: \$1,100,000
NASA Tech. Officer HQ-PY/Redding, E. R. CASE Category 99-Multi-Disc
HQ-PY/Quinn, H. B.

NGR 10-007-008 University of Miami 1710
Research in the institute of molecular evolution in the school of environmental and planetary sciences
Period 06/09/64-09/30/74
Prin. Invest. Fox, S. W.
Obligations FY74: \$150,000 TOTAL: \$1,892,040
NASA Tech. Officer HQ-SL/Young, R. S. CASE Category 12-Chemistry

NGR 10-007-052 University of Miami 1711
Study of optical activity in the context of prebiological chemistry
Period 02/27/68-09/30/74
Prin. Invest. Harada, K.
Obligations FY74: \$25,000 TOTAL: \$171,040
NASA Tech. Officer HQ-SL/Young, R. S. CASE Category 12-Chemistry

NGR 10-007-088 University of Miami 1712
Lunar sample analysis
Period 02/17/71-06/30/74
Prin. Invest. Fox, S. W.
Obligations FY74: TOTAL: \$136,300
NASA Tech. Officer JSC/Harris, J. W. CASE Category 12-Chemistry

NGR 10-007-089 University of Miami 1713
Research studies basic to the US purpose of promoting international cooperation in space
Period 09/17/70-08/01/73
Prin. Invest. Harvey, M. L.
Obligations FY74: TOTAL: \$118,089
NASA Tech. Officer HQ-I/Frutkin, A. W. CASE Category 75-Political Sci
HQ-PY/Morris, J. D.

NGR 10-007-097 University of Miami 1714
Water immersion study
Period 06/08/72-05/31/75
Prin. Invest. Epstein, M.
Obligations FY74: \$20,000 TOTAL: \$65,000
NASA Tech. Officer JSC/Leach, C. S. CASE Category 52-Clinical Med

NGR 10-007-113 University of Miami 1715
Negative pressure chamber
Period 08/15/73-08/14/74
Prin. Invest. Kline, J.
Obligations FY74: \$9,500 TOTAL: \$9,500
NASA Tech. Officer HQ-KT/Zimmerman, R. CASE Category 52-Clinical Med
HQ-KT/Hamilton, J. T.

NGR 10-007-118 University of Miami 1716
Comparison of stress corrosion cracking behavior of high strength alloys in natural sea water and synthetic sea salt solutions
Period 11/26/73-12/31/74
Prin. Invest. Craig, H. L., Jr.
Obligations FY74: \$14,250 TOTAL: \$14,250
NASA Tech. Officer LERC/Shannon, J. L., Jr. CASE Category 47-Materials Engr
LERC/Brown, W. F., Jr.

NSG 1044 University of Miami 1717
Impact properties of fiber reinforced materials and structures
Period 05/01/74-05/31/75
Prin. Invest. Plass, H. J., Jr.
Obligations FY74: \$23,892 TOTAL: \$23,892
NASA Tech. Officer LARC/Housner, J. M. CASE Category 46-Mech Engr
LARC/Rhodes, M. D.

GEORGIA

NGR 11-010-001 Clark College 1718
Study of nucleation
Period 09/01/73-08/31/74
Prin. Invest. Kiang, C. S.
Obligations FY74: \$40,262 TOTAL: \$40,262
NASA Tech. Officer ARC/Pollack, J. B. CASE Category 31-Atmos Sci
ARC/Whitten, R. C.

NGL 11-001-009 Emory University 1719
Study of cardiovascular adaptation during long-term weightlessness
Period 05/12/65-06/30/77
Prin. Invest. Popovic, V. P.
Obligations FY74: \$45,000 TOTAL: \$517,179
NASA Tech. Officer ARC/Holton, E. M. CASE Category 51-Biology

NGR 11-001-012 Emory University 1720
Effects of gravitational stimuli on sleep and vestibular function
Period 06/01/65-12/01/75
Prin. Invest. Perschio, A. A.
Obligations FY74: TOTAL: \$566,038
NASA Tech. Officer ARC/Winter, D. L. CASE Category 61-Biol Aspects

NGR 11-001-016 Emory University 1721
Histopathological & histochemical study of subhuman primates
Period 02/00/32-02/28/75
Prin. Invest. Bourne, G. H.
Obligations FY74: \$75,000 TOTAL: \$630,812
NASA Tech. Officer ARC/Winter, D. L. CASE Category 51-Biology

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NGR 11-001-045 Emory University 1722
Vestibular influence on sleep in non-human primates
Period *Obligations*
10/07/71-12/01/74 FY74: \$60,000 TOTAL: \$175,488
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Perachio, A. A. ARC/Anliker, J. E. 51-Biology
(21-970 970-21-11) (21-970 970-21-53)

NAS 2-6340 Georgia Institute of Technology 1723
Hovering rotor potential flow theory
Period *Obligations*
02/12/71-09/30/74 FY74: TOTAL: \$112,844
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wu, J. C. ARC/Morse, H. A. 41-Aero Engr
(21-760 136-13-01) (21-760 126-00-00)

NAS 3-17827 Georgia Institute of Technology 1724
Benefit-cost methodology study with use of wind generators application
Period *Obligations*
06/10/74-02/09/75 FY74: \$65,194 TOTAL: \$65,194
Prin. Invest. *NASA Tech. Officer* *CASE Category*
LERC/ 49-Engr, NEC
(22-701 367-00-00)

NAS 3-17861 Georgia Institute of Technology 1725
Basic noise research combustion and entropy noise in turbo-propulsion systems
Period *Obligations*
07/16/73-07/15/74 FY74: \$35,775 TOTAL: \$35,775
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Strahle, W. C. LERC/Huff, R. G. 41-Aero Engr
Handley, J. C. LERC/Dorsch, R. G.
(22-704 501-04-01)

NAS 3-18901 Georgia Institute of Technology 1726
S-band omnidirectional antenna
Period *Obligations*
06/24/74-12/23/74 FY74: \$75,331 TOTAL: \$75,331
Prin. Invest. *NASA Tech. Officer* *CASE Category*
LERC/ 45-Elec Engr
(22-704 502-24-16)

NAS 8-28591 Georgia Institute of Technology 1727
Development of a coherent high scanner
Period *Obligations*
05/09/72-10/08/73 FY74: TOTAL: \$73,855
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Callor, W. R. MSFC/Kerr, J. H. 45-Elec Engr
MSFC/Smith, H. F.
(62-910 933-00-00)

NAS 8-28735 Georgia Institute of Technology 1728
Experiments on sphere-forming & composite-casting
Period *Obligations*
05/16/72-06/18/74 FY74: TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brown, J. L. MSFC/Hasemeyer, E. A. 47-Materials Engr
MSFC/McPherson, W. B.
(62-960 948-90-95)

NAS 8-29753 Georgia Institute of Technology 1729
Engineering atmospheric model for space shuttle reentry and return
Period *Obligations*
04/13/73-01/13/74 FY74: \$47,000 TOTAL: \$47,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Justus, C. G. MSFC/Smith, O. E. 13-Physics
MSFC/Smith, R. E.
(62-704 501-08-10)

NAS 8-29860 Georgia Institute of Technology 1730
Design, fabrication, testing, & delivery of electron gun
Period *Obligations*
06/08/73-02/28/74 FY74: TOTAL: \$23,938
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hart, R. K. MSFC/Kerr, J. H. 45-Elec Engr
(62-680 160-75-07)

NAS 8-30246 Georgia Institute of Technology 1731
Multiple hologram recording in lithium niobate
Period *Obligations*
10/01/73-11/01/74 FY74: \$8,976 TOTAL: \$8,976
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Callen, W. R. MSFC/Kerr, J. H. 13-Physics
Gaylord, T. K. MSFC/Pitts, E. H.
(62-975 977-22-03) (62-980 975-10-02)

NAS 8-30534 Georgia Institute of Technology 1732
Analysis of six band multispectral images and fabrication of a Fourier transform detector
Period *Obligations*
12/21/73-02/21/75 FY74: \$59,881 TOTAL: \$59,881
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shackelford, R. G. MSFC/Kerr, J. H. 99-Multi-Discip
MSFC/Smith, H. F.
(62-680 177-51-71) (62-680 177-52-71)

NAS 8-30617 Georgia Institute of Technology 1733
Probability analysis of crank initiation
Period *Obligations*
03/22/74-03/21/75 FY74: \$9,455 TOTAL: \$9,455
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hanagud, S. V. MSFC/Thomas, J. M. 19-Phys Sci, NEC
(62-960 972-50-00)

NAS 8-30653 Georgia Institute of Technology 1734
USGS/NASA land-use classification system
Period *Obligations*
04/02/74-04/02/75 FY74: \$19,980 TOTAL: \$19,980
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spann, G. W. MSFC/Cummings, R. E. 39-Env Sci, NEC
Faust, N. L. MSFC/Paludan, C. T.
(62-680 177-52-71)

NAS 8-30657 Georgia Institute of Technology 1735
Neutral thermodynamic atmospheric model research study
Period *Obligations*
04/22/74-01/21/75 FY74: \$34,637 TOTAL: \$34,637
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Justus, C. G. MSFC/Smith, O. E. 49-Engr, NEC
MSFC/Smith, R. E.
(62-920 986-25-00)

**NASA'S UNIVERSITY PROGRAM
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NAS 8-30919 Georgia Institute of Technology 1736
Time delay profiles for teleoperator
Period *Obligations*
06/06/74-02/21/75 FY74: \$39,835 TOTAL: \$39,835
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Walsh, J. R. MSFC/Huggins, C. T. 21-Mathematics
MSFC/Bell, J. L.
(62-970 970-63-20)

NAS10-8375 Georgia Institute of Technology 1737
Study of computer model development for electrical power system
Period *Obligations*
06/26/73-12/11/74 FY74: TOTAL: \$96,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Webb, R. P. KSC/Wright, M. I. 45-Elec Engr
Debs, A. S. KSC/Boggs, W. H.
Ray, D. C.
(76-980 909-64-42)

NGL 11-002-004 Georgia Institute of Technology 1738
Theoretical and experimental research program in geophysics with emphasis on upper atmosphere chemical release studies
Period *Obligations*
09/27/62-05/31/76 FY74: TOTAL: \$675,075
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Edwards, H. D. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Hipsher, H. F.
(10-840 185-47-81) (10-850 188-00-00) (10-840 185-00-00)

NGL 11-002-085 Georgia Institute of Technology 1739
Behavior of nozzles and acoustic liners in three-dimensional acoustic fields
Period *Obligations*
02/18/69-02/28/75 FY74: \$22,252 TOTAL: \$248,572
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zinn, B. T. LERC/Priem, R. J. 41-Aero Engr
Daniel, B. R.
(22-704 502-04-25) (62-710 128-00-00)

NGL 11-002-096 Georgia Institute of Technology 1740
Research on stability of large shells
Period *Obligations*
04/04/69-09/30/74 FY74: TOTAL: \$468,473
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Horton, W. H. LARC/Peterson, J. P. 41-Aero Engr
(23-704 501-22-01) (23-760 722-00-00)

NGR 11-002-081 Georgia Institute of Technology 1741
Phase II engineering systems design program
Period *Obligations*
05/28/68-08/31/73 FY74: TOTAL: \$107,348
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hansen, A. G. HQ-PY/Vitale, J. A. 99-Multi-Discip
(10-370 183-00-00)

NGR 11-002-133 Georgia Institute of Technology 1742
Investigations of lubricant rheology as applied to elastohydrodynamic lubrication
Period *Obligations*
03/05/71-04/04/75 FY74: \$33,255 TOTAL: \$129,378
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Winer, W. O. LERC/Jones, W. R., Jr. 46-Mech Engr
Sanborn, D. M.
(22-704 502-21-24) (22-740 129-00-00)

NGR 11-002-146 Georgia Institute of Technology 1743
The attenuation of radiant energy in seeded hydrogen plasmas - an experimental study related to the gaseous core nuclear rocket
Period *Obligations*
09/10/71-07/31/73 FY74: TOTAL: \$76,688
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Williams, J. R. LERC/Masser, C. C. 49-Engr, NEC
Clement, J. D.
Thompson, S.
(22-720 112-28-20) (22-704 503-04-01)

NGR 11-002-157 Georgia Institute of Technology 1744
Theory of turbulent chemically reacting flows with application to supersonic combustion
Period *Obligations*
11/01/72-12/31/74 FY74: TOTAL: \$32,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Huang, A. B. LARC/Evans, J. S. 41-Aero Engr
LARC/Anderson, G. Y.
(23-704 501-04-03)

NGR 11-002-158 Georgia Institute of Technology 1745
Program in computer science for Dr. M. Tapia
Period *Obligations*
05/23/72-09/12/74 FY74: \$23,230 TOTAL: \$47,861
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Walker, R. D., Jr. LARC/Morris, R. 45-Elec Engr
LARC/Eskew, M. H.
(23-704 504-39-11)

NGR 11-002-159 Georgia Institute of Technology 1746
Nonequilibrium turbulent wall flow by statistical method
Period *Obligations*
08/01/72-12/31/74 FY74: TOTAL: \$18,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Huang, A. B. LARC/Bushnell, D. M. 41-Aero Engr
LARC/Harris, J. E.
(23-704 501-06-01)

NGR 11-002-166 Georgia Institute of Technology 1747
Comparative evaluation of solar fission, fusion and fossil power systems
Period *Obligations*
03/13/73-08/31/73 FY74: \$10,305 TOTAL: \$10,305
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Clement, J. D. LERC/Kascak, A. F. 49-Engr, NEC
Williams, J. R.
(22-720 112-28-20)

NGR 11-002-169 Georgia Institute of Technology 1748
Research on recovery of fleets based on statistical methods, fracture mechanics, and fatigue theories
Period *Obligations*
02/09/73-03/31/75 FY74: \$15,196 TOTAL: \$27,690
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hanagud, S. V. LARC/Leybold, H. A. 21-Mathematics
LARC/Davidson, J. R., Jr.
(23-704 501-22-02)

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

NGR 11-002-177	Georgia Institute of Technology	1749
Study of effects of injector geometry on fuel air mixing and combustion 1973		
<i>Period</i>	<i>Obligations</i>	
09/01/73-01/31/75	FY74: TOTAL: \$18,932	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bangert, L. H.	LARC/Boatright, W. B.	41-Aero Engr
(23-704 501-04-03)		
NGR 11-002-179	Georgia Institute of Technology	1750
Determination of effects of nozzle nonlinearities upon nonlinear stability of liquid		
<i>Period</i>	<i>Obligations</i>	
07/02/73-07/31/75	FY74: \$49,570 TOTAL: \$49,570	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zinn, B. T.	LERC/Priem, R. J.	42-Astro Engr
(22-704 502-04-25)		
NGR 11-002-181	Georgia Institute of Technology	1751
Extraterrestrial power plant utilizing a gaseous core reactor with MHD conversion		
<i>Period</i>	<i>Obligations</i>	
01/07/74-05/02/74	FY74: \$10,200 TOTAL: \$10,200	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clement, J. D.	LERC/Kaplan, G. M.	49-Engr, NEC
(22-704 502-35-62)		
NGR 11-002-185	Georgia Institute of Technology	1752
Dynamic stall in an oscillating air stream		
<i>Period</i>	<i>Obligations</i>	
11/01/73-11/30/74	FY74: \$32,892 TOTAL: \$32,892	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pierce, G. A.	LARC/Hammond, C. E.	41-Aero Engr
(23-702 760-63-00)	(23-702 760-63-02)	
NGT 11-002-064	Georgia Institute of Technology	1753
Training of predoctoral graduate students in the field of engineering design		
<i>Period</i>	<i>Obligations</i>	
04/20/67-08/01/72	FY74: TOTAL: \$288,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hansen, A. G.	HQ-PY/Vitale, J. A.	99-Multi-Discip
(10-370 181-00-00)		
NSG 1004	Georgia Institute of Technology	1754
Study of viscous flow about airfoils by the integro-differential method		
<i>Period</i>	<i>Obligations</i>	
03/01/74-02/28/75	FY74: \$10,000 TOTAL: \$10,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wu, J. C.	LARC/Carter, J. E.	41-Aero Engr
(23-704 501-06-01)		
NSG 1047	Georgia Institute of Technology	1755
Propagation of aircraft noise		
<i>Period</i>	<i>Obligations</i>	
05/01/74-05/31/75	FY74: \$26,641 TOTAL: \$26,641	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pierce, A. D.	LARC/Posey, J. W.	46-Mech Engr
Bell, W. A.	LARC/Clark, L. R.	
(23-704 501-24-01)		
NSG 2004	Georgia Institute of Technology	1756
Investigation of physical structure of porous catalysis and absorbents		
<i>Period</i>	<i>Obligations</i>	
02/01/74-02/01/75	FY74: \$22,282 TOTAL: \$22,282	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Orr, C.	ARC/Quattrone, P. D.	19-Phys Sci, NEC
(21-970 970-22-21)	ARC/Wydeven, T. J.	
NSG 3015	Georgia Institute of Technology	1757
Combustion and entropy noise in turbopropulsion systems		
<i>Period</i>	<i>Obligations</i>	
07/15/74-07/14/75	FY74: \$40,853 TOTAL: \$40,853	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Strahle, W. C.	LERC/Huff, R. G.	13-Physics
(22-704 501-04-01)		
NSG 5012	Georgia Institute of Technology	1758
Research in millimeter wave techniques		
<i>Period</i>	<i>Obligations</i>	
06/15/74-06/14/75	FY74: \$59,433 TOTAL: \$59,433	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dees, J. W.	GSFC/King, J. L.	45-Elec Engr
(51-620 643-10-00)		
NSG 7067	Georgia Institute of Technology	1759
Analysis of advanced reactor for geosynchronous power plants		
<i>Period</i>	<i>Obligations</i>	
06/01/74-12/31/74	FY74: \$19,898 TOTAL: \$19,898	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Williams, R.	HQ-RR/Thom, K.	13-Physics
(10-704 503-10-01)	LARC/Hohl, F.	
NGL 11-008-001	Morehouse College	1760
A research program in atmospheric and astro chemistry		
<i>Period</i>	<i>Obligations</i>	
05/22/72-06/30/76	FY74: \$26,250 TOTAL: \$76,932	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gales, J. N.	MSFC/Smith, R. E.	12-Chemistry
Merideth, C. W.	MSFC/Kent, M. J.	
(62-371 340-00-00)	(10-371 340-00-00)	
NGR 11-008-002	Morehouse College	1761
Research program in magnetogas dynamics utilizing hypervelocity coaxial plasma generators		
<i>Period</i>	<i>Obligations</i>	
04/18/73-05/31/74	FY74: TOTAL: \$23,045	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Spight, C.	HQ-PY/Pohly, J. G.	13-Physics
(10-371 340-00-00)	MSFC/Shriver, E. L.	
NGT 11-008-004	Morehouse College	1762
National aerospace fellowship program		
<i>Period</i>	<i>Obligations</i>	
06/01/74-05/31/75	FY74: \$7,000 TOTAL: \$7,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gayles, J. N.	HQ-PY/Pohly, J. G.	99-Multi-Discip
(10-030 010-00-00)	HQ-U/Jenkins, H. G.	

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

NSG 8014 Morehouse College 1763
A research program in magnetogasdynamics
Period *Obligations*
06/03/74-06/02/75 FY74: \$15,906 TOTAL: \$15,906
Prin. Invest. NASA Tech. Officer CASE Category
Spight, C. MSFC/Shriver, E. L. 13-Physics
MSFC/Kent, M. I.
(62-371 340-00-00)

NAS 8-30619 North Georgia College 1764
Correlation studies of remote sensing and fine beetle infestation
Period *Obligations*
04/09/74-08/01/75 FY74: \$9,758 TOTAL: \$9,758
Prin. Invest. NASA Tech. Officer CASE Category
Biesbrock, J. A. MSFC/Downs, S. W. 51-Biology
MSFC/Derington, J. C.
(62-680 177-51-71)

NSG 8002 Paine College 1765
Materials for space processing
Period *Obligations*
01/14/74-01/13/75 FY74: \$23,230 TOTAL: \$23,230
Prin. Invest. NASA Tech. Officer CASE Category
Lal, R. B. MSFC/Bannister, T. C. 13-Physics
MSFC/Kent, M. I.
(62-371 340-00-00)

NGT 11-013-001 Spelman College 1766
Training of two under-graduate students in the space-related sciences and engineering
Period *Obligations*
06/01/74-05/31/75 FY74: \$7,000 TOTAL: \$7,000
Prin. Invest. NASA Tech. Officer CASE Category
McBay, S. M. HQ-PY/Pohly, J. G. 99-Multi-Discip
HQ-U/Jenkins, H. G.
(10-030 010-00-00)

NAS 8-11175 University of Georgia 1767
Analysis of variance with corrected variates and its significance for meteorological statistics
Period *Obligations*
03/23/64-07/21/72 FY74: TOTAL: \$159,781
Prin. Invest. NASA Tech. Officer CASE Category
Cohen, A. C. MSFC/Falls, L. W. 21-Mathematics
MSFC/Smith, O. E.
(62-910 933-50-00) (62-840 818-00-00) (62-742 124-00-00)

NAS 8-29939 University of Georgia 1768
Calculation of amplitude, phase and direction cosines over a specified receiver surface of plane wave acoustic rays
Period *Obligations*
06/11/73-12/11/73 FY74: TOTAL: \$23,896
Prin. Invest. NASA Tech. Officer CASE Category
Burkhard, D. G. MSFC/Folds, D. 49-Engr, NEC
Shealy, D. L.
(62-950 953-37-00)

NASW 2401 University of Georgia 1769
Computer Software Management Information Center operation
Period *Obligations*
10/10/72-06/30/74 FY74: \$52,000 TOTAL: \$215,286
Prin. Invest. NASA Tech. Officer CASE Category
Carmon, J. L. HQ-KT/Holley, H. L. 99-Multi-Discip
HQ-KT/Harrison, J. O.
(10-250 141-93-01) (10-250 141-00-00)

NGR 11-003-033 University of Georgia 1770
Interpretation of Mars stratigraphy and geomorphology from the Mariner Mars 1969 television pictures
Period *Obligations*
06/04/71-04/14/74 FY74: TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
Herz, N. HQ-SL/Dwornik, S. E. 32-Geological Sci
(10-840 384-00-00)

NGR 11-003-037 University of Georgia 1771
Interpretation of stratigraphy and geologic mapping of Mars from Mariner Mars 1971 television pictures
Period *Obligations*
05/24/72-04/14/75 FY74: \$17,600 TOTAL: \$50,300
Prin. Invest. NASA Tech. Officer CASE Category
Howard, H. T. HQ-SL/Dwornik, S. E. 32-Geological Sci
Woodruff, J. F. HQ-SL/Holt, H. E.
(10-840 384-50-80)

HAWAII

NAS 2-6624 University of Hawaii 1772
Study of metabolism & energetics in hypogravity
Period *Obligations*
09/15/71-08/31/74 FY74: \$35,000 TOTAL: \$92,938
Prin. Invest. NASA Tech. Officer CASE Category
Siegel, S. M. ARC/Taketa, S. T. 39-Env Sci, NEC
(21-970 970-21-61) (21-980 975-00-00)

NAS 2-6700 University of Hawaii 1773
Advanced forms of computer communications networks
Period *Obligations*
11/01/71-09/30/74 FY74: \$1,101,266 TOTAL: \$2,571,266
Prin. Invest. NASA Tech. Officer CASE Category
Lichenberger, W. ARC/Pirtle, M. W. 99-Multi-Discip
Abramson, N. ARC/Smith, M.
(21-760 366-00-00)

NAS 8-27950 University of Hawaii 1774
An observational investigation of coronal active regions in support of the Apollo telescope mount in the first Skylab mission
Period *Obligations*
11/03/71-03/02/74 FY74: TOTAL: \$301,996
Prin. Invest. NASA Tech. Officer CASE Category
Jeffries, J. T. MSFC/McGuire, J. P. 11-Astronomy
Orrall, F. Q. MSFC/Gary, A.
(62-960 996-00-00)

NASW 2326 University of Hawaii 1775
Design development and fabrication of research equipment
Period *Obligations*
06/22/72-06/30/74 FY74: \$101,833 TOTAL: \$360,102
Prin. Invest. NASA Tech. Officer CASE Category
Jefferies, J. T. HQ-SM/Strickland, A. T. 11-Astronomy
(10-810 195-43-50) (10-810 383-00-00)

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

NGF 12-001-102 University of Hawaii 1776
Acquisition of scientific research facilities
Period Obligations
05/12/72-06/30/74 FY74: TOTAL: \$142,800
Prin. Invest. NASA Tech. Officer CASE Category
Jefferies, J. T. HQ-SM/Strickland, A. T. 11-Astronomy
(10-810 195-43-50) (10-810 195-00-00)

NGL 12-001-011 University of Hawaii 1777
Research in coronal and chromospheric physics
Period Obligations
11/16/64-10/31/74 FY74: \$150,000 TOTAL: \$3,079,234
Prin. Invest. NASA Tech. Officer CASE Category
Jefferies, J. T. HQ-SG/Weldon, J. M. 11-Astronomy
HQ-SG/Oertel, G. K.
(10-850 188-38-52)

NGL 12-001-042 University of Hawaii 1778
Performance and capabilities of terrestrial organisms in extreme and unusually gaseous and liquid environments
Period Obligations
04/14/67-06/30/76 FY74: \$50,000 TOTAL: \$401,378
Prin. Invest. NASA Tech. Officer CASE Category
Siegel, S. M. HQ-SL/Young, R. S. 51-Biology
(10-840 192-55-64)

NGL 12-001-057 University of Hawaii 1779
Research in planetary studies
Period Obligations
05/21/68-06/30/76 FY74: \$335,000 TOTAL: \$1,811,972
Prin. Invest. NASA Tech. Officer CASE Category
Jefferies, J. T. HQ-SL/Brunk, W. E. 11-Astronomy
HQ-SL/Fellows, R. F.
(10-840 196-41-80) (10-840 185-00-00)

NGR 12-001-075 University of Hawaii 1780
Research in solar ultraviolet spectroscopy
Period Obligations
12/09/69-12/30/74 FY74: \$250,000 TOTAL: \$1,250,421
Prin. Invest. NASA Tech. Officer CASE Category
Jefferies, J. T. HQ-SG/Weldon, J. M. 11-Astronomy
HQ-SG/Holtz, J. R.
(10-850 879-11-00)

NGR 12-001-083 University of Hawaii 1781
A high resolution interferometer for planetary spectroscopy
Period Obligations
09/14/70-06/30/74 FY74: TOTAL: \$191,181
Prin. Invest. NASA Tech. Officer CASE Category
Sinton, W. M. HQ-SL/Brunk, W. E. 11-Astronomy
(10-840 196-00-00) (10-840 196-41-81)

NGR 12-001-109 University of Hawaii 1782
N-heterocyclic compounds role in chemical evolution distribution in meteorites ancient sediments and as products of spark discharge reactions
Period Obligations
06/26/72-05/14/75 FY74: \$23,052 TOTAL: \$85,627
Prin. Invest. NASA Tech. Officer CASE Category
Folsome, C. E. HQ-SL/Young, R. S. 12-Chemistry
(10-840 192-55-61)

NGR 12-001-111 University of Hawaii 1783
Facilitation of infrared observations from the Mauna Kea Observatory
Period Obligations
06/14/72-06/30/74 FY74: \$10,000 TOTAL: \$38,282
Prin. Invest. NASA Tech. Officer CASE Category
Jefferies, J. T. HQ-SG/Bogges, N. W. 11-Astronomy
(10-850 188-41-55) (10-850 188-41-51)

NGR 12-001-127 University of Hawaii 1784
Operation of the Haleakala Lunar Ranging Observatory
Period Obligations
06/01/73-06/30/75 FY74: \$340,000 TOTAL: \$340,000
Prin. Invest. NASA Tech. Officer CASE Category
Jefferies, J. T. HQ-SM/Strickland, A. T.
Carter, W. E. 32-Geological Sci
(10-810 387-30-01)

IDAHO

NAS 5-21850 University of Idaho 1785
ERTS-A data user investigation of the applications of the earth resources technological satellite in Idaho
Period Obligations
09/27/72-03/01/74 FY74: TOTAL: \$33,750
Prin. Invest. NASA Tech. Officer CASE Category
Tisdale, E. W. GSFC/Crump, E. W. 39-Env Sci, NEC
(51-680 641-14-07)

NGR 13-001-014 University of Idaho 1786
Interpretation of a lunar far side area
Period Obligations
06/11/73-06/30/74 FY74: TOTAL: \$6,847
Prin. Invest. NASA Tech. Officer CASE Category
Hall, W. B. HQ-SM/Bryson, R. P. 32-Geological Sci
HQ-SM/Allenby, R. J.
(10-810 383-09-50)

ILLINOIS

NGR 14-004-008 Illinois Institute of Technology 1787
Turbulence coefficients and stability studies for the coaxial flow of dissimilar fluids
Period Obligations
06/11/64-06/30/74 FY74: \$14,180 TOTAL: \$826,515
Prin. Invest. NASA Tech. Officer CASE Category
Weinstein, H. LERC/Kaplan, G. M. 43-Chem Engr
(45-720 122-00-00) (22-720 112-28-20)

NGR 14-004-049 Illinois Institute of Technology 1788
The influence of impurities upon the rate of nickel diffusion in face centered cubic iron
Period Obligations
05/13/71-11/31/74 FY74: TOTAL: \$30,572
Prin. Invest. NASA Tech. Officer CASE Category
Higgins, G. T. HQ-SM/Bryson, R. P. 39-Env Sci, NEC
(10-810 195-00-00)

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

NSG 7039	Illinois Institute of Technology	1789			
Review of coaxial flows with application to gas core nuclear reactors					
<i>Period</i>		<i>Obligations</i>			
06/01/74-08/31/75		FY74: \$30,000	TOTAL: \$30,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Weinstein, H.		HQ-RR/Thom, K.	13-Physics		
		LARC/Hohl, F.			
(10-704 502-10-01)					
NAS 9-12280	Northwestern University	1790			
Star study					
<i>Period</i>		<i>Obligations</i>			
11/23/71-06/30/75		FY74:	TOTAL: \$45,500		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Hynek, J. A.		JSC/Henize, K. G.	11-Astronomy		
(72-910 924-23-00)					
NGL 14-007-016	Northwestern University	1791			
Optical study					
<i>Period</i>		<i>Obligations</i>			
02/05/65-09/30/74		FY74:	TOTAL: \$705,863		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Hynek, J. A.		HQ-SM/Bryson, R. P.	32-Geological Sci		
(10-840 185-00-00)					
NGL 14-007-041	Northwestern University	1792			
A study of celestial objects of high angular momenta					
<i>Period</i>		<i>Obligations</i>			
02/18/66-04/30/75		FY74: \$20,000	TOTAL: \$205,251		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Huang, S. S.		HQ-SG/Bogges, N. W.	11-Astronomy		
		HQ-SG/Roman, N. G.			
(10-850 188-41-51)					
NGL 14-007-058	Northwestern University	1793			
Research program in administration					
<i>Period</i>		<i>Obligations</i>			
06/04/68-12/31/74		FY74:	TOTAL: \$425,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Radnor, M.		HQ-PY/Morris, J. D.	79-Soc Sci, NEC		
(10-370 183-00-00)					
NGL 14-007-062	Northwestern University	1794			
Studies and analysis of the management of scientific research and development					
<i>Period</i>		<i>Obligations</i>			
06/27/67-12/31/74		FY74:	TOTAL: \$260,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Rubenstein, A. H.		HQ-PY/Morris, J. D.	99-Multi-Discip		
Thompson, C. N.					
(10-370 183-00-00) (10-250 143-00-00)					
NGL 14-007-081	Northwestern University	1795			
Potential and charge distribution near a metallic interface					
<i>Period</i>		<i>Obligations</i>			
01/21/69-12/31/75		FY74:	TOTAL: \$150,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Waber, J. T.		LERC/Lad, R. A.	13-Physics		
		LERC/Bambakidis, G.			
(22-704 502-01-02) (10-740 129-00-00)					
NGR 14-007-084	Northwestern University	1796			
Effects of surface irregularities and friction on elasto-hydrodynamic lubrication					
<i>Period</i>		<i>Obligations</i>			
10/20/69-01/31/75		FY74:	TOTAL: \$107,976		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Ching, H. S.		LERC/Zaretsky, E. V.	46-Mech Engr		
		LERC/Anderson, W. J.			
(22-704 501-24-10)					
NGR 14-007-114	Northwestern University	1797			
Study program of the influences of intensity and scale of turbulence on emission concentrations in the primary zone of a gas turbine combustor					
<i>Period</i>		<i>Obligations</i>			
06/01/71-12/31/74		FY74:	TOTAL: \$47,625		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Kovitz, A. A.		LERC/Grobman, J. S.	41-Aero Engr		
(22-760 126-00-00)					
NGR 14-007-122	Northwestern University	1798			
Time variations of UV emission features of be stars					
<i>Period</i>		<i>Obligations</i>			
08/01/72-07/31/74		FY74: \$4,400	TOTAL: \$14,400		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Bahng, J. D.		HQ-SG/Roman, N. G.	11-Astronomy		
		HQ-SG/Calahan, D.			
(10-850 385-41-00)					
NGR 14-007-129	Northwestern University	1799			
Decision-directed adaptive estimation					
<i>Period</i>		<i>Obligations</i>			
11/01/72-10/31/74		FY74:	TOTAL: \$26,416		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Schaefer, B. M.		LARC/Painter, J. H.	45-Elec Engr		
(23-620 636-00-00)					
NGR 14-007-131	Northwestern University	1800			
Study of electronic factors in fracture of metals					
<i>Period</i>		<i>Obligations</i>			
07/30/73-06/29/75		FY74: \$50,000	TOTAL: \$50,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Waber, J. T.		LERC/Bambakidis, G.	13-Physics		
(22-704 502-01-02)					
NGR 14-007-136	Northwestern University	1801			
Study of NASA and its laboratories in a changing environment					
<i>Period</i>		<i>Obligations</i>			
11/01/73-10/31/74		FY74: \$24,000	TOTAL: \$24,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Radnor, M.		HQ-D/Myers, B. C.	99-Multi-Discip		
		HQ-D/Nolan, J. P.			
(10-030 010-00-00)					
NSR 14-007-103	Northwestern University	1802			
Study of the communications systems of the Office of Advanced Research and Technology					
<i>Period</i>		<i>Obligations</i>			
10/22/70-08/01/72		FY74:	TOTAL: \$49,868		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Radnor, M.		HQ-RM/Brandon, F. D.	99-Multi-Discip		
		HQ-RM/Wisniewski, R. J.			
(10-705 130-00-00)					

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NGR 14-008-026	Southern Illinois University - Carbondale	1803			
Characterization of developmental physiology of previously unstudied life form, obligately, halophilic blue-green algae, <i>Aphanotoce halothytica</i>					
<i>Period</i>	<i>Obligations</i>				
05/08/73-05/31/75	FY74: \$37,101	TOTAL: \$74,101			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Yopp, J. H.	HQ-SL/Young, R. S.	51-Biology			
(10-840 192-55-64)					
NAS 2-6551	University of Chicago	1804			
Pioneer F/G charged particle experiment data analysis					
<i>Period</i>	<i>Obligations</i>				
08/09/71-06/30/75	FY74: \$197,208	TOTAL: \$454,483			
<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.				
(21-840 811-22-00)					
NAS 5-9096	University of Chicago	1805			
Cosmic ray electron experiment					
<i>Period</i>	<i>Obligations</i>				
11/18/64-09/30/74	FY74:	TOTAL: \$1,159,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Meyer, P.	GSFC/Meese, K. J.	13-Physics			
(51-850 841-00-00)					
NAS 5-9366	University of Chicago	1806			
Low energy-heavy cosmic ray particles experiment for OGO-E spacecraft					
<i>Period</i>	<i>Obligations</i>				
06/28/66-12/31/72	FY74:	TOTAL: \$569,175			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Simpson, J. A.	GSFC/Meese, K. J.	13-Physics			
(51-850 841-00-00)					
NAS 5-11037	University of Chicago	1807			
IMPI solar particles radiation experiment					
<i>Period</i>	<i>Obligations</i>				
08/15/67-09/30/73	FY74:	TOTAL: \$675,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Simpson, J. A.	GSFC/Ferer, B. H.	13-Physics			
Munos, M. G.					
Verma, S. D.					
(51-850 861-52-00)					
NAS 5-11067	University of Chicago	1808			
IMP-H&J solar flare and isotope experiment					
<i>Period</i>	<i>Obligations</i>				
06/11/68-08/31/75	FY74: \$225,000	TOTAL: \$1,141,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Simpson, J. A.	GSFC/Davis, M. A.	13-Physics			
(51-850 861-42-00)					
NAS 5-23288	University of Chicago	1809			
Instrument definition study					
<i>Period</i>	<i>Obligations</i>				
08/15/73-12/31/74	FY74: \$17,976	TOTAL: \$17,976			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Van Altena, W. F.	GSFC/Sobieski, S.	11-Astronomy			
(51-850 188-78-56)					
NAS 8-27407	University of Chicago	1810			
HEAO-Mission B experiment feasibility study on high energy electron					
<i>Period</i>	<i>Obligations</i>				
06/07/71-06/30/74	FY74:	TOTAL: \$251,039			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Meyer, P.	MSFC/Dabbs, J. R.	11-Astronomy			
	MSFC/Cochran, J.				
(62-850 832-12-00)					
NAS 9-14042	University of Chicago	1811			
Project data meteorology tropical storms and related meteorological features					
<i>Period</i>	<i>Obligations</i>				
04/01/74-09/30/74	FY74: \$17,000	TOTAL: \$17,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Fujita, T.	JSC/Wilmarth, V. R.	39-Env Sci, NEC			
	JSC/Kaltenbach, J. L.				
(72-960 948-80-80)					
NGL 14-001-001	University of Chicago	1812			
Investigation of effects of solar wind in interplanetary space					
<i>Period</i>	<i>Obligations</i>				
08/01/60-10/13/76	FY74: \$63,000	TOTAL: \$833,372			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Parker, E. N.	HQ-SG/Opp, A. G.	11-Astronomy			
	HQ-SG/Kavanagh, L. D., Jr.				
(10-850 188-46-56)					
NGL 14-001-005	University of Chicago	1813			
High altitude balloon investigations on composition, energy spectrum & intensity of primary cosmic radiation at high & intermediate geomagnetic latitudes					
<i>Period</i>	<i>Obligations</i>				
05/01/61-10/31/76	FY74: \$375,000	TOTAL: \$3,982,258			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Meyer, P.	HQ-SG/Opp, A. G.	11-Astronomy			
	HQ-SG/Kavanagh, L. D., Jr.				
(10-850 188-46-56)					
NGL 14-001-006	University of Chicago	1814			
Experimental and theoretical studies of energetic particles and electrodynamic processes in interplanetary space and in vicinity of planets					
<i>Period</i>	<i>Obligations</i>				
08/01/61-07/31/75	FY74: \$340,000	TOTAL: \$4,122,559			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Simpson, J. A.	HQ-SG/Opp, A. G.	11-Astronomy			
	HQ-SG/Roman, N. G.				
(10-850 188-46-56)					
NGL 14-001-010	University of Chicago	1815			
Research and investigation of origin, age and composition of meteorites					
<i>Period</i>	<i>Obligations</i>				
03/11/63-03/31/77	FY74: \$50,000	TOTAL: \$1,092,703			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Anders, E.	HQ-SM/Hosterman, J. W.	32-Geological Sci			
	HQ-SM/Roberson, F. I.				
(10-810 195-42-67)					

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NGL 14-001-012 **University of Chicago** **1816**
Investigations in space-related molecular biology, including consideration of molecular organization of extraterrestrial matter

<i>Period</i>	<i>Obligations</i>	
06/05/63-02/28/74	FY74: TOTAL: \$1,771,136	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Moran, H. F. (10-870 189-00-00)	HQ-SB/Jacobs, G. J.	59-Life Sci, NEC

NGL 14-001-060 **University of Chicago** **1817**
Study of comet tails by photoelectric spectrophotometry

<i>Period</i>	<i>Obligations</i>	
05/18/65-08/31/74	FY74: TOTAL: \$147,516	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Adams, T. (10-850 188-00-00)	HQ-SG/Dubin, M.	11-Astronomy

NGL 14-001-167 **University of Chicago** **1818**
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
03/29/72-01/31/77	FY74: \$172,230 TOTAL: \$756,130	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anders, E. (72-810 388-10-02)	JSC/Harris, J. W.	13-Physics

NGL 14-001-169 **University of Chicago** **1819**
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
01/19/71-01/31/77	FY74: \$142,980 TOTAL: \$287,680	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clayton, R. N. (72-810 388-10-02)	JSC/Harris, J. W.	12-Chemistry

NGL 14-001-171 **University of Chicago** **1820**
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
01/19/71-01/31/77	FY74: \$65,000 TOTAL: \$277,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, J. V. (72-810 388-10-01)	JSC/Harris, J. W.	13-Physics

NGL 14-001-258 **University of Chicago** **1821**
Advanced technical developments in support of scientific experiments in space

<i>Period</i>	<i>Obligations</i>	
06/15/73-06/30/77	FY74: \$200,000 TOTAL: \$400,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simpson, J. A. (10-371 340-00-00)	HQ-PY/Redding, E. R.	99-Multi-Discip

NGR 14-001-008 **University of Chicago** **1822**
Meteorological interpretation of satellite radiation data

<i>Period</i>	<i>Obligations</i>	
09/01/70-09/30/74	FY74: \$144,000 TOTAL: \$666,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fujita, T. T. (51-680 175-21-43)	GSFC/Shenk, W. E.	31-Atmos Sci

NGR 14-001-135 **University of Chicago** **1823**
Feasibility of the alpha scattering technique for Martian surface analysis

<i>Period</i>	<i>Obligations</i>	
02/25/69-07/31/73	FY74: \$75,020 TOTAL: \$459,852	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Turkevich, A. L. (10-840 185-50-81)	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Allingham, J. W.	

NGR 14-001-147 **University of Chicago** **1824**
Interferometric high-resolution spectroscopy of optical interstellar lines

<i>Period</i>	<i>Obligations</i>	
03/18/70-12/31/74	FY74: \$21,901 TOTAL: \$122,207	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Adams, T. (10-850 188-41-51)	HQ-SG/Kelsall, T.	11-Astronomy
	HQ-SG/Roman, N. G.	

NGR 14-001-164 **University of Chicago** **1825**
Spectral measurement of the X-ray emission from nonflare solar active region

<i>Period</i>	<i>Obligations</i>	
05/19/70-12/31/75	FY74: \$201,975 TOTAL: \$651,065	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Blake, R. L. (10-850 879-11-00)	HQ-SG/Weldon, J. M.	11-Astronomy
	HQ-SG/Jordan, S. D.	

NGR 14-001-194 **University of Chicago** **1826**
Quantitative spectroscopy of planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
07/20/71-04/15/74	FY74: TOTAL: \$56,857	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kaplan, L. D. (10-840 384-47-81)	HQ-SL/Fellows, R. F.	31-Atmos Sci

NGR 14-001-203 **University of Chicago** **1827**
Origin of organic compounds in meteorites

<i>Period</i>	<i>Obligations</i>	
08/17/71-09/30/74	FY74: \$35,000 TOTAL: \$105,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anders, E. (10-840 192-55-62)	HQ-SL/Young, R. S.	32-Geological Sci

NGR 14-001-211 **University of Chicago** **1828**
Far infrared photometry of H II regions and planets using the NASA 30 cm flying infrared telescope

<i>Period</i>	<i>Obligations</i>	
02/14/72-08/31/74	FY74: \$45,000 TOTAL: \$112,088	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Harper, D. A. (21-850 352-02-01)	ARC/Cameron, R. M.	11-Astronomy
	ARC/Mason, R. H.	

NGR 14-001-224 **University of Chicago** **1829**
Advanced technical development in support of scientific experiments in space

<i>Period</i>	<i>Obligations</i>	
06/09/72-06/01/74	FY74: TOTAL: \$200,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simpson, J. A. (10-371 340-00-00)	HQ-PY/Redding, E. R.	19-Phys Sci, NEC

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NGR 14-001-225	University of Chicago	1830			
Physiology of the vestibular system of the squirrel monkey					
<i>Period</i>	<i>Obligations</i>				
05/12/67-08/31/74	FY74: \$65,663	TOTAL: \$157,893			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Fernandez, C.	ARC/Daunton, N. G.	51-Biology			
Goldberg, J. M.	ARC/Mehler, W. R.				
(21-970 970-21-11)	(21-970 970-21-53)				
NGR 14-001-227	University of Chicago	1831			
Photometry of galactic and extragalactic far infrared sources using the 91.5 cm airborne infrared telescope					
<i>Period</i>	<i>Obligations</i>				
02/27/73-02/28/75	FY74: \$49,174	TOTAL: \$134,174			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Harper, D. A.	ARC/Cameron, R. M.	11-Astronomy			
(21-850 352-02-03)					
NGR 14-001-249	University of Chicago	1832			
Physical properties of solar nebula as deduced from chondrites					
<i>Period</i>	<i>Obligations</i>				
05/14/73-05/31/75	FY74: \$63,269	TOTAL: \$73,059			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Grossman, L.	HQ-SM/Hosterman, J. W.	32-Geological Sci			
	HQ-SM/Roberson, F. I.				
(10-810 195-42-67)					
NGR 14-001-250	University of Chicago	1833			
Development of an alpha scattering instrument for heavy element detection in surface materials					
<i>Period</i>	<i>Obligations</i>				
06/20/73-06/15/74	FY74: \$35,000	TOTAL: \$35,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Turkevich, A. L.	HQ-SL/Dwormik, S. E.	13-Physics			
(10-250 141-93-02)					
NGR 14-012-026	University of Illinois - Chicago Circle	1834			
Stress and altered gaseous environments as alternants of immune response					
<i>Period</i>	<i>Obligations</i>				
03/31/72-09/01/74	FY74: \$24,402	TOTAL: \$63,102			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Guttman, H. N.	JSC/Kimzey, S. L.	53-Other Medical			
(72-970 970-51-15)					
AF306 24144	University of Illinois - Urbana	1835			
Illiac IV-computer					
<i>Period</i>	<i>Obligations</i>				
03/23/66-07/01/72	FY74:	TOTAL: \$3,247,256			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Unavailable	ARC/Unavailable	21-Mathematics			
(21-760 366-00-00)					
NAS 2-7722	University of Illinois - Urbana	1836			
Interactive graphics display system					
<i>Period</i>	<i>Obligations</i>				
06/29/73-09/01/74	FY74: \$236,972	TOTAL: \$236,972			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sher, M. S.	ARC/Hart, J. P.	21-Mathematics			
	ARC/Fisher, D. L.				
(21-790 797-00-00)					
NAS 5-23334	University of Illinois - Urbana	1837			
A prototype ANAY processor for the IBM 360/95 computer					
<i>Period</i>	<i>Obligations</i>				
03/06/74-03/05/75	FY74: \$54,239	TOTAL: \$54,239			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Slotnick, D.	GSFC/Schneck, P. B.	21-Mathematics			
Graham, M.					
(51-680 611-13-00)					
NAS 9-12459	University of Illinois - Urbana	1838			
Development of a tri-leaflet aortic valve prosthesis					
<i>Period</i>	<i>Obligations</i>				
02/28/72-08/01/74	FY74:	TOTAL: \$35,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Karara, H. M.	JSC/Bender, M. J.	44-Civil Engr			
(72-250 141-93-02)	(72-250 141-93-00)				
NGL 14-005-074	University of Illinois - Urbana	1839			
Physiological responses of central vestibular pathways and diffuse ascending systems to vestibular stimulation					
<i>Period</i>	<i>Obligations</i>				
11/15/65-01/01/75	FY74:	TOTAL: \$931,044			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ades, H. W.	HQ-MM/Jones, W. L.	52-Clinical Med			
(10-704 501-09-02)	(10-770 137-09-02)				
NGL 14-005-140	University of Illinois - Urbana	1840			
Research on fluid dynamic and heat transfer problems of modern air breathing propulsive systems					
<i>Period</i>	<i>Obligations</i>				
05/23/69-05/31/75	FY74: \$27,667	TOTAL: \$162,661			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Chow, W. L.	LERC/Anderson, B. H.	41-Aero Engr			
Korst, H. H.					
(22-704 501-24-06)					
NGR 14-005-002	University of Illinois - Urbana	1841			
Study of physical properties of ionosphere using satellite radio transmissions and theoretical study of wave propagation					
<i>Period</i>	<i>Obligations</i>				
07/09/59-12/31/73	FY74:	TOTAL: \$1,191,393			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Yeh, K. C.	HQ-SG/Schmerling, E. R.	31-Atmos Sci			
(10-850 385-36-00)					
NGR 14-005-010	University of Illinois - Urbana	1842			
Study of line integrals, surface integrals, volume, centroids and moments of inertia for a class of shells of revolution and for a larger class of shells					
<i>Period</i>	<i>Obligations</i>				
05/29/63-09/01/72	FY74:	TOTAL: \$91,729			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Worley, W. J.	HQ-RR/Unavailable	19-Phys Sci, NEC			
(10-740 129-00-00)	(62-910 933-50-00)				
NGR 14-005-144	University of Illinois - Urbana	1843			
Determination of multiple element airfoil geometries for maximizing lift coefficient					
<i>Period</i>	<i>Obligations</i>				
02/16/70-11/30/76	FY74: \$138,849	TOTAL: \$209,700			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ormsbee, A. I.	LARC/Morgan, H. L., Jr.	41-Aero Engr			
(23-702 760-63-00)	(23-702 760-63-02)	(23-704 501-06-05)			

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

NGR 14-005-149 University of Illinois - Urbana 1844
Study of local pressure field in turbulent shear flow and its relation to aerodynamic noise generation

<i>Period</i>	<i>Obligations</i>	
02/10/70-07/31/74	FY74: \$40,000	TOTAL: \$154,031
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jones, B. G.	LERC/Karchmer, A. M.	41-Aero Engr
	LERC/Dorsch, R. G.	
(22-704 501-04-01)	(22-740 129-00-00)	(22-762 132-80-01)

NGR 14-005-176 University of Illinois - Urbana 1845
Investigation of the atmosphere of Jupiter by studying the ammonia feature at a wavelength of 1.26 cm

<i>Period</i>	<i>Obligations</i>	
05/22/72-11/01/74	FY74:	TOTAL: \$18,969
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dichel, J. R.	HQ-SL/Brunk, W. E.	11-Astronomy
(10-840 196-41-82)		

NGR 14-005-177 University of Illinois - Urbana 1846
Studies of local pressure and velocity fields in large scale subsonic facilities, including simple jets & variable by-pass jets, and their relation to aerodynamic noise generation

<i>Period</i>	<i>Obligations</i>	
05/25/71-12/15/74	FY74:	TOTAL: \$47,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jones, B. G.	LERC/Karchmer, A. M.	41-Aero Engr
(22-760 126-00-00)		

NGR 14-005-181 University of Illinois - Urbana 1847
Rocket studies of the lower ionosphere

<i>Period</i>	<i>Obligations</i>	
08/01/71-07/31/74	FY74: \$460,000	TOTAL: \$1,225,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bowhill, S. A.	HQ-SG/Schmerling, E. R.	19-Phys Sci, NEC
	WFC/Milliner, C. F., Jr.	
(53-850 879-11-00)		

NGR 14-005-183 University of Illinois - Urbana 1848
A theoretical investigation of nuclear induced plasma kinetics

<i>Period</i>	<i>Obligations</i>	
12/07/71-06/30/74	FY74:	TOTAL: \$46,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miley, G. H.	HQ-NS/Thom, K.	12-Chemistry
(10-704 503-10-03)	(45-720 112-02-22)	

NGR 14-005-189 University of Illinois - Urbana 1849
Theoretical study of scintillation of transionospheric radio signals

<i>Period</i>	<i>Obligations</i>	
08/01/72-07/01/73	FY74:	TOTAL: \$26,765
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yeh, K. C.	GSFC/Golden, T. S.	45-Elec Engr
(51-620 636-00-00)		

NGR 14-005-193 University of Illinois - Urbana 1850
High intensity combustion and nitrous oxide formation in a turbine engine combustor

<i>Period</i>	<i>Obligations</i>	
06/22/72-06/30/76	FY74:	TOTAL: \$50,936
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Strehlow, R. A.	LERC/Marek, C. J.	41-Aero Engr
(22-704 501-15-83)	(22-702 741-72-04)	

NGR 14-005-194 University of Illinois - Urbana 1851
Low noise level general aviation propeller

<i>Period</i>	<i>Obligations</i>	
09/15/72-08/13/74	FY74: \$50,500	TOTAL: \$92,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ormsbee, A. I.	LARC/Stickle, J. W.	41-Aero Engr
Sivier, K. R.	LARC/Crane, H. L.	
(23-704 501-24-01)	(23-702 760-60-01)	

NGR 14-005-200 University of Illinois - Urbana 1852
Studies of discharge mechanisms occurring in high pressure gases with applications to high efficiency high power lasers

<i>Period</i>	<i>Obligations</i>	
04/06/73-04/30/75	FY74: \$64,860	TOTAL: \$64,860
<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.		
(22-704 502-11-01)		

NGR 14-005-202 University of Illinois - Urbana 1853
Implementation of Illiac IV algorithms for multispectral image interpretation

<i>Period</i>	<i>Obligations</i>	
02/27/73-02/01/75	FY74: \$39,000	TOTAL: \$99,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ray, R. M.	ARC/Slye, R. F.	19-Phys Sci, NEC
(21-680 177-11-11)	(21-790 797-00-00)	

NGR 14-005-206 University of Illinois - Urbana 1854
Feasibility of using a sailplane as an instrument platform for wake measurements

<i>Period</i>	<i>Obligations</i>	
04/03/73-05/15/74	FY74: \$2,014	TOTAL: \$2,014
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ormsbee, A. I.	LARC/Stickle, J. W.	41-Aero Engr
(23-704 501-38-13)		

NGR 14-005-221 University of Illinois - Urbana 1855
Quantitative studies of hair cells and nerve endings in the maculae and cochleae of animals, and in the vestibular and cochlear nuclei

<i>Period</i>	<i>Obligations</i>	
01/01/74-12/31/74	FY74: \$39,992	TOTAL: \$39,992
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ades, H. W.	ARC/Mehler, W. R.	51-Biology
(21-970 970-21-11)		

NSG 1063 University of Illinois - Urbana 1856
Nuclear induced plasma kinetics

<i>Period</i>	<i>Obligations</i>	
06/01/74-05/31/75	FY74: \$26,000	TOTAL: \$26,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miley, G. H.	LARC/Hohl, F.	19-Phys Sci, NEC
(23-704 502-10-01)		

NSG 3008 University of Illinois - Urbana 1857
The analysis of the structure of blast waves from accidental explosions

<i>Period</i>	<i>Obligations</i>	
05/10/74-06/01/75	FY74: \$49,845	TOTAL: \$49,845
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Strehlow, R. A.	LERC/Siewert, R. D.	13-Physics
(22-704 502-28-04)		

NASA'S UNIVERSITY PROGRAM

ILLINOIS (Continued)

NSG 7030 University of Illinois - Urbana 1858
 Research in long baseline interferometry using a communications satellite

Period	Obligations	
06/01/74-08/31/74	FY74: \$1,500	TOTAL: \$1,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Swenson, G. W.	HQ-SG/Rosendhal, J. D.	11-Astronomy
	HQ-SG/Roman, N. G.	

(10-850 188-41-52)

NSG 7044 University of Illinois - Urbana 1859
 Evolution of the cell and the translation process

Period	Obligations	
06/01/74-05/31/75	FY74: \$32,300	TOTAL: \$32,300
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Woese, C. R.	HQ-SL/Young, R. S.	12-Chemistry

(10-840 192-55-61)

INDIANA

NAS 1-12055 Indiana University - Bloomington 1860
 Study of bleed rates of chromatographic columns for use with the Martian gcms

Period	Obligations	
01/22/73-10/20/74	FY74: \$26,572	TOTAL: \$33,865
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hayes, J. M.	LARC/Diaz, A. V.	13-Physics
Novotny, M. V.		

(23-840 815-20-00)

NAS 5-21795 Indiana University - Bloomington 1861
 ERTS-A imagery related to mine safety

Period	Obligations	
06/30/72-07/01/74	FY74: \$16,100	TOTAL: \$101,025
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wier, C. E.	GSFC/Gordon, F., Jr.	32-Geological Sci

(51-680 641-14-03)

NASW 2353 Indiana University - Bloomington 1862
 Regional Dissemination Center operation in Aerospace Research Application Center

Period	Obligations	
05/16/72-11/01/73	FY74: \$11,085	TOTAL: \$250,085
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shriner, H.	HQ-KT/Holley, H. L.	99-Multi-Discip
(10-250 141-93-01)	(10-250 141-93-00)	(10-250 141-00-00)

NASW 2467 Indiana University - Bloomington 1863
 Regional Information Dissemination Center

Period	Obligations	
05/14/73-12/31/74	FY74: \$201,500	TOTAL: \$422,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shriner, H.	HQ-KT/Holley, H. L.	99-Multi-Discip

(10-250 141-93-01)

NGL 15-003-002 Indiana University - Bloomington 1864
 A theoretical investigation of the steady state interaction between radiation and matter in stellar atmospheres

Period	Obligations	
07/17/63-12/31/76	FY74: \$7,700	TOTAL: \$335,877
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Johnson, H. R.	HQ-SG/Bogges, N. W.	11-Astronomy
	HQ-SG/Roman, N. G.	

(10-850 188-41-53) (10-850 188-00-00)

NGL 15-003-077 Indiana University - Bloomington 1865
 An experimental study of hearing loss and inner ear damage after exposure to sounds of high intensity

Period	Obligations	
05/27/68-12/31/74	FY74: \$30,000	TOTAL: \$165,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Neff, W. D.	ARC/Mehler, W. R.	59-Life Sci, NEC
(21-970 970-21-11)	(10-770 127-00-00)	(23-770 137-09-02)

NGL 15-003-117 Indiana University - Bloomington 1866
 Study of effects of a stressful or abnormal environment on action of selected therapeutic drugs

Period	Obligations	
05/19/72-04/30/76	FY74:	TOTAL: \$165,467
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Maickel, R. P.	HQ-MM/Vinograd, S. P.	52-Clinical Med

(10-970 970-14-01)

NGR 15-003-007 Indiana University - Bloomington 1867
 Investigation of neurological correlates of information reception

Period	Obligations	
01/01/65-01/01/76	FY74:	TOTAL: \$133,823
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Neff, W. D.	ARC/Weisman, N. W.	51-Biology
(10-870 189-00-00)	(21-870 189-00-00)	

NGR 15-003-105 Indiana University - Bloomington 1868
 Lunar sample analysis

Period	Obligations	
01/26/71-01/31/75	FY74: \$20,000	TOTAL: \$123,300
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Meinschein, W. G.	JSC/Harris, J. W.	12-Chemistry

(72-810 388-10-04)

NGR 15-003-118 Indiana University - Bloomington 1869
 Application of ultra-high sensitivity isotope ratio mass spectrometry to organic geochemistry and cosmochemistry

Period	Obligations	
06/20/72-05/31/75	FY74: \$102,250	TOTAL: \$175,966
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hayes, J. M.	HQ-SL/Young, R. S.	32-Geological Sci

(10-840 192-55-62)

NAS 2-7927 Indiana Univ. - Indianapolis 1870
 Radiobiological tests on mouse tissue

Period	Obligations	
01/01/74-06/30/75	FY74: \$23,621	TOTAL: \$23,621
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zeman, W.	ARC/Haymaker, W. E.	51-Biology

(21-970 970-21-63)

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

NAS 3-18010	Purdue University	1871			
Research on multiple pure tone noise on a supersonic rotor propagating in an acoustically treated duct					
<i>Period</i>	<i>Obligations</i>				
08/13/73-08/12/74	FY74: \$38,742	TOTAL: \$38,742			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Vaidya, P. G.	LERC/Minner, G. L.	41-Aero Engr			
	LERC/Rice, E. J.				
(22-704 501-04-01)					
NAS 5-21773	Purdue University	1872			
A study of the utilization of ERTS-A data from the Wabash River basin					
<i>Period</i>	<i>Obligations</i>				
06/27/72-01/01/75	FY74: \$68,958	TOTAL: \$202,958			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
McDonald, R. B.	GSFC/Gordon, F., Jr.	39-Env Sci, NEC			
(51-680 641-14-01) (51-680 641-14-00)					
NAS 5-21785	Purdue University	1873			
ERTS-A data analysis					
<i>Period</i>	<i>Obligations</i>				
06/30/72-07/01/74	FY74: \$8,790	TOTAL: \$58,790			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Baumgardner, M. F.	GSFC/Gordon, F., Jr.	19-Phys Sci, NEC			
(51-680 641-14-01) (51-680 641-14-00)					
NAS 5-21880	Purdue University	1874			
Interdisciplinary analysis of ERTS data for Colorado mountain environments using ADP techniques					
<i>Period</i>	<i>Obligations</i>				
06/30/72-07/15/74	FY74: \$20,132	TOTAL: \$186,132			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bouchillon, C. W.	GSFC/Gordon, F., Jr.	99-Multi-Discip			
(51-680 641-14-07) (51-680 641-14-00)					
NAS 9-13301	Purdue University	1875			
Study of utilization of EREP data from Wabash River basin					
<i>Period</i>	<i>Obligations</i>				
05/07/73-03/31/75	FY74:	TOTAL: \$97,160			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Silva, L. F.	JSC/Joosten, R. E.	39-Env Sci, NEC			
(72-960 948-63-85)					
NAS 9-13380	Purdue University	1876			
Description and interdisciplinary analysis of multispectral satellite data for selected cover types in Colorado mountains, using ADP techniques					
<i>Period</i>	<i>Obligations</i>				
04/30/73-09/30/74	FY74:	TOTAL: \$90,650			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hoffer, R. M.	JSC/Joosten, R. E.	39-Env Sci, NEC			
(72-960 948-63-85)					
NAS 9-14016	Purdue University	1877			
Applications of remote sensing					
<i>Period</i>	<i>Obligations</i>				
06/01/74-05/31/75	FY74: \$336,435	TOTAL: \$336,435			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Landgrebe, D. A.	JSC/Potter, A. E.	39-Env Sci, NEC			
Peterson, J. B. JSC/Hall, F. G.					
(72-680 177-42-83)					
NGL 15-005-003	Purdue University	1878			
Research on high precision spectroscopy with particular emphasis on the development of electronic digital computer methods					
<i>Period</i>	<i>Obligations</i>				
10/01/62-01/01/75	FY74:	TOTAL: \$589,068			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Andrew, K. L.	HQ-SG/Roman, N. G.	11-Astronomy			
HQ-SG/Oertel, G. K.					
(10-850 188-41-51) (10-850 188-00-00)					
NGL 15-005-094	Purdue University	1879			
Acrodynamic problems related to jet powered VTOL aircraft					
<i>Period</i>	<i>Obligations</i>				
03/18/69-12/31/74	FY74:	TOTAL: \$113,871			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Skifstad, J. G.	LARC/Margason, R. J.	41-Aero Engr			
(23-760 721-00-00) (23-702 760-72-06)					
NGL 15-005-112	Purdue University	1880			
Research in remote sensing in agriculture, earth resources and man's environment					
<i>Period</i>	<i>Obligations</i>				
06/27/69-05/01/75	FY74: \$1,008,075	TOTAL: \$6,329,971			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Landgrebe, D. A.	JSC/Overton, J. D.	13-Physics			
(72-680 177-42-83) (72-680 683-73-06)					
NGL 15-005-140	Purdue University	1881			
Origin of chondrites from relationships between fourteen key trace elements					
<i>Period</i>	<i>Obligations</i>				
06/21/71-08/31/76	FY74:	TOTAL: \$157,437			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lipschutz, M. E.	HQ-SM/Bryson, R. P.	32-Geological Sci			
HQ-SM/Pomerooy, J. H.					
(10-810 383-00-00)					
NGL 15-005-175	Purdue University	1882			
Lunar sample analysis					
<i>Period</i>	<i>Obligations</i>				
02/01/73-01/31/76	FY74:	TOTAL: \$92,290			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Taylor, L. A.	JSC/Harris, J. W.	13-Physics			
(72-910 914-40-00)					
NGL 15-005-186	Purdue University	1883			
Application of remote sensing technology to solution of problems in management of resources					
<i>Period</i>	<i>Obligations</i>				
06/19/73-05/31/77	FY74: \$200,000	TOTAL: \$595,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Landgrebe, D. A.	HQ-PY/Vitale, J. A.	39-Env Sci, NEC			
(10-371 340-00-00)					
NGR 15-005-002	Purdue University	1884			
Heat transfer in gases bubbling through liquid metal beds & inert gas					
<i>Period</i>	<i>Obligations</i>				
06/01/61-12/31/73	FY74:	TOTAL: \$64,555			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Zucrow, M. J.	HQ-RP/Unavailable	43-Chem Engr			
(10-710 128-00-00)					

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

NGR 15-005-069	Purdue University	1885	NGR 15-005-180	Purdue University	1892
Research in engineering design			Purdue-NASA cooperative program in computer-aided design and computer graphics		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/07/68-08/01/72	FY74: TOTAL: \$223,540		05/10/73-05/31/76	FY74: TOTAL: \$170,000	
<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>
Modrey, J. (10-370 183-00-00)	HQ-PY/Vitale, J. A.	49-Engr, NEC	Garrett, R. E. (21-704 501-15-81)	ARC/Gregory, T. J.	49-Engr, NEC
NGR 15-005-119	Purdue University	1886	NGR 15-005-188	Purdue University	1893
Research on lift and viscous cross flow			Computational capability for low speed STOL aerodynamics		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/02/70-08/31/74	FY74: \$24,619 TOTAL: \$87,154		09/01/73-08/31/74	FY74: \$17,775 TOTAL: \$17,775	
<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>
Marshall, F. J. (23-704 501-06-09)	LARC/Landrum, E. J. LARC/Barger, R. L.	41-Aero Engr	Marshall, F. J. (23-704 501-06-01)	LARC/Morgan, H. L., Jr. LARC/Margason, R. J.	41-Aero Engr
NGR 15-005-147	Purdue University	1887	NGR 15-005-191	Purdue University	1894
Gas film cooling of turbine blades			Calculation of the flow field and the viscous inviscid flow interaction in aircraft inlets		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/10/71-01/31/75	FY74: TOTAL: \$50,149		01/01/74-12/31/74	FY74: \$27,900 TOTAL: \$27,900	
<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>
Lecuyer, M. R. (22-760 126-00-00)	LERC/Poferl, D. J.	41-Aero Engr	Hoffman, J. D. (22-704 501-24-05)	LERC/Bishop, A. R.	41-Aero Engr
NGR 15-005-152	Purdue University	1888	NSG 3029	Purdue University	1895
Efficient encoding of multispectral scanner data			Multiple pure tone noise radiation from a supersonic rotor in an acoustically treated duct		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/01/72-12/31/73	FY74: TOTAL: \$39,900		08/11/74-08/10/75	FY74: \$54,864 TOTAL: \$54,864	
<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>
Wintz, P. A. (51-680 160-20-59)	GSFC/Lynch, T. J.	45-Elec Engr	Vaidya, P. G. Shashaani, R. Kisner, L. S. (22-704 501-04-01)	LERC/Minner, G. L. LERC/Rice, E. J.	46-Mech Engr
NGR 15-005-157	Purdue University	1889	NSG 5010	Purdue University	1896
Lunar sample analysis			Investigations pertaining to encoding of multispectral scanner data		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/72-01/31/75	FY74: \$13,524 TOTAL: \$62,524		06/15/74-06/14/75	FY74: \$46,550 TOTAL: \$46,550	
<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>
Meyer, H. O. (72-810 388-10-01)	JSC/Harris, J. W. (72-910 914-40-00)	13-Physics	Wintz, P. A. (51-620 643-60-00)	GSFC/Lynch, T. J.	32-Geological Sci
NGR 15-005-162	Purdue University	1890	NSR 15-005-037	Purdue University	1897
Flow characteristics in aircraft inlets			Compilation and analysis of thermal radiative properties		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/12/72-05/31/75	FY74: TOTAL: \$49,973		06/29/66-07/25/73	FY74: \$1,092 TOTAL: \$355,209	
<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>
Hoffman, J. D. (22-704 501-24-08)	LERC/Anderson, B. H.	41-Aero Engr	Dewitt, D. P. (10-742 124-00-00)	HQ-RW/Gilstad, D. A.	47-Materials Engr
NGR 15-005-174	Purdue University	1891	NAS 3-17357	Rose-Hulman Institute of Technology	1898
Research on acoustic theory of turbulence			Analysis of test data from an elasto-hydrodynamic film thickness apparatus		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/03/73-08/31/75	FY74: \$21,650 TOTAL: \$40,456		03/21/73-12/20/73	FY74: TOTAL: \$2,000	
<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>
Kentzer, C. P. (23-704 501-04-01)	LARC/Pao, S. P. LARC/Manning, J. C.	39-Env Sci, NEC	Coy, J. J. (22-704 501-24-10)	LERC/Dietrich, M. W.	46-Mech Engr

NASA'S UNIVERSITY PROGRAM
INDIANA (Continued)

NAS 1-12468 University of Notre Dame 1899
Investigation of electrode materials used in charge coupled devices
Period *Obligations*
06/04/73-09/04/73 FY74: TOTAL: \$5,381
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gajda, W. J., Jr. LARC/Fripp, A. L. 45-Elec Engr
LARC/Stermer, R. L.
(23-704 502-03-52)

NGL 15-004-026 University of Notre Dame 1900
Convolutional coding techniques for data protection
Period *Obligations*
09/11/67-07/31/74 FY74: TOTAL: \$168,922
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Massey, J. L. GSFC/Lynch, T. J. 45-Elec Engr
(51-620 164-18-54) (51-840 823-11-00)

IOWA

NGR 16-002-038 Iowa State University 1901
Calculation of viscous compressible flow
Period *Obligations*
10/07/71-11/15/74 FY74: \$16,910 TOTAL: \$48,532
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tannehill, J. C. ARC/Rakich, J. V. 21-Mathematics
Holst, T. L.
(21-704 501-06-02) (21-742 117-00-00)

NAS 1-11257 University of Iowa 1902
Design, development, fabrication, testing and launch support of the Injun F spacecraft
Period *Obligations*
03/17/72-08/01/74 FY74: \$875,000 TOTAL: \$3,735,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Van Allen, J. A. LARC/Coffee, C. W., Jr. 13-Physics
LARC/Woerner, C. V.
(23-850 863-11-00)

NAS 1-13129 University of Iowa 1903
Hawkeye/neutral point Explorer experiments
Period *Obligations*
05/20/74-08/03/76 FY74: \$476,000 TOTAL: \$476,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Van Allen, J. A. LARC/Coffee, C. W., Jr. 13-Physics
Frank, L. A.
Gurnett, D. A.
(23-850 863-11-00)

NAS 2-6553 University of Iowa 1904
Pioneer F/G data analysis - Jovian charged particles experiment
Period *Obligations*
07/21/71-06/30/75 FY74: \$116,657 TOTAL: \$233,425
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Van Allen, J. A. ARC/Hall, C. F. 13-Physics
(21-840 811-22-00)

NAS 5-11039 University of Iowa 1905
IMP-1 low energy electron and proton experiment
Period *Obligations*
06/19/68-06/30/74 FY74: TOTAL: \$313,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frank, L. A. GSFC/Davis, M. A. 13-Physics
(51-850 861-52-00)

NAS 5-11064 University of Iowa 1906
Low energy electrons and protons experiment for IMP-H & J
Period *Obligations*
05/31/68-01/31/75 FY74: \$147,000 TOTAL: \$580,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frank, L. A. GSFC/Limberis, B. R. 13-Physics
(51-850 861-42-00)

NAS 5-11074 University of Iowa 1907
Low-frequency radio noise experiment
Period *Obligations*
04/19/68-07/01/74 FY74: \$16,594 TOTAL: \$543,610
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gurnett, D. A. GSFC/Madden, J. J. 11-Astronomy
GSFC/Butler, P.
(51-850 861-41-00)

NAS 5-11167 University of Iowa 1908
Ac electric fields experiment for S 3A
Period *Obligations*
09/25/68-06/30/75 FY74: \$19,902 TOTAL: \$316,202
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gurnett, D. A. GSFC/Longanecker, G. W. 13-Physics
(51-850 857-12-00)

NAS 5-11265 University of Iowa 1909
UK-4 low energy proton and electron differential energy analyzer experiment
Period *Obligations*
01/30/70-08/31/73 FY74: \$50,000 TOTAL: \$440,394
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frank, L. A. GSFC/Eaker, H. L. 13-Physics
Craven, J. D.
Yeager, D. M.
(51-850 870-42-00)

NAS 5-11279 University of Iowa 1910
Solar wind plasma wave experiment for the Helios missions
Period *Obligations*
03/30/70-03/15/75 FY74: \$35,300 TOTAL: \$909,645
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gurnett, D. A. GSFC/Ousley, G. W. 11-Astronomy
GSFC/White, C. E.
(51-840 823-12-00) (51-840 823-11-00)

NAS 5-11431 University of Iowa 1911
Ac electric and magnetic fields experiment
Period *Obligations*
05/21/71-11/01/75 FY74: \$83,000 TOTAL: \$373,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gurnett, D. A. GSFC/Davis, M. A. 31-Atmos Sci
(51-850 861-42-00)

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

NAS 5-20093 University of Iowa 1912
Plasma wave experiment for international sun-earth Explorer spacecraft A & B
Period *Obligations*
05/20/74-10/31/79 FY74: \$45,000 TOTAL: \$45,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gurnett, D. A. GSFC/Davis, M. A. 13-Physics
Fredricks, R. W.
Smith, E. J.
(51-850 861-62-00)

NAS 5-20094 University of Iowa 1913
Magnetospheric and interplanetary plasma for international sun-earth Explorer mother & daughter spacecraft
Period *Obligations*
05/20/74-10/30/79 FY74: \$10,000 TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frank, L. A. GSFC/Davis, M. 13-Physics
Kennei, C. F.
Vasyliunas, U. T.
(51-850 861-62-00)

NAS 5-20539 University of Iowa 1914
Spacecraft control and telemetry station operations
Period *Obligations*
06/03/74-08/02/76 FY74: \$252,000 TOTAL: \$252,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Van Allen, J. A. GSFC/Allen, R. F., Jr. 11-Astronomy
Frank, L. A. GSFC/Sanford, R. G.
Gurnett, D. A.
(51-500 311-07-13)

NAS 5-21852 University of Iowa 1915
Evaluation of ERTS imagery for tectonic analysis
Period *Obligations*
09/15/72-08/01/74 FY74: \$29,786 TOTAL: \$29,786
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoppin, R. A. GSFC/Stonesifer, G. R. 32-Geological Sci
Baker, R. G.
(51-680 641-14-03)

NAS 9-13313 University of Iowa 1916
Investigation of Skylab data EREP no. 393
Period *Obligations*
03/09/73-12/31/74 FY74: \$17,000 TOTAL: \$17,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoppin, R. A. JSC/Miller, M. 32-Geological Sci
(72-960 948-63-83)

NGL 16-001-002 University of Iowa 1917
Theoretical & experimental studies related to particles & fields associated with major bodies of solar system & with interplanetary space
Period *Obligations*
05/23/62-11/30/76 FY74: \$240,000 TOTAL: \$4,094,196
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Van Allen, J. A. HQ-SG/Kavanagh, L. D., Jr. 13-Physics
HQ-SG/Schmerling, E. R.
(10-850 188-36-55) (10-850 188-00-00)

NGL 16-001-043 University of Iowa 1918
Waves in plasmas
Period *Obligations*
03/28/67-11/30/76 FY74: \$55,000 TOTAL: \$577,986
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Montgomery, D. C. HQ-SG/Schmerling, E. R. 13-Physics
HQ-SG/Hallenbeck, D. R.
(10-850 188-36-56)

KANSAS

NGL 17-001-026 Kansas State University 1919
Infrared laboratory studies of synthetic planetary atmospheres
Period *Obligations*
01/10/67-11/30/76 FY74: \$20,000 TOTAL: \$207,054
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Williams, D. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.
(10-840 185-47-83) (10-840 185-00-00)

NAS 1-10048 University of Kansas 1920
Development of a composite Radiometer Scatterometer (RADSCAT) experiment and design of aircraft experiment & development of radar backscatter theory
Period *Obligations*
06/02/70-01/31/75 FY74: \$24,912 TOTAL: \$118,207
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moore, R. K. LARC/Jones, W. L. 99-Multi-Discip
(23-630 369-05-07) (23-620 630-00-00)

NAS 1-12976 University of Kansas 1921
Compressible vortex flow characteristics
Period *Obligations*
07/01/74-07/15/76 FY74: \$39,395 TOTAL: \$39,395
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Muirhead, V. U. LARC/Ward, J. F. 41-Aero Engr
(23-702 760-63-02)

NAS 4-2148 University of Kansas 1922
Flight test program of an attitude command control system and report of findings
Period *Obligations*
02/01/74-12/31/75 FY74: \$292,000 TOTAL: \$292,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roskam, J. FRC/Gee, S. W. 41-Aero Engr
(24-702 760-60-05) (24-704 501-23-21)

NAS 5-21822 University of Kansas 1923
A Kansas environmental and resource study using ERTS-A data
Period *Obligations*
08/01/72-09/01/74 FY74: \$83,424 TOTAL: \$377,606
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kanemasu, E. T. GSFC/Stonesifer, G. R. 39-Env Sci, NEC
(51-680 641-14-01) (51-680 641-14-08)

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

NAS 9-10261 University of Kansas 1924
Radar systems studies
Period Obligations
01/12/70-06/30/75 FY74: \$116,000 TOTAL: \$1,002,223
Prin. Invest. NASA Tech. Officer CASE Category
Ulaby, F. T. JSC/Potter, A. E. 39-Env Sci, NEC
(72-680 177-44-82) (72-680 160-75-59)

NGL 17-004-024 University of Kansas 1931
Research on the applications of satellite remote sensing
Period Obligations
04/06/72-03/31/77 FY74: \$100,000 TOTAL: \$400,000
Prin. Invest. NASA Tech. Officer CASE Category
Barr, B. G. HQ-PY/Vitale, J. A. 39-Env Sci, NEC
(10-371 340-00-00) (10-370 183-00-00)

NAS 9-13271 University of Kansas 1925
Skylab study of water quality
Period Obligations
02/23/73-12/31/74 FY74: TOTAL: \$22,500
Prin. Invest. NASA Tech. Officer CASE Category
Yarger, H. L. JSC/York, L. B. 19-Phys Sci, NEC
(72-960 948-63-86)

NGR 17-002-072 University of Kansas 1932
Investigation of improved control method for light and general aviation aircraft
Period Obligations
10/22/69-09/16/74 FY74: \$432,000 TOTAL: \$838,007
Prin. Invest. NASA Tech. Officer CASE Category
Kohlman, D. L. LARC/Crane, H. L. 41-Aero Engr
(23-704 501-24-01) (23-702 760-60-01)

NAS 9-13273 University of Kansas 1926
Investigation of Skylab data EREP no. 540A
Period Obligations
03/19/73-08/31/74 FY74: TOTAL: \$61,168
Prin. Invest. NASA Tech. Officer CASE Category
Eagleman, J. R. JSC/Forbes, C. D. 19-Phys Sci, NEC
(72-960 948-63-82)

NGR 17-002-095 University of Kansas 1933
Investigation of separate surface stability augmentation systems for general aviation aircraft
Period Obligations
08/31/71-01/31/74 FY74: \$28,148 TOTAL: \$214,721
Prin. Invest. NASA Tech. Officer CASE Category
Roskam, J. FRC/Barber, M. R. 41-Aero Engr
FRC/Loschke, P. C.
(24-704 501-23-21)

NAS 9-13331 University of Kansas 1927
Investigation of Skylab data EREP no. 549M
Period Obligations
03/26/73-09/30/74 FY74: TOTAL: \$70,283
Prin. Invest. NASA Tech. Officer CASE Category
Moore, R. K. JSC/York, L. B. 19-Phys Sci, NEC
(72-960 948-63-86)

NGR 17-002-106 University of Kansas 1934
Possible contemporaneous climate changes on earth & Mars determined by Martian statistical geomorphology
Period Obligations
08/30/72-03/30/75 FY74: \$3,800 TOTAL: \$6,300
Prin. Invest. NASA Tech. Officer CASE Category
Zeller, E. J. HQ-SL/Dwornik, S. E. 32-Geological Sci
(10-840 384-50-80)

NAS 9-13347 University of Kansas 1928
Engineering & scientific support to S193 radiometer/scatterometer
Period Obligations
02/12/73-09/30/74 FY74: \$150,000 TOTAL: \$280,000
Prin. Invest. NASA Tech. Officer CASE Category
Moore, R. K. JSC/Dell, M. E. 49-Engr, NEC
(72-960 948-80-81)

NGR 17-002-107 University of Kansas 1935
Analytical investigation of wing-jet interaction
Period Obligations
01/01/73-06/01/74 FY74: TOTAL: \$18,413
Prin. Invest. NASA Tech. Officer CASE Category
Lan, C. T. LARC/Campbell, J. F. 41-Aero Engr
LARC/Lamar, J. E.
(23-704 501-06-01)

NAS 9-14052 University of Kansas 1929
Joint soil moisture experiment
Period Obligations
04/01/74-03/31/75 FY74: \$48,243 TOTAL: \$48,243
Prin. Invest. NASA Tech. Officer CASE Category
Ulaby, F. T. JSC/Potter, A. E. 39-Env Sci, NEC
JSC/Burke, W. J.
(72-680 177-51-84)

NGR 17-004-027 University of Kansas 1936
Application of composite materials to aircraft structures
Period Obligations
05/18/72-04/30/75 FY74: \$13,200 TOTAL: \$36,200
Prin. Invest. NASA Tech. Officer CASE Category
Lenzen, K. H. LARC/Pride, R. A. 41-Aero Engr
LARC/Dexter, H. B.
(23-704 501-22-03)

NGL 17-002-001 University of Kansas 1930
Stimulating & promoting space-related research within facility & research staff, & providing guest lectures, seminars & symposia
Period Obligations
08/21/62-09/30/74 FY74: TOTAL: \$950,000
Prin. Invest. NASA Tech. Officer CASE Category
Barr, B. G. HQ-PY/Redding, E. R. 99-Multi-Discip
(10-370 183-00-00)

NGT 17-002-044 University of Kansas 1937
Training of predoctoral graduate students in the field of engineering design
Period Obligations
04/21/67-08/01/72 FY74: TOTAL: \$273,300
Prin. Invest. NASA Tech. Officer CASE Category
Smith, W. P. HQ-PY/Carter, C. H. 99-Multi-Discip
(10-370 181-00-00)

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

NSG 1045 University of Kansas 1938
 Summer research studies at Langley

<i>Period</i>	<i>Obligations</i>	
05/10/74-09/10/74	FY74: \$23,822	TOTAL: \$23,822
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lenzen, K. H. (23-680 175-31-31)	LARC/Martin, D. J. (23-680 176-91-31)	49-Engr, NEC (23-702 760-63-02)

NSG 1046 University of Kansas 1939
 Effects of aeroelasticity on control effectiveness

<i>Period</i>	<i>Obligations</i>	
06/10/74-06/30/75	FY74: \$29,665	TOTAL: \$29,665
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Roskam, J. (23-704 501-23-32)	LARC/Lamar, J. E. LARC/Henderson, W. P.	41-Aero Engr

NSG 1061 University of Kansas 1940
 NASA/University Conference on Aeronautics

<i>Period</i>	<i>Obligations</i>	
06/01/74-03/31/75	FY74: \$65,499	TOTAL: \$65,499
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Roskam, J. (23-030 023-09-98)	LARC/Duberg, J. E.	41-Aero Engr

NGR 17-003-018 Wichita State University 1941
 Numerical methods for the investigation of transmission and attenuation of sound in acoustically treated ducts

<i>Period</i>	<i>Obligations</i>	
07/24/72-02/01/75	FY74:	TOTAL: \$49,420
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Eversman, W. (22-704 501-24-01)	LERC/Rice, E. J. LERC/Feiler, C. E.	13-Physics (22-704 501-04-01)

NGR 17-003-021 Wichita State University 1942
 Experimental studies of flow separation and stalling on two-dimensional airfoils at low speeds - Phase I

<i>Period</i>	<i>Obligations</i>	
12/01/73-12/01/74	FY74: \$24,522	TOTAL: \$24,522
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wentz, W. H., Jr. Seetharam, H. C. (23-702 760-63-00)	LARC/Noonan, K. W. LARC/McGhee, R. J.	41-Aero Engr

KENTUCKY

NSG 801 Kentucky State University 1943
 Zoological effects of variations in atmospheric oxygen levels

<i>Period</i>	<i>Obligations</i>	
02/27/74-05/01/75	FY74: \$37,210	TOTAL: \$37,210
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kloek, G. Ridgel, G. C. (76-371 340-00-00)	KSC/Morrison, J. D. KSC/Moyers, C. V.	59-Life Sci, NEC

NSG 8008 Kentucky State University 1944
 Synthesis of organosiloxy transition metal polymers

<i>Period</i>	<i>Obligations</i>	
04/15/74-04/14/75	FY74: \$21,981	TOTAL: \$21,981
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Marano, G. A. (62-371 340-00-00)	MSFC/Patterson, W. J. MSFC/Kent, M. I.	12-Chemistry

NAS 9-12749 University of Kentucky 1945
 Feasibility study of limb volume measuring systems

<i>Period</i>	<i>Obligations</i>	
06/05/72-09/30/74	FY74:	TOTAL: \$98,319
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carter, W. M. (72-970 970-53-30)	JSC/Jackson, M. M.	46-Mech Engr

NGL 18-001-003 University of Kentucky 1946
 Experimental investigation of gravity level preference in small animals

<i>Period</i>	<i>Obligations</i>	
05/01/63-09/01/74	FY74:	TOTAL: \$1,110,879
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lange, K. O. (10-870 189-00-00)	ARC/Oyama, J.	61-Biol Aspects

NGL 18-001-042 University of Kentucky 1947
 Investigation of the role of ion impurities in mechanical failures

<i>Period</i>	<i>Obligations</i>	
04/18/69-05/31/76	FY74:	TOTAL: \$106,606
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Leipold, M. H. (22-704 501-01-06)	LERC/Sanders, W. A.	47-Materials Engr (22-740 134-03-20)

NGR 18-001-058 University of Kentucky 1948
 Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
01/12/71-01/31/75	FY74: \$31,060	TOTAL: \$122,440
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ehmann, W. D. (72-910 914-40-00)	JSC/Harris, J. W.	13-Physics

NGR 18-001-068 University of Kentucky 1949
 Effects of background gravity stimuli on gravity controlled behavior

<i>Period</i>	<i>Obligations</i>	
09/23/71-09/01/75	FY74:	TOTAL: \$97,246
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCoy, D. F. (21-970 970-21-53)	ARC/Anliker, J. E.	61-Biol Aspects

NGR 18-001-083 University of Kentucky 1950
 Effects of elevated gravity upon gas flames

<i>Period</i>	<i>Obligations</i>	
08/01/73-09/01/74	FY74: \$19,989	TOTAL: \$19,989
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lienhard, J. H. (22-704 502-28-04)	LERC/Haggard, J. B.	13-Physics

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

NGR 18-001-086 **University of Kentucky** **1951**
Evaluation of multistep thermal process for production of hydrogen from water

<i>Period</i>	<i>Obligations</i>	
03/29/73-05/01/74	FY74: \$79,935	TOTAL: \$79,935
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Funk, J. E.	LERC/Gordon, S.	12-Chemistry

(22-704 502-35-62)

NSG 3013 **University of Kentucky** **1952**
Fracture toughness testing of beryllium

<i>Period</i>	<i>Obligations</i>	
07/01/74-06/30/75	FY74: \$20,727	TOTAL: \$20,727
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Conrad, H.	LERC/Brown, W. F., Jr.	47-Materials Engr
Sargent, G. A.	LERC/Jones, M. H.	

(22-704 501-21-21)

LOUISIANA

NGR 19-015-001 **Dillard University** **1953**
Feasibility study of utilization of remote aerial sensing for predicting urban neighborhood characteristics

<i>Period</i>	<i>Obligations</i>	
05/31/72-08/31/74	FY74:	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rogers, R.	HQ-PY/Pohly, J. G.	39-Env Sci, NEC

(10-371 340-00-00)

NGR 19-011-007 **Grambling College** **1954**
Study of low frequency hydromagnetic waves using ATS-1 data

<i>Period</i>	<i>Obligations</i>	
11/30/70-11/30/74	FY74: \$13,272	TOTAL: \$48,623
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cummings, W. D.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics
	HQ-SG/Schmerling, E. R.	

(10-850 385-36-00)

NGR 19-011-008 **Grambling College** **1955**
Effect of continuous low-dose rate gamma irradiation on cell population kinetics of lymphoid tissue

<i>Period</i>	<i>Obligations</i>	
05/03/71-10/01/74	FY74: \$23,500	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Foster, B. R.	HQ-PY/Pohly, J. G.	51-Biology

(10-371 340-00-00)

NGR 19-011-009 **Grambling College** **1956**
Time exposure studies on stress corrosion cracking of aluminum

<i>Period</i>	<i>Obligations</i>	
04/06/71-02/28/74	FY74:	TOTAL: \$31,125
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Terrell, J.	HQ-PY/Pohly, J. G.	13-Physics

(62-950 951-15-00) (62-910 933-50-00) (10-371 340-00-00)

NGR 19-011-012 **Grambling College** **1957**
Theoretical investigation of isotopic anomaly of xenon in carbonaceous chondrites

<i>Period</i>	<i>Obligations</i>	
04/24/72-08/31/75	FY74:	TOTAL: \$33,540
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sabu, D. D.	HQ-PY/Pohly, J. G.	43-Chem Engr
	JSC/Bogard, D. D.	

(10-371 340-00-00)

NGR 19-011-013 **Grambling College** **1958**
Study of polarizations for hydromagnetic waves observed by ATS-1

<i>Period</i>	<i>Obligations</i>	
04/24/72-03/31/74	FY74:	TOTAL: \$9,267
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gajendar, N.	HQ-PY/Pohly, J. G.	31-Atmos Sci

(10-371 340-00-00)

NGR 19-011-014 **Grambling College** **1959**
Study of coronal structures in a nonmagnetic star

<i>Period</i>	<i>Obligations</i>	
07/05/72-05/01/73	FY74:	TOTAL: \$9,515
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cross, M. A.	HQ-PY/Pohly, J. G.	13-Physics
	JSC/Bonner, G.	

(10-371 340-00-00)

NGR 19-011-016 **Grambling College** **1960**
Distribution of extraionic electrons in semimetallic environments by nuclear quadrupole resonance techniques

<i>Period</i>	<i>Obligations</i>	
11/14/72-01/31/74	FY74: \$17,494	TOTAL: \$32,799
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Murty, A. N.	MSFC/Kroes, R. L.	13-Physics
	MSFC/Kent, M. I.	

(62-371 340-00-00) (10-371 340-00-00)

NAS 5-23174 **Louisiana State University - Baton Rouge** **1961**
HEAO-A experiment

<i>Period</i>	<i>Obligations</i>	
12/05/72-08/01/74	FY74:	TOTAL: \$75,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Huggett, R. W.	GSFC/Browning, R. K.	11-Astronomy
	GSFC/Janniche, P. A.	

(51-850 832-12-00)

NAS 8-30380 **Louisiana State University - Baton Rouge** **1962**
Development of a three-dimensional time-dependent flow field model

<i>Period</i>	<i>Obligations</i>	
01/14/74-11/07/74	FY74: \$25,000	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Farmer, R. C.	MSFC/Wilson, H. B.	13-Physics
Waldrop, W. R.	MSFC/Greenwood, T. F.	

(62-680 177-54-71)

NAS 8-30620 **Louisiana State University - Baton Rouge** **1963**
Investigation of land-use spectral signatures

<i>Period</i>	<i>Obligations</i>	
03/25/74-03/24/75	FY74: \$9,419	TOTAL: \$9,419
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Maples, D.	MSFC/Paludan, C. T.	39-Env Sci, NEC
	MSFC/Espy, P. N.	

(62-680 177-52-71)

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

NAS 9-12352 Louisiana State University - Baton Rouge 1964
Shuttle oriented graduate program

<i>Period</i>	<i>Obligations</i>	
12/07/71-09/01/74	FY74: TOTAL: \$35,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Daniel, L. R., Jr.	JSC/Teixeira, C.	41-Aero Engr
Courter, R. W.		
Miller, P. H.		
(72-960 961-21-00)	(72-910 914-50-00)	

NGL 19-001-059 Louisiana State University - Baton Rouge 1965
Analysis of the interaction of ablating protection systems and stagnation-region heating

<i>Period</i>	<i>Obligations</i>	
01/14/69-09/30/74	FY74: TOTAL: \$186,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pike, R. W.	LARC/Moss, J. N.	49-Engr, NEC
(23-742 124-00-00)		

NGL 19-001-068 Louisiana State University - Baton Rouge 1966
Special support of Saturn/Apollo utilizing Mississippi Test Facilities

<i>Period</i>	<i>Obligations</i>	
02/07/69-01/01/73	FY74: TOTAL: \$275,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Whitehurst, C. A.	LARC/Johnson, D. L.	49-Engr, NEC
(62-910 933-50-00)		

NGL 19-001-097 Louisiana State University - Baton Rouge 1967
Interdisciplinary program in earth resource and environmental research

<i>Period</i>	<i>Obligations</i>	
05/17/71-08/01/74	FY74: TOTAL: \$50,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Whitehurst, C. A.	HQ-PY/Redding, E. R.	39-Env Sci, NEC
	MSFC/Kent, M. I.	
(10-371 340-00-00)		

NGL 19-001-105 Louisiana State University - Baton Rouge 1968
Interpretation of remote sensing data in the bay ou la Fourche region of South Louisiana

<i>Period</i>	<i>Obligations</i>	
04/06/72-05/31/77	FY74: \$175,000 TOTAL: \$275,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Whitehurst, C. A.	HQ-PY/Vitale, J. A.	39-Env Sci, NEC
(10-371 340-00-00)		

NGL 19-001-012 Louisiana State University - Baton Rouge 1969
Cosmic ray investigations utilizing an emulsion chamber-calorimeter combination

<i>Period</i>	<i>Obligations</i>	
03/10/66-06/30/74	FY74: \$143,000 TOTAL: \$1,062,957	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Huggett, R. W.	HQ-SG/Opp, A. G.	11-Astronomy
(10-850 188-46-56)		

NAS 8-28955 Louisiana State University - New Orleans 1970
Application of Saturn/Apollo automated data system capabilities to problems of the environmental impacts of urban transportation

<i>Period</i>	<i>Obligations</i>	
06/06/72-11/30/73	FY74: TOTAL: \$5,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Saussy, G. A.	MSFC/McDonough, G. F.	39-Env Sci, NEC
	Hammond, J.	
(62-950 951-15-00)	(62-910 933-50-00)	

NAS 9-12941 Louisiana State University - New Orleans 1971
Analysis of chemical components from tissue samples

<i>Period</i>	<i>Obligations</i>	
06/29/72-10/31/74	FY74: \$60,000 TOTAL: \$135,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Laseter, J. L.	JSC/Rummel, J. A.	51-Biology
(72-970 970-51-45)	(72-960 961-51-00)	

NAS 9-9317 Louisiana State University - Shreveport 1972
Study of modulatory effects of solar wind in galactic cosmic rays

<i>Period</i>	<i>Obligations</i>	
04/07/69-06/30/75	FY74: \$1,200 TOTAL: \$30,160	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Moss, T. A.	JSC/Giuli, R. T.	11-Astronomy
(72-850 188-41-64)	(72-850 188-41-51)	(72-950 951-16-00)

NGR 19-005-003 Southern University A&M Col - Baton Rouge 1973
Experimental and theoretical study on nonequilibrium and unsteady phenomena in supersonic gas dynamics

<i>Period</i>	<i>Obligations</i>	
01/20/71-01/31/75	FY74: TOTAL: \$75,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Johnson, J. A.	HQ-PY/Pohly, J. G.	13-Physics
	MSFC/Jones, J.	
(62-950 951-15-00)	(62-910 933-50-00)	(10-371 340-00-00)

NGR 19-005-006 Southern University A&M Col - Baton Rouge 1974
Research in the many-particle theory of nuclear systems with application to neutron star matter

<i>Period</i>	<i>Obligations</i>	
10/17/72-12/01/74	FY74: \$20,170 TOTAL: \$35,170	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chakkalakal, D. A.	JPL/Estabrook, F. B.	11-Astronomy
	Yang, C. H.	
(56-371 340-00-00)	(10-371 340-00-00)	

NGR 19-005-008 Southern University A&M Col - Baton Rouge 1975
Comparison of zone radiometry and enthalpy probe measurements

<i>Period</i>	<i>Obligations</i>	
07/20/72-12/31/73	FY74: TOTAL: \$15,157	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Watson, M. M.	HQ-PY/Pohly, J. G.	43-Chem Engr
(10-850 188-46-52)	MSFC/Kent, M.	
(10-371 340-00-00)		

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

NGR 19-005-009 Southern University A & M Col - Baton Rouge 1976
Radiative property investigation
Period: 03/26/73-05/31/74
Prin. Invest. Scott, R. L.
Obligations: FY74: TOTAL: \$20,000
NASA Tech. Officer: HQ-P/Pohly, J. G.
CASE Category: 13-Physics
GSFC/Trenkle, J. J.
(10-371 340-00-00)

NSG 8016 Southern University A & M Col - Baton Rouge 1977
Radiative property investigation
Period: 06/25/74-06/25/75
Prin. Invest. Unavailable
Obligations: FY74: \$18,700 TOTAL: \$18,700
NASA Tech. Officer: MSFC/Unavailable
CASE Category: 13-Physics
(62-371 340-00-00)

NSG 9001 Southern University A & M Col - Baton Rouge 1978
Ice build-up on cryogenic tanks
Period: 06/01/74-06/30/75
Prin. Invest. Chehl, S. S.
Obligations: FY74: \$19,356 TOTAL: \$19,356
NASA Tech. Officer: JSC/Curry, D. M.
CASE Category: 19-Phys Sci, NEC
(72-371 340-00-00)

NAS 2-7916 Tulane University 1979
Evaluations of pocket mice
Period: 10/17/73-02/17/74
Prin. Invest. Ordy, J. M.
Obligations: FY74: \$15,229 TOTAL: \$15,229
NASA Tech. Officer: ARC/Haymaker, W. E.
CASE Category: 59-Life Sci, NEC
Brizze, K. R.
Fussell, E.
(21-970 970-21-63)

NAS 8-29026 Tulane University 1980
Research study on an assessment of the usefulness of remote sensing techniques in determining quality of urban environment
Period: 06/15/72-03/31/74
Prin. Invest. Hidalgo, J. V.
Obligations: FY74: TOTAL: \$45,000
NASA Tech. Officer: MSFC/McDonough, G. F.
CASE Category: 39-Env Sci, NEC
MSFC/Daniels, J. L., Jr.
(62-950 951-15-00) (62-910 933-50-00)

NGL 19-002-027 Tulane University 1981
Electronic transport properties of molecular crystals
Period: 02/17/69-01/31/76
Prin. Invest. Hermann, A. M.
Obligations: FY74: TOTAL: \$122,000
NASA Tech. Officer: HQ-RW/Weinberg, I.
CASE Category: 13-Physics
JPL/Rembaum, A.
(10-704 502-01-02) (10-740 129-00-00)

NGR 19-002-030 Tulane University 1982
Determination of the intensity of turbulence in liquid rocket combustion chamber
Period: 12/31/69-12/31/74
Prin. Invest. O'Hara, J. C.
Obligations: FY74: \$22,000 TOTAL: \$122,227
NASA Tech. Officer: LERC/Priem, R. J.
CASE Category: 41-Aero Engr
(22-704 502-04-25)

NGR 19-002-038 Tulane University 1983
Geologic mapping of a quadrangle on Mars based on Mariner 9 photographs
Period: 02/04/72-06/30/74
Prin. Invest. Meyer, J. D.
Obligations: FY74: TOTAL: \$15,000
NASA Tech. Officer: HQ-SL/Dwornik, S. E.
CASE Category: 32-Geological Sci
(10-840 384-50-80)

NGR 19-007-002 Xavier University - Louisiana 1984
Xavier University and the systematic analysis research project
Period: 05/22/72-12/01/74
Prin. Invest. Fulwiler, J. H.
Obligations: FY74: TOTAL: \$25,000
NASA Tech. Officer: HQ-PY/Pohly, J. G.
CASE Category: 76-Sociology
(10-371 340-00-00)

NGR 19-007-004 Xavier University - Louisiana 1985
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: 05/07/73-06/30/75
Prin. Invest. Ashman, P. U.
Obligations: FY74: \$35,000 TOTAL: \$35,000
NASA Tech. Officer: ARC/Winget, C. M.
CASE Category: 51-Biology
ARC/Danellis, J. V.
(21-371 340-00-00)

MARYLAND

NGR 21-027-001 Bowie State College 1986
Research in cosmic ray physics
Period: 09/01/69-02/28/75
Prin. Invest. Tornabene, H. S.
Obligations: FY74: \$9,959 TOTAL: \$74,935
NASA Tech. Officer: GSFC/Boldt, E. A.
CASE Category: 11-Astronomy
GSFC/McDonald, F. B.
(51-850 188-41-59) (51-850 188-00-00)

NGR 21-027-004 Bowie State College 1987
Research in numerical integration
Period: 05/25/71-09/30/74
Prin. Invest. Srivastava, S.
Obligations: FY74: TOTAL: \$23,451
NASA Tech. Officer: HQ-PY/Pohly, J. G.
CASE Category: 21-Mathematics
GSFC/Velez, C. E.
(10-371 340-00-00)

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

NGR 21-027-010	Bowie State College	1988			
Holographic gratings for spectrographic applications study of aberrations					
<i>Period</i>	<i>Obligations</i>				
05/14/73-06/30/75	FY74: \$14,983	TOTAL: \$14,983			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bhatia, M. S.	GSFC/Caruso, A. J.	13-Physics			
	GSFC/Osantowski, J.				
(51-371 340-00-00)					
NGT 21-027-009	Bowie State College	1989			
A summer 1973 institute in computer applications					
<i>Period</i>	<i>Obligations</i>				
04/09/73-01/31/74	FY74:	TOTAL: \$33,040			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Scurry, P. J.	HQ-PY/Pohly, J. G.	21-Mathematics			
	GSFC/Mundy, J. R.				
(10-371 340-00-00)					
NGT 21-027-012	Bowie State College	1990			
Undergraduate research participation program for 16 students					
<i>Period</i>	<i>Obligations</i>				
06/01/74-03/31/75	FY74: \$33,694	TOTAL: \$33,694			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kirksey, C. H.	GSFC/Mundy, J. R.	21-Mathematics			
	HQ-PY/Pohly, J. G.				
	(10-850 188-36-01)				
(10-371 340-00-00)					
NSG 5009	Bowie State College	1991			
Characterization of the physico-chemical properties of polymeric materials for aerospace flights					
<i>Period</i>	<i>Obligations</i>				
06/30/74-06/30/75	FY74: \$14,773	TOTAL: \$14,773			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Unavailable	GSFC/Unavailable	12-Chemistry			
(51-371 340-00-00)					
NSG 1066	Chesapeake College	1992			
Investigation of a source of vacuum ultraviolet radiation for use in calibration of spectrometers					
<i>Period</i>	<i>Obligations</i>				
06/01/74-11/30/74	FY74: \$6,140	TOTAL: \$6,140			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Paul, F. W.	LARC/Neaty, J. E.	13-Physics			
	LARC/Jones, J. J.				
(23-704 502-27-01)					
NGR 21-122-001	Coppin State College	1993			
Computer graphics system for the display of pulse height analysis data					
<i>Period</i>	<i>Obligations</i>				
12/01/73-11/30/74	FY74: \$11,958	TOTAL: \$11,958			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sommerfeldt, D. E.	GSFC/Bracken, P. A.	21-Mathematics			
	GSFC/Dickman, C. I.				
(51-371 340-00-00)					
NGT 21-123-001	Goucher College	1994			
Training of two undergraduate students in the space-related sciences and engineering					
<i>Period</i>	<i>Obligations</i>				
06/01/74-05/31/75	FY74: \$7,000	TOTAL: \$7,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Walker, K.	HQ-PY/Pohly, J. G.	99-Multi-Discip			
	HQ-PY/Jenkins, H. G.				
(10-030 010-00-00)					
NAS 5-11415	Johns Hopkins University	1995			
Atmosphere Explorer photoelectron and energetic particle experiment					
<i>Period</i>	<i>Obligations</i>				
06/22/71-06/30/77	FY74: \$140,500	TOTAL: \$710,500			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Doering, J. P.	GSFC/Findlay, J. A.	31-Atmos Sci			
	(51-850 852-22-00)				
NAS 5-22071	Johns Hopkins University	1996			
Environmental and toxicological evaluation of plasticizer migration					
<i>Period</i>	<i>Obligations</i>				
06/20/72-06/01/74	FY74:	TOTAL: \$20,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Rubin, R. J.	GSFC/Gross, F. C.	53-Other Medical			
	GSFC/Friedman, D. S.				
(51-250 141-00-00)					
NAS 5-23316	Johns Hopkins University	1997			
Design study of ultraviolet properties for large space telescope					
<i>Period</i>	<i>Obligations</i>				
09/24/73-01/05/75	FY74: \$44,607	TOTAL: \$44,607			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Fastie, W. G.	GSFC/Sobieski, S.	11-Astronomy			
	GSFC/Levin, G. M.				
	(51-850 188-78-56)				
	(51-850 188-78-58)				
NAS 9-11528	Johns Hopkins University	1998			
Apollo far UV spectrometer					
<i>Period</i>	<i>Obligations</i>				
02/11/71-06/30/74	FY74:	TOTAL: \$4,194,324			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Fastie, W. G.	JSC/Hardec, S. N.	13-Physics			
	(72-910 914-49-00)				
NGR 21-001-001	Johns Hopkins University	1999			
Rocket and laboratory experiments and analysis on ultraviolet spectra of upper atmosphere					
<i>Period</i>	<i>Obligations</i>				
08/01/61-08/31/74	FY74: \$240,000	TOTAL: \$3,361,963			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Fastie, W. G.	HQ-SG/Dubin, M.	11-Astronomy			
	HQ-SG/Roman, N. G.				
(10-850 879-11-00)					
NGR 21-001-024	Johns Hopkins University	2000			
Solar radio observations in support of Skylab-A					
<i>Period</i>	<i>Obligations</i>				
06/26/72-09/30/73	FY74:	TOTAL: \$50,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Gotwols, B. L.	MSFC/Baugher, C. R.	11-Astronomy			
	MSFC/Duncan, B. J.				
(62-960 996-00-00)					

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

NGR 21-001-080 Johns Hopkins University **2001**
Statistical models of lunar rocks and regolith
Period *Obligations*
06/15/71-08/31/73 **FY74:** **TOTAL: \$38,887**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Marcus, A. H. HQ-SM/Bryson, R. P. 32-Geological Sci
HQ-SM/Allenby, R. J.
(10-810 383-00-00)

NGR 21-001-097 Johns Hopkins University **2002**
Phase of the Grand Tour missions energetic particle investigations for outer planet missions
Period *Obligations*
04/07/71-10/01/72 **FY74:** **TOTAL: \$46,272**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Krimigis, S. M. HQ-SL/Mitz, M. A. 13-Physics
HQ-SL/Keller, J. W.
(10-840 186-68-68)

NGR 21-001-111 Johns Hopkins University **2003**
Small group performance & effects of contingency management in a programmed environment
Period *Obligations*
03/31/72-10/14/74 **FY74: \$150,000** **TOTAL: \$405,255**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brady, J. V. ARC/Patton, R. M. 69-Psych, NEC
(21-970 970-21-51)

NGR 21-001-119 Johns Hopkins University **2004**
Feasibility study for a charge composition Explorer satellite light ion release experiment
Period *Obligations*
04/26/73-04/30/74 **FY74:** **TOTAL: \$50,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Krimigis, S. M. HQ-SG/Kavanagh, L. D., Jr. 32-Geological Sci
(10-850 188-36-55)

NGR 21-001-120 Johns Hopkins University **2005**
Far ultraviolet observation of cool stars with the Copernicus satellite
Period *Obligations*
12/01/73-11/30/74 **FY74: \$12,124** **TOTAL: \$12,124**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moos, H. W. GSFC/Kupperian, J. E. 11-Astronomy
(51-850 831-43-00)

NSG 7055 Johns Hopkins University **2006**
Satellite data analysis
Period *Obligations*
01/01/74-12/31/74 **FY74: \$35,000** **TOTAL: \$35,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bostrom, C. HQ-SG/Kavanagh, L. D., Jr. 13-Physics
HQ-SG/Schmerling, E. R.
(10-850 385-36-00)

NSG 9004 Johns Hopkins University **2007**
Determination of the far-ultraviolet reflectivity of lunar dust samples
Period *Obligations*
07/01/74-03/31/75 **FY74: \$16,500** **TOTAL: \$16,500**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Henry, R. C. JSC/Harris, J. W. 13-Physics
Fastie, W. G.
(72-810 388-10-03)

NSR 21-001-077 Johns Hopkins University **2008**
Collecting, cataloging, indexing and storing personal and professional papers of Dr. Hugh Latimer Dryden
Period *Obligations*
12/21/70-07/31/73 **FY74:** **TOTAL: \$71,783**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Berthel, J. H. HQ-AA/Emmc, E. M. 73-History
(10-250 141-00-00) (10-705 130-00-00) (10-370 183-00-00)

NGR 21-025-011 Morgan State College **2009**
Evaluate research of audio modules
Period *Obligations*
01/01/74-12/31/74 **FY74: \$25,750** **TOTAL: \$25,750**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Collagan, R. B. GSFC/Mundy, J. R. 45-Elec Engr
GSFC/Shorter, C. W.
(51-371 340-00-00)

NGT 21-025-006 Morgan State College **2010**
Summer faculty fellowship program
Period *Obligations*
04/16/71-03/31/75 **FY74: \$38,900** **TOTAL: \$134,316**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Proctor, N. K. HQ-PY/Pohly, J. G. 19-Phys Sci, NEC
GSFC/Mundy, J. R.
(51-030 051-02-00) (10-371 340-00-00) (51-030 039-00-00)

NGR 21-002-010 University of Maryland - Baltimore **2011**
Theoretical & experimental research on gravitational radiation
Period *Obligations*
06/12/63-04/31/75 **FY74: \$29,000** **TOTAL: \$939,223**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Misner, C. W. HQ-SG/Roman, N. G. 11-Astronomy
HQ-SG/Rosendhal, J. D.
(10-850 188-41-54) (10-840 185-00-00)

NAS 5-11063 University of Maryland - College Park **2012**
Experiment to analyze ions and electrons for IMP-H & J
Period *Obligations*
06/11/68-06/30/75 **FY74: \$104,192** **TOTAL: \$1,461,392**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gloeckler, G. GSFC/Davis, M. A. 13-Physics
(51-850 861-42-00)

NAS 5-20062 University of Maryland - College Park **2013**
Low energy charged particles experiment for international sun-earth Explorer mother and heliocentric spacecraft
Period *Obligations*
05/02/74-07/30/80 **FY74: \$10,000** **TOTAL: \$10,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gloeckler, G. GSFC/Davis, M. A. 13-Physics
Fon, C. Y.
Fisk, L. A.
(51-850 861-62-00)

NAS 5-23237 University of Maryland - College Park **2014**
Feasibility study for infrared interferometer, spectrometer, & radiometer for Mariner/Jupiter 1977 launch
Period *Obligations*
05/09/73-06/30/77 **FY74: \$8,400** **TOTAL: \$12,900**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ponnamperuma, C. GSFC/Conrath, B. J. 12-Chemistry
GSFC/Hanel, R. A.
(51-840 802-31-00)

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<p>NAS 9-5886 University of Maryland - College Park 2015 Lunar gravimeter experiment for ALSEP</p> <p>Period Obligations 04/26/66-12/31/74 FY74: \$41,973 TOTAL: \$2,203,588</p> <p>Prin. Invest. NASA Tech. Officer CASE Category Weber, J. JSC/Eichelman, W. F. 19-Phys Sci, NEC (72-910 914-40-00)</p>	<p>NGR 21-002-007 University of Maryland - College Park 2022 Research on measurement of atomic transition probabilities of high temperature cases</p> <p>Period Obligations 03/20/63-01/31/75 FY74: \$20,000 TOTAL: \$308,024</p> <p>Prin. Invest. NASA Tech. Officer CASE Category Wilkerson, T. D. HQ-SG/Weldon, J. M. 11-Astronomy Miller, M. H. HQ-SG/Oertel, G. K. (10-850 188-38-53)</p>
<p>NGL 21-002-005 University of Maryland - College Park 2016 Theoretical research on dynamics of astrophysical plasmas including studies of structure of plasma shock waves in solar corona and their possible radio emission</p> <p>Period Obligations 02/01/62-06/30/76 FY74: \$50,000 TOTAL: \$724,946</p> <p>Prin. Invest. NASA Tech. Officer CASE Category Wu, C. S. HQ-SG/Kavanagh, L. D., Jr. 19-Phys Sci, NEC HQ-SG/Schmerling, E. R. (10-850 188-36-55)</p>	<p>NGR 21-002-066 University of Maryland - College Park 2023 A study of primary cosmic ray electrons, utilizing balloon-borne experiments</p> <p>Period Obligations 11/19/65-12/31/74 FY74: \$65,000 TOTAL: \$705,000</p> <p>Prin. Invest. NASA Tech. Officer CASE Category Earl, J. A. HQ-SG/Opp, A. G. 11-Astronomy O'Gallagher, J. J. (10-850 188-46-56) (10-850 188-46-51)</p>
<p>NGL 21-002-029 University of Maryland - College Park 2017 Cooperative research in long wavelength radio astronomy</p> <p>Period Obligations 02/01/64-02/01/73 FY74: \$506,677</p> <p>Prin. Invest. NASA Tech. Officer CASE Category Erickson, W. C. GSFC/Fainberg, J. 11-Astronomy Kundu, M. R. GSFC/Alexander, J. (51-850 188-00-00) (51-850 877-00-00)</p>	<p>NGR 21-002-073 University of Maryland - College Park 2024 Experimental and theoretical investigation of plasma radiation</p> <p>Period Obligations 04/26/66-02/28/75 FY74: \$50,000 TOTAL: \$597,005</p> <p>Prin. Invest. NASA Tech. Officer CASE Category Griem, H. R. HQ-SG/Rosendhal, J. D. 11-Astronomy HQ-SG/Roman, N. G. (10-850 188-41-51) (10-850 188-00-00)</p>
<p>NGL 21-002-033 University of Maryland - College Park 2018 Theoretical and experimental studies in space sciences, including consideration of rocket probe and satellites techniques</p> <p>Period Obligations 06/02/64-05/31/77 FY74: \$205,000 TOTAL: \$2,384,537</p> <p>Prin. Invest. NASA Tech. Officer CASE Category Smith, E. P. GSFC/Abid, G. E. 31-Atmos Sci Laster, H. E. GSFC/Pieper, G. F. (51-850 188-38-52) (51-850 188-38-53) (51-850 188-38-64)</p>	<p>NGR 21-002-096 University of Maryland - College Park 2025 Research in atmospheric physics</p> <p>Period Obligations 06/21/66-12/31/74 FY74: \$58,000 TOTAL: \$482,414</p> <p>Prin. Invest. NASA Tech. Officer CASE Category Matthews, D. L. GSFC/Brace, L. H. 31-Atmos Sci GSFC/Taylor, H. A., Jr. (51-850 385-36-00) (51-840 185-47-51) (51-840 185-47-52)</p>
<p>NGL 21-002-167 University of Maryland - College Park 2019 Optical absorption coefficients for uranium plasma</p> <p>Period Obligations 04/26/68-06/30/73 FY74: \$130,319</p> <p>Prin. Invest. NASA Tech. Officer CASE Category Miller, M. H. LERC/Patch, R. W. 13-Physics Wilkerson, T. D. (22-720 122-00-00) (45-720 122-00-00)</p>	<p>NGR 21-002-197 University of Maryland - College Park 2026 Analysis of data processing systems.</p> <p>Period Obligations 10/01/68-06/30/73 FY74: \$115,000</p> <p>Prin. Invest. NASA Tech. Officer CASE Category Chu, Y. GSFC/Grunby, E. I. 21-Mathematics Minher, J. (51-500 150-00-00) (51-500 150-22-38)</p>
<p>NGL 21-002-367 University of Maryland - College Park 2020 Multifrequency mapping of the radio sun</p> <p>Period Obligations 10/01/72-09/01/74 FY74: \$202,000</p> <p>Prin. Invest. NASA Tech. Officer CASE Category Kundu, M. R. GSFC/Fainberg, J. 11-Astronomy Erickson, W. C. (51-850 188-38-51)</p>	<p>NGR 21-002-199 University of Maryland - College Park 2027 Research in solar radio astronomy at short wavelengths</p> <p>Period Obligations 04/11/69-09/30/74 FY74: \$40,000 TOTAL: \$114,156</p> <p>Prin. Invest. NASA Tech. Officer CASE Category Kundu, M. R. HQ-SG/Weldon, J. M. 11-Astronomy Erickson, W. C. HQ-SG/Oertel, G. K. (10-850 188-38-52)</p>
<p>NGR 21-002-002 University of Maryland - College Park 2021 Theoretical studies in atmospheric and space physics</p> <p>Period Obligations 02/01/60-12/31/74 FY74: \$25,000 TOTAL: \$662,000</p> <p>Prin. Invest. NASA Tech. Officer CASE Category Opik, E. J. HQ-SG/Dubin, M. 11-Astronomy Laster, H. HQ-SL/Brunk, W. E. (10-850 188-45-51)</p>	<p>NGR 21-002-219 University of Maryland - College Park 2028 Measurement of molecular densities of the mesosphere by means of optical radar</p> <p>Period Obligations 07/31/69-09/30/73 FY74: \$55,000</p> <p>Prin. Invest. NASA Tech. Officer CASE Category Poultney, S. K. HQ-SG/Dubin, M. 31-Atmos Sci (10-850 188-45-52) (10-850 188-00-00)</p>

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NGR 21-002-224 University of Maryland - College Park 2029
Research on the measurement of the charge and isotopic composition on the primary cosmic rays

<i>Period</i>	<i>Obligations</i>	
07/31/69-10/31/74	FY74: \$30,000	TOTAL: \$153,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gloeckler, G.	HQ-SG/Opp, A. G.	11-Astronomy
	HQ-SG/Kavanagh, L. D., Jr.	
(10-850 188-46-56)	(10-850 188-46-51)	

NGR 21-002-303 University of Maryland - College Park 2036
Experimental studies of three dimensional turbulent boundary layers

<i>Period</i>	<i>Obligations</i>	
04/22/71-08/31/73	FY74: \$25,000	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Melnik, W. L.	HQ-RA/Gessow, A.	13-Physics
(10-740 129-00-00)		

NGR 21-002-267 University of Maryland - College Park 2030
Supervision of the laser ranging at McDonald Observatory

<i>Period</i>	<i>Obligations</i>	
04/03/70-03/31/74	FY74: \$59,596	TOTAL: \$534,847
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Currie, D. G.	HQ-SM/Strickland, A. T.	13-Physics
(10-810 195-43-50)		

NGR 21-002-316 University of Maryland - College Park 2037
Research program in charged particle detector technology

<i>Period</i>	<i>Obligations</i>	
07/01/71-07/31/74	FY74: \$286,500	TOTAL: \$550,717
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gloeckler, G.	GSFC/Teegarden, B. J.	13-Physics
O'Gallagher, J. J.		
(51-850 879-11-00)	(51-850 832-12-00)	(51-850 861-42-00)

NGR 21-002-270 University of Maryland - College Park 2031
Research in mechanical theorem proving

<i>Period</i>	<i>Obligations</i>	
05/18/70-09/30/74	FY74: \$63,439	TOTAL: \$63,439
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miller, J.	HQ-RE/Pontious, C. E.	21-Mathematics
(10-704 502-03-32)	(10-750 115-04-60)	(21-740 129-00-00)

NGR 21-002-317 University of Maryland - College Park 2038
Chemical studies of the origin of life

<i>Period</i>	<i>Obligations</i>	
08/18/71-08/14/74	FY74: \$92,000	TOTAL: \$272,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ponnampuruma, C.	HQ-SL/Young, R. S.	12-Chemistry
(10-840 192-55-61)		

NGR 21-002-285 University of Maryland - College Park 2032
Laser techniques and single photo-electron detection & timing for satellite ranging

<i>Period</i>	<i>Obligations</i>	
11/02/70-09/30/73	FY74: \$30,000	TOTAL: \$347,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alley, C. O.	HQ-MT/Redfield, M.	13-Physics
	HQ-MT/Markey, M. F.	
(10-980 909-94-24)	(10-980 908-94-24)	

NGR 21-002-344 University of Maryland - College Park 2039
Studies on thermophysical properties in critical region of fluids

<i>Period</i>	<i>Obligations</i>	
02/16/72-07/01/75	FY74: \$14,835	TOTAL: \$39,835
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sengers, J. V.	LERC/Simoneau, R. J.	13-Physics
(22-704 502-28-04)	(22-741 111-05-03)	(22-741 111-00-00)

NGR 21-002-291 University of Maryland - College Park 2033
Studies of charged particles in natural and laboratory environments

<i>Period</i>	<i>Obligations</i>	
01/28/71-09/30/74	FY74: \$19,500	TOTAL: \$98,995
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rosenberg, T. J.	GSFC/Ogilvie, K. W.	13-Physics
Tammara, S. R.	GSFC/Hoffman, R. A.	
(51-850 385-36-00)	(51-850 188-36-55)	

NGR 21-002-345 University of Maryland - College Park 2040
CO2 laser cold cathode research

<i>Period</i>	<i>Obligations</i>	
01/01/72-11/30/73	FY74: \$58,273	TOTAL: \$58,273
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hochuli, U. E.	GSFC/Hurt, C. R.	45-Elec Engr
	GSFC/McAvoy, N.	
(51-620 164-21-80)		

NGR 21-002-296 University of Maryland - College Park 2034
Studies of shock wave propagation on the lunar surface

<i>Period</i>	<i>Obligations</i>	
05/05/71-05/31/74	FY74: \$42,500	TOTAL: \$42,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pai, S. I.	GSFC/Mentzer, R.	31-Atmos Sci
Greenberg, J. S.		
Hazelrigg, G. A.		
(10-810 195-00-00)		

NGR 21-002-350 University of Maryland - College Park 2041
Optimum design of composite materials in response to aerodynamic noise & noise transmission

<i>Period</i>	<i>Obligations</i>	
03/07/72-08/31/74	FY74: \$24,933	TOTAL: \$39,880
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yang, J. C.	ARC/Chyu, W. J.	41-Aero Engr
(21-704 502-22-11)		

NGR 21-002-301 University of Maryland - College Park 2035
Development and application of an interferometer to measure binary separations and determination of stellar masses in spectroscopic binaries

<i>Period</i>	<i>Obligations</i>	
03/10/71-07/31/74	FY74: \$67,866	TOTAL: \$67,866
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Currie, D. G.	HQ-SG/Bogges, N. W.	11-Astronomy
(10-850 188-41-51)		

NGR 21-002-351 University of Maryland - College Park 2042
Techniques for processing of remotely sensed imagery

<i>Period</i>	<i>Obligations</i>	
04/01/72-06/30/74	FY74: \$15,000	TOTAL: \$108,488
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rosenfeld, A.	GSFC/Alford, W. A.	49-Engr, NEC
(51-680 160-20-59)	(51-680 160-75-53)	

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NGR 21-002-355 University of Maryland - College Park 2043
Investigation of microprogramming processors and their applications

<i>Period</i>	<i>Obligations</i>	
04/01/72-03/01/73	FY74:	TOTAL: \$35,565
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pugsley, J. H.	GSFC/Pease, P. B.	45-Elec Engr
(51-500 150-00-00)		

NGR 21-002-368 University of Maryland - College Park 2044
Geochemistry of lunar & meteoritic materials

<i>Period</i>	<i>Obligations</i>	
06/01/72-07/31/74	FY74:	TOTAL: \$142,831
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weidner, J. R.	GSFC/Schnetzler, C. C.	32-Geological Sci
(51-910 914-40-00)	(51-850 188-45-53)	(51-810 383-09-61)

NGR 21-002-378 University of Maryland - College Park 2045
Wind velocities from satellite pictures

<i>Period</i>	<i>Obligations</i>	
10/16/72-12/31/74	FY74: \$50,000	TOTAL: \$99,983
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rosenfeld, A.	GSFC/Arking, A.	31-Atmos Sci
Lo, R. C.		
(51-680 611-13-00)		

NGR 21-002-386 University of Maryland - College Park 2046
Rocket investigation of Relativistic Electron Precipitation (REP) events

<i>Period</i>	<i>Obligations</i>	
04/13/73-06/30/74	FY74: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Matthews, D. L.	HQ-SG/Kavanagh, L. D., Jr.	11-Astronomy
(10-850 385-36-00)		

NGR 21-002-390 University of Maryland - College Park 2047
Geophysical causes and measurement accuracies related to earth rotation

<i>Period</i>	<i>Obligations</i>	
12/11/72-09/10/74	FY74:	TOTAL: \$13,104
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Currie, D. G.	GSFC/Smith, D. E.	19-Phys Sci, NEC
(51-630 161-79-51)		

NGR 21-002-391 University of Maryland - College Park 2048
Investigation of static aeroelastic phenomena associated with oblique wing aircraft

<i>Period</i>	<i>Obligations</i>	
01/18/73-04/30/74	FY74:	TOTAL: \$5,389
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weisshaar, T. A.	ARC/Gaspers, P. A., Jr.	41-Aero Engr
	ARC/Pfyl, F.	
(21-702 760-64-01)		

NGR 21-002-399 University of Maryland - College Park 2049
Urbanization and geologic processes in the Chesapeake bay watershed

<i>Period</i>	<i>Obligations</i>	
03/01/73-10/31/74	FY74: \$23,472	TOTAL: \$23,472
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weidner, J. R.	GSFC/Mueller, R. F.	39-Env Sci, NEC
(51-680 160-75-99)	(51-680 160-75-99)	

NGR 21-002-400 University of Maryland - College Park 2050
Preliminary experiments with a split sphere high pressure apparatus

<i>Period</i>	<i>Obligations</i>	
04/17/73-12/31/74	FY74: \$40,000	TOTAL: \$60,642
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Spain, I. L.	LERC/Coles, W. D.	19-Phys Sci, NEC
Paaunc, J.	LERC/Aron, P. R.	
(22-704 502-04-35)		

NGR 21-002-408 University of Maryland - College Park 2051
Investigations into nuclear plasmas and radiant energy systems

<i>Period</i>	<i>Obligations</i>	
06/30/73-04/30/75	FY74: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tidman, D. A.	HQ-RR/Thom, K.	21-Mathematics
(10-704 503-10-03)		

NGR 21-002-412 University of Maryland - College Park 2052
Investigation of uti corrections: pole motion and relativity effects

<i>Period</i>	<i>Obligations</i>	
10/01/73-07/31/74	FY74: \$10,000	TOTAL: \$10,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Richard, J. P.	GSFC/Rosenbaum, B.	13-Physics
(51-630 161-02-01)	(51-630 369-02-01)	

NGR 21-002-425 University of Maryland - College Park 2053
Lecture series on life in the universe - Are we alone in the universe?

<i>Period</i>	<i>Obligations</i>	
08/01/73-07/31/74	FY74: \$18,600	TOTAL: \$18,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ponnamperuma, C.	HQ-SL/Young, R. S.	12-Chemistry
(10-840 192-55-61)		

NGR 21-002-433 University of Maryland - College Park 2054
Radar optimization for sea surface and geodetic measurements

<i>Period</i>	<i>Obligations</i>	
01/01/74-12/31/74	FY74: \$12,019	TOTAL: \$12,019
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Harger, R. O.	GSFC/Marini, J. W.	33-Oceanography
(51-630 161-03-01)		

NGR 21-002-435 University of Maryland - College Park 2055
Short pulse lasers and single photo-electron detection and timing for satellite ranging

<i>Period</i>	<i>Obligations</i>	
10/01/73-09/30/74	FY74: \$75,000	TOTAL: \$75,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alley, C. O.	WFC/Hoge, F. E.	13-Physics
Currie, D. G.	WFC/McGoogan, J. T.	
(53-630 161-05-02)		

NGR 21-002-444 University of Maryland - College Park 2056
Develop and test a wide-band optical very long baseline amplitude interferometer for precise determination of the polar position

<i>Period</i>	<i>Obligations</i>	
04/01/74-03/31/75	FY74: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Currie, D. G.	GSFC/Buflon, J. L.	13-Physics
	GSFC/Carrion, W. J.	
(51-630 161-05-02)		

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NGT 21-002-254 University of Maryland - College Park 2057
Summer faculty fellowship program in research for 24 faculty members

Period	Obligations	TOTAL
12/23/69-03/31/75	FY74: \$106,999	\$310,679
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Emad, F. P.	HQ-PY/Carter, C. H.	49-Engr, NEC
(10-371 340-00-00)	(10-370 181-00-00)	

NSG 1031 University of Maryland - College Park 2058
Kinetics investigation of several reactions involving chlorine-containing compounds

Period	Obligations	TOTAL
05/01/74-04/31/75	FY74: \$50,527	\$50,527
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Davis, D. D.	LARC/Pellett, G. L.	12-Chemistry
(23-704 502-24-88)		

NSG 1035 University of Maryland - College Park 2059
Measurements of NO, NO2, and O3 during the NASA ATS-F satellite mission

Period	Obligations	TOTAL
05/01/74-09/30/74	FY74: \$19,633	\$19,633
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Davis, D. D.	LARC/Wagner, H. S.	31-Atmos Sci
(23-920 989-10-00)	LARC/Wornom, D. E.	

NSG 1036 University of Maryland - College Park 2060
Measurement of water vapor in the atmosphere

Period	Obligations	TOTAL
05/01/74-02/28/75	FY74: \$48,900	\$48,900
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilkerson, T. D.	LARC/Northam, G. B.	31-Atmos Sci
McIlrath, T. J.	LARC/Remsberg, E. E.	
Ellingson, R. G.		
(23-601 645-20-01)		

NSG 1075 University of Maryland - College Park 2061
Airborne in-situ atmospheric measurements of the OH free radical via a tunable ultraviolet dye laser

Period	Obligations	TOTAL
07/01/74-06/30/75	FY74: \$30,000	\$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Davis, D. D.	LARC/Wagner, H. S.	31-Atmos Sci
Moriarity, A.	JSC/Stanley, J. F.	
(23-920 989-10-00)		

NSG 3001 University of Maryland - College Park 2062
Mechanical properties and the electronic structure of transition metal alloys

Period	Obligations	TOTAL
03/01/74-03/01/75	FY74: \$24,809	\$24,809
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arsenault, R. J.	LERC/Stephens, J. R.	13-Physics
Drew, H. D.		
(22-704 502-01-06)		

NSG 7017 University of Maryland - College Park 2063
Magnetic remanence associated with the shock wave impact induced gamma alpha transformation in iron

Period	Obligations	TOTAL
03/01/74-02/28/75	FY74: \$22,886	\$22,886
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wasilewski, P.	HQ-SM/Kosofsky, L. J.	32-Geological Sci
Weidner, J. R.	HQ-SM/Roberson, F. I.	
(10-810 195-42-66)		

NSG 7046 University of Maryland - College Park 2064
Studies of the Apollo 15 and 16 orbital X-ray data

Period	Obligations	TOTAL
05/01/74-04/30/75	FY74: \$33,961	\$33,961
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Adler, I.	HQ-SM/Kosofsky, L. J.	32-Geological Sci
(10-810 383-20-04)	HQ-SM/Roberson, F. I.	

NAS 6-2067 University of Maryland - Eastern Shore 2065
Library services

Period	Obligations	TOTAL
09/08/71-09/30/73	FY74: \$43,716	\$123,780
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Unavailable	WFC/Floyd, J. C.	99-Multi-Discip
(53-030 053-04-00)	WFC/Denton, S. R.	
	(53-030 039-00-00)	

NGR 21-119-001 University of Maryland - Eastern Shore 2066
The fabrication of semiconductor injection lasers with output to match specific atomic transitions

Period	Obligations	TOTAL
10/12/72-07/01/75	FY74:	\$15,709
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Singh, G.	GSFC/Fitzmaurice, M. W.	19-Phys Sci, NEC
(10-371 340-00-00)		

NGR 21-119-002 University of Maryland - Eastern Shore 2067
Computer technique to vector aircrafts

Period	Obligations	TOTAL
04/27/72-08/31/74	FY74: \$8,480	\$15,888
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nagarajon, N.	HQ-PY/Pohly, J. G.	41-Aero Engr
(10-371 340-00-00)		

NGR 21-119-003 University of Maryland - Eastern Shore 2068
High power pulsed laser beams and their atmospheric propagation limitations

Period	Obligations	TOTAL
08/18/72-07/31/74	FY74:	\$19,539
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Singh, G.	HQ-PY/Pohly, J. G.	31-Atmos Sci
(10-371 340-00-00)		

**NASA'S UNIVERSITY PROGRAM
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NGR 22-003-027 **Boston College** **2069**
Analysis of 1967-1969 aircraft data
Period *Obligations*
07/15/72-09/19/74 **FY74: \$20,000** **TOTAL: \$20,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Eather, R. H. ARC/Haughney, L. C. 31-Atmos Sci
ARC/Wagoner, C. B.
(21-850 385-45-00)

NGR 22-003-028 **Boston College** **2070**
Factors affecting the transfer of NASA management techniques
Period *Obligations*
10/10/72-03/31/74 **FY74:** **TOTAL: \$98,547**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bruce, B. N. HQ-PY/Morris, J. D. 75-Political Sci
(10-371 340-00-00)

NGR 22-004-018 **Boston University** **2071**
Ultrasonic measurement of heart volume
Period *Obligations*
03/01/70-04/01/75 **FY74:** **TOTAL: \$65,511**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fulton, G. P. HQ-MM/Jones, W. L. 59-Life Sci, NEC
Berman, H. J.
(25-770 127-00-00) (10-970 970-13-30) (10-770 127-00-00)

NGR 22-004-021 **Boston University** **2072**
Studies on the patrogenesis and therapy of orthostatic hypoten-
sion
Period *Obligations*
06/19/70-01/31/75 **FY74: \$40,000** **TOTAL: \$284,198**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chobanion, A. V. JSC/Hoffler, G. W. 52-Clinical Med
(72-970 970-51-12)

NGR 22-004-024 **Boston University** **2073**
Study of bird tracking by artificial satellite
Period *Obligations*
06/02/70-10/31/73 **FY74: \$6,500** **TOTAL: \$126,440**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
MacKay, R. S. HQ-ER/Jacobs, G. J. 51-Biology
(10-680 160-75-29)

NGR 22-004-025 **Boston University** **2074**
Microbial contributions to the precambrian earth
Period *Obligations*
12/15/70-09/30/74 **FY74: \$29,385** **TOTAL: \$58,353**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Margulis, L. HQ-SL/Young, R. S. 32-Geological Sci
(10-840 192-55-62) (10-870 189-00-00)

NGR 22-004-027 **Boston University** **2075**
Dynamics of sinuous rill formation
Period *Obligations*
05/25/71-10/01/73 **FY74:** **TOTAL: \$19,705**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brewer, T. HQ-SM/Bryson, R. P. 32-Geological Sci
Coldwell, D. W. HQ-SM/Allenby, R. J.
Gheith, M. A.
(10-810 383-00-00)

NGR 22-004-030 **Boston University** **2076**
Compressible unsteady potential aerodynamic flow around lifting
bodies having arbitrary shapes & motions
Period *Obligations*
12/18/71-12/31/74 **FY74: \$52,538** **TOTAL: \$140,364**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morino, L. LARC/Yates, E. C., Jr. 41-Aero Engr
(23-702 743-32-11) (23-740 134-00-00)

NGR 22-004-035 **Boston University** **2077**
Measurement of cosmic background radiation at 1.32mm
Period *Obligations*
11/22/72-09/01/73 **FY74:** **TOTAL: \$10,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hegy, D. J. HQ-SG/Boggecs, N. W. 13-Physics
(10-850 188-41-55)

NSG 7063 **Boston University** **2078**
Programmed health testing in a working population
Period *Obligations*
05/29/74-10/31/74 **FY74: \$6,683** **TOTAL: \$6,683**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hershberg, P. I. HQ HQ-JP/Arnoldi, L. B. 52-Clinical Med
(10-030 010-00-00)

NAS 1-10492 **Harvard University** **2079**
Participation in science planning for Viking 1975 missions in
area of entry science
Period *Obligations*
03/25/71-03/31/77 **FY74: \$30,600** **TOTAL: \$123,200**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McElroy, M. B. LARC/Soffen, G. A. 31-Atmos Sci
(23-840 815-20-00)

NAS 5-3949 **Harvard University** **2080**
Study and experiment for a high resolution ultra violet telescope
and spectrometer system
Period *Obligations*
01/28/65-06/01/74 **FY74: \$4,170,930** **TOTAL: \$34,784,726**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goldberg, L. MSFC HQ-JP/Unavailable 11-Astronomy
(62-960 948-80-80) (62-960 996-00-00)

NAS 5-23199 **Harvard University** **2081**
Atmosphere Explorer theoretical investigations
Period *Obligations*
03/19/73-08/19/77 **FY74: \$40,000** **TOTAL: \$60,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McElroy, M. B. GSFC/Findlay, J. A. 31-Atmos Sci
(51-850 852-22-00) (51-850 852-00-00)

NAS 9-13370 **Harvard University** **2082**
Monitoring & control of nutritional intake & collection of
metabolic excreta
Period *Obligations*
04/25/73-11/01/74 **FY74:** **TOTAL: \$38,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hegsted, D. M. JSC/Smith, M. C., Jr. 59-Life Sci, NEC
(72-960 948-60-90)

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NGL 22-007-006 Harvard University 2083
Theoretical & experimental studies on ultraviolet solar physics
Period Obligations
07/10/63-12/31/74 FY74: \$165,000 TOTAL: \$3,716,398
Prin. Invest. NASA Tech. Officer CASE Category
Goldberg, L. HQ-SG/Weldon, J. M. 11-Astronomy
HQ-SG/Oertel, G. K.
(10-850 188-38-53) (10-850 188-00-00)

NGR 22-007-176 Harvard University 2090
Research on complexity problems and formal language theory
Period Obligations
05/15/70-06/30/73 FY74: TOTAL: \$49,000
Prin. Invest. NASA Tech. Officer CASE Category
Book, R. V. HQ-RE/Rosenfeld, S. A. 21-Mathematics
(10-740 129-00-00)

NGL 22-007-069 Harvard University 2084
Infrared absorption spectrophotometry of organic extractives from precambrian sediments
Period Obligations
05/29/66-05/31/77 FY74: \$25,137 TOTAL: \$256,869
Prin. Invest. NASA Tech. Officer CASE Category
Barghoorn, E. S. HQ-SL/Young, R. S. 32-Geological Sci
(10-840 192-55-62)

NGR 22-007-202 Harvard University 2091
Investigations in the far ultraviolet solar spectrum
Period Obligations
11/05/70-03/31/75 FY74: \$150,000 TOTAL: \$755,000
Prin. Invest. NASA Tech. Officer CASE Category
Goldberg, L. HQ-SG/Weldon, J. M. 11-Astronomy
HQ-SG/Oertel, G. K.
(10-850 879-11-00)

NGL 22-007-117 Harvard University 2085
Investigation of the behavior of ultrashort light pulses of picosecond duration in optical media
Period Obligations
04/22/68-01/31/77 FY74: \$30,000 TOTAL: \$235,000
Prin. Invest. NASA Tech. Officer CASE Category
Bloembergen, N. GSFC/Plotkin, H. H. 13-Physics
(51-704 502-03-11) (51-750 115-22-02)

NGR 22-007-203 Harvard University 2092
Correlation of medical history data with biochemical laboratory values
Period Obligations
06/26/70-06/30/73 FY74: TOTAL: \$82,051
Prin. Invest. NASA Tech. Officer CASE Category
Hershberg, P. I. HQ-JG/Arnoldi, L. B. 52-Clinical Med
HQ-JG/Limoncelli, D. D.
(10-030 039-00-00)

NGL 22-007-136 Harvard University 2086
Theoretical atomic and molecular physics
Period Obligations
09/01/68-08/01/74 FY74: TOTAL: \$186,000
Prin. Invest. NASA Tech. Officer CASE Category
Dalgarno, O. HQ-SG/Weldon, J. M. 11-Astronomy
HQ-SG/Oertel, G. K.
(10-850 188-38-53)

NGR 22-007-242 Harvard University 2093
Theoretical researches into planetary atmospheres and their influence upon surface features
Period Obligations
06/13/72-06/14/74 FY74: TOTAL: \$27,672
Prin. Invest. NASA Tech. Officer CASE Category
Goody, R. M. HQ-SL/Fellows, R. F. 31-Atmos Sci
(10-840 185-47-81)

NGL 22-007-228 Harvard University 2087
Theoretical investigation of multiphase in Jupiter interior and possible relationship to behavior of outer atmospheric layers
Period Obligations
12/15/71-09/30/76 FY74: \$105,050 TOTAL: \$194,679
Prin. Invest. NASA Tech. Officer CASE Category
Goody, R. M. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.
(10-840 185-47-81)

NGR 22-007-256 Harvard University 2094
Bone metabolism and hormones
Period Obligations
03/28/73-02/01/75 FY74: \$20,046 TOTAL: \$49,132
Prin. Invest. NASA Tech. Officer CASE Category
Tashjian, A. H., Jr. ARC/Young, D. R. 53-Other Medical
(21-970 970-21-61) (21-970 970-21-14) (21-970 970-21-45)

NGL 22-007-247 Harvard University 2088
Lunar sample analysis
Period Obligations
06/30/72-01/31/77 FY74: \$78,026 TOTAL: \$197,826
Prin. Invest. NASA Tech. Officer CASE Category
Hays, J. F. JSC/Harris, J. W. 12-Chemistry
(72-810 388-10-01)

NGR 22-007-257 Harvard University 2095
Spectra of solar radio bursts
Period Obligations
04/11/73-12/31/74 FY74: \$75,000 TOTAL: \$75,000
Prin. Invest. NASA Tech. Officer CASE Category
Maxwell, A. HQ-SG/Oertel, G. K. 11-Astronomy
HQ-SG/Weldon, J. M.
(10-850 385-38-00) (10-850 188-38-52)

NGR 22-007-175 Harvard University 2089
Melting behavior and phase relations in the lunar interior
Period Obligations
05/26/70-04/30/73 FY74: TOTAL: \$151,904
Prin. Invest. NASA Tech. Officer CASE Category
Hays, J. F. HQ-SM/Bryson, R. P. 32-Geological Sci
HQ-SM/Allenby, R. J.
(10-810 195-00-00)

NGR 22-007-267 Harvard University 2096
Trace elements of hydrogen and nitrogen in earth atmosphere
Period Obligations
09/19/73-12/31/74 FY74: \$32,811 TOTAL: \$32,811
Prin. Invest. NASA Tech. Officer CASE Category
McElroy, M. B. HQ-SL/Fellows, R. F. 31-Atmos Sci
(10-840 185-47-81)

**NASA'S UNIVERSITY PROGRAM
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NGR 22-007-269 **Harvard University** **2097**
Theoretical research in planetary physics
Period *Obligations*
09/01/73-08/31/74 **FY74: \$30,000** **TOTAL: \$30,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cameron, A. G. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Holt, H. E.
(10-840 185-50-81)

NSG 2031 **Harvard University** **2104**
Chemistry and dynamics of trace stratospheric gases
Period *Obligations*
07/01/74-06/30/75 **FY74: \$45,000** **TOTAL: \$45,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McElroy, M. B. ARC/Poppoff, I. G. 31-Atmos Sci
ARC/Whitten, R. C.
(21-920 989-10-00)

NGR 22-007-270 **Harvard University** **2098**
The operation of a balloon-borne 40-inch telescope for far infrared astronomy
Period *Obligations*
11/05/73-02/04/75 **FY74: \$34,985** **TOTAL: \$34,985**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Noyes, R. W. HQ-SG/Bogges, N. W. 11-Astronomy
HQ-SG/Roman, N. G.
(10-850 188-41-55)

NSG 7009 **Harvard University** **2105**
Fourth International Conference on Ultra-Violet and X-ray Spectroscopy
Period *Obligations*
02/01/74-01/31/75 **FY74: \$13,282** **TOTAL: \$13,282**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parkinson, W. H. HQ-SG/Weldon, J. M. 11-Astronomy
HQ-SG/Roman, N. G.
(10-850 188-38-53) (10-850 188-41-51)

NGR 22-007-272 **Harvard University** **2099**
Theoretical studies in space astronomy
Period *Obligations*
09/01/73-11/30/74 **FY74: \$25,000** **TOTAL: \$25,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cameron, A. G. HQ-SG/Kelsall, T. 11-Astronomy
HQ-SG/Roman, N. G.
(10-850 188-41-51)

NSG 7018 **Harvard University** **2106**
Transition and coronal line profiles in the solar extreme ultraviolet measurements
Period *Obligations*
03/01/74-08/31/74 **FY74: \$27,000** **TOTAL: \$27,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Noyes, R. W. HQ-SG/Weldon, J. M. 11-Astronomy
(10-850 188-38-64)

NGR 22-007-275 **Harvard University** **2100**
Waves in the equatorial stratosphere
Period *Obligations*
01/01/74-12/31/74 **FY74: \$25,000** **TOTAL: \$25,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lindzen, R. S. GSFC/Theon, J. S. 31-Atmos Sci
GSFC/Wexler, R.
(51-680 175-61-41) (51-680 175-61-42)

NGR 22-018-006 **Lowell Technological Institute** **2107**
Analysis of self oscillating dc to dc converters
Period *Obligations*
02/02/73-08/31/74 **FY74:** **TOTAL: \$2,400**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Burger, P. LERC/Lalli, V. R. 45-Elec Engr
(22-710 113-60-53) (22-704 502-25-70)

NGR 22-007-285 **Harvard University** **2101**
Stellar chromospheres and coronas
Period *Obligations*
05/01/74-10/31/75 **FY74: \$8,900** **TOTAL: \$8,900**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Noyes, R. W. GSFC/Kupperian, J. E. 11-Astronomy
(51-850 831-43-00)

NAS 1-9684 **Massachusetts Institute of Technology** **2108**
Participation in the science planning for the Viking 1975 missions in the area of molecular analysis
Period *Obligations*
05/01/70-03/31/77 **FY74: \$147,122** **TOTAL: \$451,289**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Biemann, K. LARC/Williams, T. S., Jr. 12-Chemistry
(23-840 815-20-00)

NGT 22-007-008 **Harvard University** **2102**
Training of post-M.D. students in field of aerospace medicine
Period *Obligations*
07/17/63-08/31/73 **FY74:** **TOTAL: \$276,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McFarland, R. A. HQ-PY/Carter, C. H. 99-Multi-Discip
(10-370 181-00-00)

NAS 1-9691 **Massachusetts Institute of Technology** **2109**
Participation in the science planning for the Viking 1975 missions in the area of biology
Period *Obligations*
06/15/70-03/31/77 **FY74: \$5,229** **TOTAL: \$46,762**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rich, A. LARC/Soffen, G. A. 51-Biology
(23-840 815-20-00) (23-840 815-00-00)

NSG 1019 **Harvard University** **2103**
IUTAM symposium on buckling of structures
Period *Obligations*
04/19/74-10/18/74 **FY74: \$4,000** **TOTAL: \$4,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Budiansky, B. LARC/Leonard, H. W. 46-Mech Engr
(23-704 502-22-11)

NAS 1-9702 **Massachusetts Institute of Technology** **2110**
Participation in the science planning for the Viking 1975 missions in the area of radio science
Period *Obligations*
05/20/70-03/31/77 **FY74:** **TOTAL: \$71,500**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shapiro, I. T. LARC/Soffen, G. A. 45-Elec Engr
(23-840 815-20-00) (23-840 815-00-00)

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

NAS 1-10693 **Massachusetts Institute of Technology** **2111**
Development of experiments for microwave temperature sounding of the mesosphere and upper stratosphere (AAFE)

<i>Period</i>	<i>Obligations</i>	
06/25/71-09/24/75	FY74: \$38,700	TOTAL: \$174,778
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Staclin, D. H.	LARC/Howell, J. Q.	31-Atmos Sci

(23-620 630-52-00)

NAS 2-7262 **Massachusetts Institute of Technology** **2112**
Study of gust response & alleviation for propeller in cruising flight

<i>Period</i>	<i>Obligations</i>	
11/06/72-12/31/76	FY74: \$50,951	TOTAL: \$120,451
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ham, N. D.	ARC/Rabbott, J. P., Jr.	41-Aero Engr
Deyst, J.	ARC/Johnson, W. R.	
Tong, P.		

(21-702 760-63-03)

NAS 2-7684 **Massachusetts Institute of Technology** **2113**
Helicopter noise study

<i>Period</i>	<i>Obligations</i>	
06/26/73-08/25/74	FY74:	TOTAL: \$50,068
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Widnall, S. E.	ARC/Schmitz, F. H.	41-Aero Engr
	ARC/Boxwell, D. A.	

(21-704 501-01-02)

NAS 2-7994 **Massachusetts Institute of Technology** **2114**
Development & definition DVLBI tracking Venus entry probe

<i>Period</i>	<i>Obligations</i>	
01/10/74-07/10/74	FY74: \$50,500	TOTAL: \$50,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Unavailable	ARC/Unavailable	49-Engr, NEC

(21-840 186-68-63)

NAS 2-8157 **Massachusetts Institute of Technology** **2115**
Study of air transportation demand

<i>Period</i>	<i>Obligations</i>	
05/21/74-05/20/75	FY74: \$21,000	TOTAL: \$21,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simpson, R. W.	ARC/Norman, S. M.	41-Aero Engr
Taneja, N. K.	ARC/Waters, M. H.	

(15-701 791-93-03)

NAS 3-17534 **Massachusetts Institute of Technology** **2116**
Development and test of a polymeric early warning fire alarm device

<i>Period</i>	<i>Obligations</i>	
09/17/73-09/16/74	FY74: \$56,032	TOTAL: \$56,032
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Senturia, S. D.	LERC/Hacker, P. T.	19-Phys Sci, NEC

(22-250 141-93-02)

NAS 5-11062 **Massachusetts Institute of Technology** **2117**
IMP H&J plasma experiment

<i>Period</i>	<i>Obligations</i>	
05/17/68-06/30/75	FY74: \$207,000	TOTAL: \$1,780,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bridge, H. S.	GSFC/Davis, M. A.	13-Physics

(51-850 861-42-00)

NAS 5-11082 **Massachusetts Institute of Technology** **2118**
Studies and design for a rotating wheel experiment to provide a two color survey of the positions and time variations of cosmic X-ray sources

<i>Period</i>	<i>Obligations</i>	
06/30/67-09/30/74	FY74: \$164,552	TOTAL: \$2,050,624
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clark, G. W.	GSFC/Ostaff, W.	19-Phys Sci, NEC

(51-850 821-22-00)

NAS 5-11450 **Massachusetts Institute of Technology** **2119**
An experiment to perform X-ray astronomy on the SAS-C spacecraft

<i>Period</i>	<i>Obligations</i>	
06/16/71-01/05/75	FY74: \$1,815,800	TOTAL: \$6,586,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clark, G. W.	GSFC/Piterski, N. J.	11-Astronomy
	GSFC/Townsend, M. R.	

(51-850 878-12-00)

NAS 5-20091 **Massachusetts Institute of Technology** **2120**
Tiros-M operational vertical sounder/microwave unit definition phase

<i>Period</i>	<i>Obligations</i>	
06/15/74-02/15/75	FY74: \$10,000	TOTAL: \$10,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Staclin, D.	GSFC/Cambell, C. E.	42-Astro Engr

(51-680 601-13-00)

NAS 5-21980 **Massachusetts Institute of Technology** **2121**
Nimbus F scanning microwave spectrometer data reduction and analysis

<i>Period</i>	<i>Obligations</i>	
01/25/74-02/28/77	FY74: \$100,000	TOTAL: \$100,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Unavailable	GSFC/Unavailable	31-Atmos Sci

(51-680 604-42-00)

NAS 8-24364 **Massachusetts Institute of Technology** **2122**
Integration of NASA-sponsored studies on aluminum welding

<i>Period</i>	<i>Obligations</i>	
05/21/69-11/15/73	FY74:	TOTAL: \$32,393
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Masubuchi, K.	MSFC/Hasemeyer, E. A.	49-Engr, NEC

(62-980 904-00-00)

NAS 8-24365 **Massachusetts Institute of Technology** **2123**
Analysis of thermal stresses & metal movement during welding

<i>Period</i>	<i>Obligations</i>	
05/14/69-06/30/74	FY74:	TOTAL: \$65,225
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Masubuchi, K.	MSFC/Poorman, R. M.	46-Mech Engr
	MSFC/Siler, H. L.	

(62-980 908-51-21)

NAS 8-27972 **Massachusetts Institute of Technology** **2124**
Design, development, & operations of the AXR-2 integrated modulation collimator experiment under the HEAO program

<i>Period</i>	<i>Obligations</i>	
06/23/72-03/15/77	FY74:	TOTAL: \$212,220
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bradt, H. V.	MSFC/Bodie, W. G.	11-Astronomy
	MSFC/Gustin, R. A.	

(62-850 832-12-00)

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NAS 8-27975	Massachusetts Institute of Technology	2125	Design and development of the AGR-5 high energy X-ray experiment under the HEAO program
<i>Period</i>	<i>Obligations</i>		
06/23/72-04/15/78	FY74: TOTAL: \$838,672		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Lewin, W. H.	MSFC/Jordan, W.	11-Astronomy	
	MSFC/Jones, J. B.		
(62-850 832-12-00)			
NAS 8-28055	Massachusetts Institute of Technology	2126	Research study on the design and control of remote manipulators
<i>Period</i>	<i>Obligations</i>		
01/05/72-08/31/74	FY74: \$23,000 TOTAL: \$80,600		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Whitney, D. E.	MSFC/Borelli, M. T.	46-Mech Engr	
	MSFC/Valley, D. P.		
(62-970 970-63-20)			
NAS 8-28306	Massachusetts Institute of Technology	2127	Skylab indium antimonide crystals experiment
<i>Period</i>	<i>Obligations</i>		
11/08/72-04/30/74	FY74: \$12,000 TOTAL: \$32,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Gatos, H. C.	MSFC/Adams, W. R.	19-Phys Sci, NEC	
	MSFC/Johnston, M. H.		
Witt, A. F.			
(62-960 948-90-95)			
NAS 8-28732	Massachusetts Institute of Technology	2128	Electron beam melting or welding of various metals in space & braising of SS tubes and directional solidification
<i>Period</i>	<i>Obligations</i>		
06/06/72-02/15/74	FY74: TOTAL: \$37,025		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Masubuchi, K.	MSFC/Hoppes, R. V.	46-Mech Engr	
	MSFC/Poorman, R. M.		
(62-960 948-90-95)	(62-960 948-00-00)		
NAS 8-29849	Massachusetts Institute of Technology	2129	Development and delivery of a third generation gyro
<i>Period</i>	<i>Obligations</i>		
07/10/73-09/01/73	FY74: \$47,895 TOTAL: \$47,895		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Ouellette, G.	MSFC/Fikes, E. H.	46-Mech Engr	
	MSFC/Doane, G. B.		
(62-850 188-78-57)			
NAS 8-30301	Massachusetts Institute of Technology	2130	Capability and limitations of relativistic gravity measurements using radio astronomy methods
<i>Period</i>	<i>Obligations</i>		
12/01/73-05/31/74	FY74: \$4,000 TOTAL: \$4,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Shapiro, I. I.	MSFC/Hale, D. P.	13-Physics	
Counselman, C. C., III			
(62-850 188-41-54)			
NAS 8-30531	Massachusetts Institute of Technology	2131	Participation in HEAO mission B definition study
<i>Period</i>	<i>Obligations</i>		
12/10/73-05/31/74	FY74: \$123,500 TOTAL: \$123,500		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Clark, G. W.	MSFC/Manning, H.	11-Astronomy	
	MSFC/Powers, J.		
(62-850 832-12-00)			
NAS 8-30537	Massachusetts Institute of Technology	2132	Solidification (crystal growth) in the absence of gravitational forces
<i>Period</i>	<i>Obligations</i>		
12/03/73-08/03/74	FY74: \$50,000 TOTAL: \$50,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Gatos, H. C.	MSFC/Davidson, M. C.	13-Physics	
Whitt, A. F.	MSFC/Schafer, C. F.		
(62-630 179-12-14)			
NAS 8-30576	Massachusetts Institute of Technology	2133	Quantitative determination of zero-effects on electronic materials processing entitled: 'Interface marking in crystals'
<i>Period</i>	<i>Obligations</i>		
12/10/73-03/31/76	FY74: \$85,000 TOTAL: \$85,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Gatos, H. C.	MSFC/Adams, W. R.	19-Phys Sci, NEC	
Witt, A. F.	MSFC/Boese, A.		
(62-930 966-30-00)			
NAS 9-11540	Massachusetts Institute of Technology	2134	Surface electrical properties experiment
<i>Period</i>	<i>Obligations</i>		
03/31/71-03/31/74	FY74: \$36,792 TOTAL: \$7,136,792		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Simmons, D. G.	JSC/Eichelman, W. F.	19-Phys Sci, NEC	
(72-910 914-40-00)			
NAS 9-12334	Massachusetts Institute of Technology	2135	Co-investigator support for Apollo passive seismic experiment
<i>Period</i>	<i>Obligations</i>		
01/07/72-10/31/74	FY74: \$55,108 TOTAL: \$210,108		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Press, F.	JSC/Eichelman, W. F.	31-Atmos Sci	
(72-810 383-25-03)	(72-910 914-40-00)		
NAS 9-12485	Massachusetts Institute of Technology	2136	Mechanisms of deterioration of nutrients
<i>Period</i>	<i>Obligations</i>		
03/17/72-04/01/77	FY74: \$65,000 TOTAL: \$160,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Flink, J. M.	JSC/Heidelbaugh, N. D.	53-Other Medical	
(72-970 970-51-14)			
NASW 2197	Massachusetts Institute of Technology	2137	Research study on domestic information network; an assessment of technology and demand
<i>Period</i>	<i>Obligations</i>		
03/09/71-07/01/72	FY74: TOTAL: \$100,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Harrington, J. V.	HQ-EC/Silverman, D.	99-Multi-Discip	
	HQ-EC/Andrus, A. G.		
(10-620 164-00-00)			

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NASW 2412 Massachusetts Institute of Technology 2138
Air transportation systems analysis for aeronautical technologist

<i>Period</i>	<i>Obligations</i>	
06/20/72-09/30/73	FY74: TOTAL: \$210,399	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simpson, R.	HQ-RO/Enders, J. H.	99-Multi-Discip
	HQ-RD/Cherry, G. W.	
(10-701 791-91-51)	(10-763 133-17-01)	(10-705 139-06-01)

NASW 2524 Massachusetts Institute of Technology 2139
Four-week workshop on problems of low/medium density air transportation

<i>Period</i>	<i>Obligations</i>	
05/24/73-03/31/74	FY74: \$69,730 TOTAL: \$99,730	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Unavailable	HQ-R/Hodge, K. E.	41-Aero Engr
(10-701 791-93-51)	(10-701 791-91-51)	

NGL 22-009-003 Massachusetts Institute of Technology 2140
Mechanisms of alloy strengthening by fine particle dispersions emphasizing reduction of nonrefractory oxides, stability of metals oxide systems & solid solution in metal-metal oxide alloys

<i>Period</i>	<i>Obligations</i>	
11/15/70-01/14/77	FY74: \$40,000 TOTAL: \$1,013,770	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Grant, N. J.	LERC/Quatnetz, M.	47-Materials Engr
(22-704 501-01-06)	(10-740 129-00-00)	

NGL 22-009-013 Massachusetts Institute of Technology 2141
Research on problems of communication in space environment

<i>Period</i>	<i>Obligations</i>	
12/27/62-10/31/76	FY74: \$90,000 TOTAL: \$1,206,700	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kennedy, R. S.	HQ-RE/Anderton, H. L.	45-Elec Engr
Gallager, R. G.	GSFC/Plotkin, H. H.	
(10-704 502-03-12)	(10-750 125-00-00)	

NGL 22-009-015 Massachusetts Institute of Technology 2142
Theoretical and experimental investigations of interplanetary medium and in gamma ray astronomy

<i>Period</i>	<i>Obligations</i>	
01/01/63-12/31/76	FY74: \$438,432 TOTAL: \$3,765,598	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bridge, H. S.	HQ-SG/Opp, A. G.	13-Physics
	HQ-SG/Schmerling, E. R.	
(10-850 188-36-55)	(10-850 188-41-59)	(10-850 385-36-00)

NGL 22-009-016 Massachusetts Institute of Technology 2143
Electromagnetic investigations of planetary and solar atmospheres and the lunar surface

<i>Period</i>	<i>Obligations</i>	
05/01/63-04/30/75	FY74: TOTAL: \$1,391,075	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Barrett, A. H.	HQ-SL/Brunk, W. E.	32-Geological Sci
(10-840 185-00-00)		

NGL 22-009-019 Massachusetts Institute of Technology 2144
Multidisciplinary research in space-related physical, engineering, social and life sciences

<i>Period</i>	<i>Obligations</i>	
09/27/63-02/28/75	FY74: TOTAL: \$8,051,886	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Harrington, J. V.	HQ-PY/Redding, E. R.	99-Multi-Discip
(10-370 183-00-00)	(10-870 189-00-00)	(10-750 125-00-00)

NGL 22-009-025 Massachusetts Institute of Technology 2145
Human dynamic space orientation using techniques of control theory

<i>Period</i>	<i>Obligations</i>	
01/30/64-12/01/76	FY74: TOTAL: \$980,091	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, L. R.	LARC/Whitten, J. B.	41-Aero Engr
	ARC/Sadoff, M.	
(23-750 135-19-01)		

NGL 22-009-124 Massachusetts Institute of Technology 2146
Control optimization stabilization and computation of algorithms for space applications

<i>Period</i>	<i>Obligations</i>	
03/30/66-08/31/76	FY74: \$65,100 TOTAL: \$530,289	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Athens, M.	ARC/Doolin, B. F.	49-Engr, NEC
Mitter, S. K.		
Johnson, T. L.		
(21-704 501-03-11)		

NGL 22-009-125 Massachusetts Institute of Technology 2147
Studies on the relationship between crystalline structure and superconductivity

<i>Period</i>	<i>Obligations</i>	
05/05/66-03/31/77	FY74: \$33,500 TOTAL: \$279,624	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gatos, H. C.	MSFC/Dalins, I.	13-Physics
	MSFC/Stern, H. E.	
(62-704 502-01-03)	(10-740 129-00-00)	

NGL 22-009-156 Massachusetts Institute of Technology 2148
Biophysical evaluation of the human vestibular system

<i>Period</i>	<i>Obligations</i>	
03/30/66-12/01/73	FY74: TOTAL: \$255,700	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, L. R.	HQ-MM/Lang, R. H.	59-Life Sci, NEC
	HQ-MM/Vinograd, S. P.	
(10-970 970-11-11)		

NGL 22-009-187 Massachusetts Institute of Technology 2149
Lunar geophysics, as related to the Apollo applications program

<i>Period</i>	<i>Obligations</i>	
09/02/66-02/28/76	FY74: TOTAL: \$548,782	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Press, F.	HQ-SM/Bryson, R. P.	11-Astronomy
	HQ-SM/Allenby, R. J.	
(10-810 383-09-56)	(10-810 383-09-53)	(10-810 195-00-00)

NGL 22-009-308 Massachusetts Institute of Technology 2150
Maturation and development of mechanisms of orientation and postural control

<i>Period</i>	<i>Obligations</i>	
12/01/67-08/31/76	FY74: \$30,000 TOTAL: \$696,646	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Teuber, H. L.	ARC/Daunton, N. G.	69-Psych, NEC
Held, R.		
(21-970 970-21-11)	(21-970 970-21-53)	

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NGL 22-009-309	Massachusetts Institute of Technology	2151			
Research in integrated plan & control system					
<i>Period</i>		<i>Obligations</i>			
07/01/68-09/01/73	FY74:	TOTAL: \$162,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Zannetos, Z. S. (25-750 125-00-00)	HQ-PA/Smolensky, S. (10-750 125-00-00)	45-Elec Engr			
NGL 22-009-383	Massachusetts Institute of Technology	2152			
Research in propulsion and power generation					
<i>Period</i>		<i>Obligations</i>			
01/16/69-08/31/76	FY74: \$100,000	TOTAL: \$680,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kerrebrock, J. L. Oliver, D. A. McCune, J. E. (22-704 501-04-03)	LERC/McNally, W. D. (10-750 125-00-00)	41-Aero Engr			
NGL 22-009-521	Massachusetts Institute of Technology	2153			
Composition and structure of planetary atmospheres					
<i>Period</i>		<i>Obligations</i>			
08/10/70-06/30/76	FY74: \$61,740	TOTAL: \$278,321			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lewis, J. S. (10-840 185-47-81)	HQ-SL/Fellows, R. F. HQ-SL/Brunk, W. E.	31-Atmos Sci			
NGL 22-009-548	Massachusetts Institute of Technology	2154			
Flight control systems research					
<i>Period</i>		<i>Obligations</i>			
08/17/70-08/31/76	FY74: \$45,000	TOTAL: \$282,818			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Whitaker, H. P. (24-704 501-26-01)	FRC/Szalai, K. J. FRC/Rediess, H. A. (24-742 747-81-01)	41-Aero Engr			(24-760 126-00-00)
NGL 22-009-638	Massachusetts Institute of Technology	2155			
Research in space science					
<i>Period</i>		<i>Obligations</i>			
03/03/72-03/01/77	FY74: \$200,000	TOTAL: \$600,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bridge, H. S. (10-371 340-00-00)	HQ-PY/Redding, E. R. (24-760 126-00-00)	99-Multi-Discip			
NGL 22-009-640	Massachusetts Institute of Technology	2156			
Joint university research program for air transportation needs					
<i>Period</i>		<i>Obligations</i>			
11/24/71-10/31/76	FY74: \$50,000	TOTAL: \$200,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Simpson, R. W. (23-704 501-03-02)	LARC/Mace, W. D. (23-750 135-06-02)	41-Aero Engr			
NGR 22-009-005	Massachusetts Institute of Technology	2157			
Detection & identification of organic matter by mass spectrometry					
<i>Period</i>		<i>Obligations</i>			
12/01/61-06/30/74	FY74: \$70,016	TOTAL: \$720,754			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Biemann, K. (10-840 192-55-63)	HQ-SL/Young, R. S. (10-840 192-55-62)	51-Biology			
NGR 22-009-018	Massachusetts Institute of Technology	2158			
Partial support of multidisciplinary studies in neurosciences					
<i>Period</i>		<i>Obligations</i>			
06/20/63-06/01/72	FY74:	TOTAL: \$936,375			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Schmitt, F. O. (10-870 189-00-00)	HQ-MM/Belleville, R. E. (10-870 189-00-00)	52-Clinical Med			
NGR 22-009-102	Massachusetts Institute of Technology	2159			
Investigation of the effect of space environment on replica gratings					
<i>Period</i>		<i>Obligations</i>			
06/28/66-12/01/77	FY74:	TOTAL: \$193,638			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Biemann, K. (10-860 849-00-00)	HQ-SS/Hovnanian HQ-SL/Geib, D. S. (10-860 848-00-00)	42-Astro Engr			
NGR 22-009-207	Massachusetts Institute of Technology	2160			
Applications of guidance theory & trajectory analysis					
<i>Period</i>		<i>Obligations</i>			
04/03/70-09/17/74	FY74: \$37,000	TOTAL: \$442,840			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Deyst, J. J., Jr. (51-830 180-06-50)	GSFC/Barbieri, R. W. (51-980 981-60-00)	42-Astro Engr			
NGR 22-009-277	Massachusetts Institute of Technology	2161			
The prebiotic synthesis of polynucleotides and polynucleotide-directed polypeptides					
<i>Period</i>		<i>Obligations</i>			
12/01/67-06/30/73	FY74: \$65,992	TOTAL: \$349,802			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Rich, A. (10-840 192-55-61)	HQ-SL/Young, R. S. (10-840 192-55-61)	12-Chemistry			
NGR 22-009-339	Massachusetts Institute of Technology	2162			
Investigation of containment/control of fragments from bursting turbine rotors					
<i>Period</i>		<i>Obligations</i>			
06/14/68-01/31/75	FY74: \$74,433	TOTAL: \$390,063			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wilner, E. A. Leech, J. W. (22-704 501-38-13)	LERC/Weiss, S. LERC/Kemp, R. H. (22-760 126-00-00)	41-Aero Engr			
NGR 22-009-350	Massachusetts Institute of Technology	2163			
Spectral reflectance of planetary surfaces					
<i>Period</i>		<i>Obligations</i>			
03/25/69-08/31/74	FY74:	TOTAL: \$255,700			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
McCord, T. B. (10-810 383-09-56)	HQ-SM/Bryson, R. P. HQ-SM/Allenby, R. J. (10-810 195-00-00)	32-Geological Sci			
NGR 22-009-366	Massachusetts Institute of Technology	2164			
Mariner V tracking-data analysis					
<i>Period</i>		<i>Obligations</i>			
03/11/69-12/31/73	FY74:	TOTAL: \$25,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Shapiro, I. I. (10-850 385-00-00)	HQ-SG/Roman, N. G. (10-850 385-00-00)	31-Atmos Sci			

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NGR 22-009-378	Massachusetts Institute of Technology	2165			
	Study of pollutants from jet aircraft				
	<i>Period</i>	<i>Obligations</i>			
02/14/69-07/30/74	FY74: \$25,000	TOTAL: \$324,575			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Fay, J. A.	LERC/Holdeman, J. D.	43-Chem Engr			
Heywood, J. B.	LERC/Jones, R. E.				
Chigier, N. A.					
(22-702 743-34-22)	(22-740 129-00-00)				
NGR 22-009-421	Massachusetts Institute of Technology	2166			
	Microwave studies of the earth's atmosphere in support of meteorological satellite observations				
	<i>Period</i>	<i>Obligations</i>			
06/30/70-06/30/73	FY74:	TOTAL: \$186,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Barrett, A. H.	GSFC/Wilheit, T. T.	31-Atmos Sci			
(51-680 160-44-54)					
NGR 22-009-473	Massachusetts Institute of Technology	2167			
	Planetary astronomy				
	<i>Period</i>	<i>Obligations</i>			
06/10/70-12/31/74	FY74: \$70,000	TOTAL: \$341,500			
<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/Fellows, R. F.				
(10-840 196-41-80)	(10-840 196-00-00)				
NGR 22-009-517	Massachusetts Institute of Technology	2168			
	Solidification (crystal growth) in the absence of gravitational forces				
	<i>Period</i>	<i>Obligations</i>			
04/24/70-12/01/73	FY74:	TOTAL: \$252,265			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Gatos, H. C.	MSFC/Davidson, M. C.	12-Chemistry			
	MSFC/Ruff, R. C.				
(62-980 975-90-95)	(62-980 975-90-00)				
NGR 22-009-526	Massachusetts Institute of Technology	2169			
	Astronomy in the region between 1 mm to 0.1 mm wavelengths				
	<i>Period</i>	<i>Obligations</i>			
09/22/70-09/30/74	FY74: \$49,200	TOTAL: \$192,700			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Weiss, R.	HQ-SG/Bogges, N. W.	11-Astronomy			
	HQ-SG/Ott, E. J.				
(10-850 188-41-55)					
NGR 22-009-535	Massachusetts Institute of Technology	2170			
	Research in machine vision				
	<i>Period</i>	<i>Obligations</i>			
06/26/70-06/01/72	FY74:	TOTAL: \$47,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Guzman-Arenas, A.	HQ-RE/Rosenfeld, R. A.	99-Multi-Discip			
(10-740 129-00-00)					
NGR 22-009-540	Massachusetts Institute of Technology	2171			
	Lunar sample analysis				
	<i>Period</i>	<i>Obligations</i>			
02/08/71-01/31/75	FY74: \$60,000	TOTAL: \$305,825			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Simmons, G.	JSC/Harris, J. W.	13-Physics			
(72-810 388-10-03)					
NGR 22-009-551	Massachusetts Institute of Technology	2172			
	Lunar sample analysis				
	<i>Period</i>	<i>Obligations</i>			
02/11/71-01/31/75	FY74: \$55,000	TOTAL: \$182,600			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Burns, R. G.	JSC/Harris, J. W.	12-Chemistry			
(72-810 388-10-01)					
NGR 22-009-583	Massachusetts Institute of Technology	2173			
	Spectroscopy of the asteroids				
	<i>Period</i>	<i>Obligations</i>			
10/26/71-08/30/73	FY74: \$20,000	TOTAL: \$70,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
McCord, T. B.	HQ-SG/Dubin, M.	11-Astronomy			
(10-850 188-45-51)					
NGR 22-009-605	Massachusetts Institute of Technology	2174			
	Investigation of aircraft wakes				
	<i>Period</i>	<i>Obligations</i>			
04/06/71-08/31/74	FY74:	TOTAL: \$86,649			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Widnall, S. E.	ARC/Corsiglia, V. R.	41-Aero Engr			
	ARC/Rossow, V. J.				
(21-704 501-06-04)	(21-760 136-9X-00)				
NGR 22-009-618	Massachusetts Institute of Technology	2175			
	Laboratory study of sonic booms and their scaling laws				
	<i>Period</i>	<i>Obligations</i>			
06/17/71-12/31/74	FY74: \$47,480	TOTAL: \$122,640			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Toong, T. G.	LARC/Barger, R. L.	41-Aero Engr			
(23-702 743-65-31)	(10-760 136-13-02)				
NGR 22-009-625	Massachusetts Institute of Technology	2176			
	Study of the Mariner Mars 1969 image data				
	<i>Period</i>	<i>Obligations</i>			
05/19/71-03/31/73	FY74:	TOTAL: \$47,400			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Thomas, T. B.	HQ-SL/Dwornik, S. E.	32-Geological Sci			
	HQ-SL/Allingham, J. W.				
(10-840 384-50-80)					
NGR 22-009-627	Massachusetts Institute of Technology	2177			
	Control of serotonin-containing neurons in the brain, by plasma tryptophan				
	<i>Period</i>	<i>Obligations</i>			
08/04/71-11/01/74	FY74: \$65,000	TOTAL: \$183,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wurtman, R. J.	ARC/Winget, C. M.	53-Other Medical			
Lynch, H. J.					
(21-970 970-21-52)					
NGR 22-009-637	Massachusetts Institute of Technology	2178			
	Volcanic geology photographic field studies of eruption mechanisms				
	<i>Period</i>	<i>Obligations</i>			
06/18/71-05/31/73	FY74:	TOTAL: \$57,532			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
McGetchin, T. R.	HQ-SL/Dwornik, S. E.	32-Geological Sci			
	HQ-SL/Allingham, J. W.				
(10-840 185-50-81)					

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NGR 22-009-646	Massachusetts Institute of Technology	2179			
Lunar sample analysis					
<i>Period</i>	<i>Obligations</i>				
06/16/71-01/31/75	FY74: \$63,900	TOTAL: \$215,700			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Uhlmann, D. R.	JSC/Harris, J. W.	47-Materials Engr			
(72-810 388-10-01)					
NGR 22-009-658	Massachusetts Institute of Technology	2180			
Novel space fastening techniques suitable for assembly and disassembly by teleoperators					
<i>Period</i>	<i>Obligations</i>				
12/06/71-06/30/74	FY74:	TOTAL: \$30,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sheridan, T. B.	HQ-NS/Miller, D. J.	46-Mech Engr			
	HQ-NS/Johnsen, E. G.				
(45-720 112-30-17)					
NGR 22-009-672	Massachusetts Institute of Technology	2181			
Ground-based radar study of the moon and planets					
<i>Period</i>	<i>Obligations</i>				
03/06/72-06/30/74	FY74: \$15,000	TOTAL: \$75,800			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Pettengill, G. H.	HQ-SL/Brunk, W. E.	11-Astronomy			
(10-840 196-41-82)	(10-840 196-00-00)				
NGR 22-009-693	Massachusetts Institute of Technology	2182			
Mission definition for planetary Explorer missions					
<i>Period</i>	<i>Obligations</i>				
03/03/72-07/01/72	FY74:	TOTAL: \$4,700			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Pettengill, G. H.	HQ-SL/Fellows, R. F.	31-Atmos Sci			
(10-840 186-68-63)					
NGR 22-009-694	Massachusetts Institute of Technology	2183			
Planetary Explorer mission definitions					
<i>Period</i>	<i>Obligations</i>				
03/08/72-06/30/73	FY74:	TOTAL: \$5,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Shapiro, I. I.	HQ-SL/Fellows, R. F.	31-Atmos Sci			
(10-840 186-68-63)					
NGR 22-009-701	Massachusetts Institute of Technology	2184			
Integration of visual and motion requirements for flight simulation and ride quality investigation					
<i>Period</i>	<i>Obligations</i>				
05/18/72-05/31/75	FY74: \$75,000	TOTAL: \$200,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Young, L. R.	LARC/Stone, R. W., Jr.	41-Aero Engr			
Curry, R. E.					
Oman, C. M.					
(23-704 504-29-14)	(23-704 501-29-14)				
NGR 22-009-718	Massachusetts Institute of Technology	2185			
Spectroscopic observations of the moon, asteroids and planets from the NASA 91.5 cm airborne radar					
<i>Period</i>	<i>Obligations</i>				
03/01/73-08/31/74	FY74:	TOTAL: \$35,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
McCord, T. B.	ARC/Cameron, R. M.	11-Astronomy			
(21-850 352-02-03)					
NGR 22-009-723	Massachusetts Institute of Technology	2186			
Bosch process and evaluation of Bosch carbon as a sorbent					
<i>Period</i>	<i>Obligations</i>				
09/19/72-09/30/74	FY74: \$22,380	TOTAL: \$44,282			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Quattrone, P. D.	ARC/Quattrone, P. D.	12-Chemistry			
(21-970 970-22-21)					
NGR 22-009-726	Massachusetts Institute of Technology	2187			
Projection of future trends in neuroscience					
<i>Period</i>	<i>Obligations</i>				
10/12/72-05/31/75	FY74: \$15,000	TOTAL: \$45,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Schmitt, F. O.	ARC/Billingham, J.	51-Biology			
Worden, F. G.					
(21-970 970-21-52)					
NGR 22-009-727	Massachusetts Institute of Technology	2188			
Study in numerical modeling of atmospheric phenomena					
<i>Period</i>	<i>Obligations</i>				
02/01/73-01/31/75	FY74: \$80,863	TOTAL: \$155,863			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Charney, J.	GSFC/Halem, M.	31-Atmos Sci			
	GSFC/Somerville, R. C.				
(51-680 611-13-00)	(51-680 408-02-02)	(51-680 408-00-00)			
NGR 22-009-730	Massachusetts Institute of Technology	2189			
X-ray astronomy experiments from sounding rockets					
<i>Period</i>	<i>Obligations</i>				
03/22/72-10/31/74	FY74: \$260,000	TOTAL: \$260,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bradt, H.	HQ-SG/Roman, N. G.	11-Astronomy			
(10-850 879-11-00)					
NGR 22-009-733	Massachusetts Institute of Technology	2190			
Investigation of pilot's role & display requirements in automatic landings					
<i>Period</i>	<i>Obligations</i>				
10/30/72-08/31/74	FY74: \$61,000	TOTAL: \$110,450			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Curry, R. E.	ARC/Wempe, T. E.	59-Life Sci, NEC			
(21-704 501-29-02)	(21-704 504-29-02)				
NGR 22-009-735	Massachusetts Institute of Technology	2191			
Eotvos experiment in earth orbit and related studies					
<i>Period</i>	<i>Obligations</i>				
06/07/73-06/30/74	FY74:	TOTAL: \$100,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Chapman, P. K.	HQ-MT/Hall, H.	13-Physics			
(10-980 908-91-00)					
NGR 22-009-741	Massachusetts Institute of Technology	2192			
Optical and infrared lasers					
<i>Period</i>	<i>Obligations</i>				
12/01/72-01/31/75	FY74: \$45,000	TOTAL: \$90,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Javan, A.	GSFC/Plotkin, H. H.	13-Physics			
(51-704 502-03-11)					

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NGR 22-009-766 Massachusetts Institute of Technology 2193
Monitoring spacecraft atmosphere contaminants by laser absorption spectroscopy

<i>Period</i>	<i>Obligations</i>	
01/01/74-12/30/76	FY74: \$52,555	TOTAL: \$52,555
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Steinfeld, J. I.	ARC/Quattrone, P. D.	12-Chemistry

(21-970 970-22-21)

NGR 22-009-778 Massachusetts Institute of Technology 2194
Low spectral resolution studies by large space telescope

<i>Period</i>	<i>Obligations</i>	
10/01/73-12/31/74	FY74: \$6,145	TOTAL: \$6,145
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCord, T. B.	GSFC/Sobieski, S. GSFC/Levin, G. M.	11-Astronomy

(51-850 188-78-58)

NGR 22-009-781 Massachusetts Institute of Technology 2195
Exploitation of advanced composite materials to lightly loaded structures

<i>Period</i>	<i>Obligations</i>	
04/16/73-01/31/75	FY74: \$29,909	TOTAL: \$59,841
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mar, J. W.	LARC/Kyser, A. C. LARC/Mikulas, M. M.	41-Aero Engr

(23-704 501-02-01) (23-704 501-21-23)

NGR 22-009-782 Massachusetts Institute of Technology 2196
Gust alleviation system for a light airplane

<i>Period</i>	<i>Obligations</i>	
04/23/73-09/30/74	FY74: \$6,000	TOTAL: \$6,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Deyst, J. J., Jr.	LARC/Stewart, E. C.	41-Aero Engr

(23-765 742-73-01)

NGR 22-009-785 Massachusetts Institute of Technology 2197
Guest observer program for the MIT X-ray astronomy experiment on the OSO-7

<i>Period</i>	<i>Obligations</i>	
06/20/73-06/30/74	FY74: \$48,852	TOTAL: \$48,852
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clark, G. W.	HQ-SG/Roman, N. G. GSFC/Ashworth, C. D.	13-Physics

(10-850 385-41-00)

NGR 22-009-786 Massachusetts Institute of Technology 2198
Analysis of satellite plasma data

<i>Period</i>	<i>Obligations</i>	
06/22/73-03/31/74	FY74: \$29,981	TOTAL: \$29,981
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bridge, H. S.	HQ-SG/Kavanagh, L. D., Jr. HQ-SG/Schmerling, E. R.	13-Physics

(10-850 385-36-00)

NGR 22-009-790 Massachusetts Institute of Technology 2199
Remote compositional mapping of the lunar surface

<i>Period</i>	<i>Obligations</i>	
06/22/73-10/31/74	FY74: \$220,000	TOTAL: \$220,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCord, T. B.	HQ-SM/Bryson, R. P.	32-Geological Sci

(10-810 195-42-64)

NGR 22-009-798 Massachusetts Institute of Technology 2200
Role of brain areas controlling eye-head coordination in monkeys

<i>Period</i>	<i>Obligations</i>	
09/01/73-08/31/74	FY74: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bizzi, E.	ARC/Daunton, N. G.	51-Biology

(21-970 970-24-01)

NGR 22-009-799 Massachusetts Institute of Technology 2201
Liquid phase catalytic reforming of organic spacecraft waste

<i>Period</i>	<i>Obligations</i>	
10/01/73-08/15/74	FY74: \$25,000	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Modell, M. Reid, R. C.	ARC/Quattrone, P. D.	12-Chemistry

(21-970 970-22-23)

NGR 22-009-804 Massachusetts Institute of Technology 2202
Analysis of Mariner 9 radio tracking data

<i>Period</i>	<i>Obligations</i>	
07/01/73-12/31/74	FY74: \$80,000	TOTAL: \$80,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shapiro, I. I.	HQ-SL/Fellows, R. F.	31-Atmos Sci

(10-840 384-47-81)

NGR 22-009-805 Massachusetts Institute of Technology 2203
Flow-generated noise and aeroacoustic instabilities in ducts and silencers

<i>Period</i>	<i>Obligations</i>	
09/01/73-08/31/76	FY74: \$45,000	TOTAL: \$45,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ingard, K. U.	LERC/Baumeister, K. J. LERC/Rice, E. J.	41-Aero Engr

(22-704 501-15-83)

NGR 22-009-818 Massachusetts Institute of Technology 2204
Aerodynamics of bird flight

<i>Period</i>	<i>Obligations</i>	
09/01/73-09/01/74	FY74: \$18,580	TOTAL: \$18,580
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Widnall, S. E.	LARC/Hoad, D. R. LARC/Margason, R. J.	41-Aero Engr

(23-702 760-63-02)

NGR 22-009-826 Massachusetts Institute of Technology 2205
Neural orientation growth and maintenance

<i>Period</i>	<i>Obligations</i>	
09/01/73-08/31/74	FY74: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nauta, W. J. Teuber, H. L.	ARC/Daunton, N. G.	51-Biology

(21-970 970-21-11)

NGR 22-009-839 Massachusetts Institute of Technology 2206
Wideband recording system for very long baseline interferometry

<i>Period</i>	<i>Obligations</i>	
04/01/74-03/31/75	FY74: \$38,690	TOTAL: \$38,690
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shapiro, I. I.	GSFC/Clark, T. A.	45-Elec Engr

(51-630 161-02-01) (51-630 161-02-02) (51-630 369-02-02)

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NSG 1018 **Massachusetts Institute of Technology** **2207**
Multiple model adaptive control method for flight control systems

<i>Period</i>	<i>Obligations</i>	
03/06/74-03/05/75	FY74: \$39,000	TOTAL: \$39,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Athens, M.	LARC/Elliott, J. R.	41-Aero Engr
	LARC/Bird, J. D.	

(23-702 766-75-02)

NSG 1048 **Massachusetts Institute of Technology** **2208**
Wet photoelectric cells, conversion, transfer and storage of intense optical energy

<i>Period</i>	<i>Obligations</i>	
05/15/74-05/14/75	FY74: \$59,815	TOTAL: \$59,815
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wrighton, M. S.	LARC/Hess, R. V.	12-Chemistry

(23-704 502-10-01)

NSG 1051 **Massachusetts Institute of Technology** **2209**
Nonlinear aeroelasticity research

<i>Period</i>	<i>Obligations</i>	
06/01/74-05/31/75	FY74: \$36,100	TOTAL: \$36,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dugundji, J.	LARC/Reed, W. H., III	41-Aero Engr
	LARC/Hess, R. W.	

(23-704 501-22-04)

NSG 2010 **Massachusetts Institute of Technology** **2210**
Study of impact of space shuttle on stratospheric ozone

<i>Period</i>	<i>Obligations</i>	
03/01/74-06/30/75	FY74: \$117,000	TOTAL: \$117,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Prinn, R. G.	ARC/Reynolds, R. T.	31-Atmos Sci

(21-920 989-10-00)

NSG 2024 **Massachusetts Institute of Technology** **2211**
Lighter than air vehicles study

<i>Period</i>	<i>Obligations</i>	
05/01/74-04/30/75	FY74: \$74,900	TOTAL: \$74,900
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simpson, R. W.	ARC/Mascy, A. C.	41-Aero Engr

(21-701 791-93-03)

NSG 2032 **Massachusetts Institute of Technology** **2212**
Research on habituation to novel visual-vestibular environments with particular reference to space flight

<i>Period</i>	<i>Obligations</i>	
07/01/74-06/30/75	FY74: \$75,000	TOTAL: \$75,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, L. R.	ARC/Billingham, J.	59-Life Sci, NEC
	ARC/Daunton, N. G.	

(21-970 970-21-11) (21-970 970-24-01)

NSG 3006 **Massachusetts Institute of Technology** **2213**
Turbomachine aeroelasticity

<i>Period</i>	<i>Obligations</i>	
04/01/74-12/31/74	FY74: \$40,000	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kerrebrock, J. L.	LERC/Orange, T. W.	41-Aero Engr
	LERC/Kemp, R. H.	

(22-704 501-01-06)

NSG 3017 **Massachusetts Institute of Technology** **2214**
Silicon surface phenomena related to energy conversion

<i>Period</i>	<i>Obligations</i>	
05/01/74-05/01/75	FY74: \$40,600	TOTAL: \$40,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gatos, H. C.	LERC/Weinberg, I.	13-Physics
	LERC/Brandhorst, H. W., Jr.	

(22-704 502-05-50)

NSG 7010 **Massachusetts Institute of Technology** **2215**
Precision selenodesy and lunar libration

<i>Period</i>	<i>Obligations</i>	
01/01/74-12/31/74	FY74: \$62,500	TOTAL: \$62,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Counselman, C. C., III	HQ-SM/Kosofsky, L. J.	11-Astronomy
Shapiro, I. I.	HQ-SM/Roberson, F. I.	

(10-810 383-20-03)

NSG 7048 **Massachusetts Institute of Technology** **2216**
Structure and composition of a lunar region A synthesis

<i>Period</i>	<i>Obligations</i>	
03/01/74-04/31/75	FY74: \$24,000	TOTAL: \$24,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCord, T. B.	HQ-SM/Kosofsky, L. J.	32-Geological Sci
	HQ-SM/Roberson, F. I.	

(10-810 383-20-02)

NAS 2-7397 **Northeastern University** **2217**
Identification of aircraft stability derivatives

<i>Period</i>	<i>Obligations</i>	
04/02/73-06/30/74	FY74: \$14,458	TOTAL: \$14,458
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bach, R. E., Jr.	ARC/Franklin, J. A.	41-Aero Engr
	ARC/Meyer, G.	

(21-702 766-71-02)

NAS12-2053 **Northeastern University** **2218**
Power thyristor improvement study

<i>Period</i>	<i>Obligations</i>	
06/30/70-02/28/74	FY74:	TOTAL: \$99,792
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Radinodici, B.	LERC/Myers, I.	45-Elec Engr

(22-710 120-00-00) (25-710 120-00-00)

NGR 22-011-070 **Northeastern University** **2219**
Circadian rhythms in brain & behavior

<i>Period</i>	<i>Obligations</i>	
07/01/70-06/30/75	FY74:	TOTAL: \$108,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Terman, M.	ARC/Anliker, J. E.	61-Biol Aspects

(21-970 970-21-52) (21-970 970-21-53) (21-970 970-21-62)

NSG 310 **Northeastern University** **2220**
Studies in magnetohydrodynamics to explain the structure of spiral galaxies

<i>Period</i>	<i>Obligations</i>	
09/01/72-09/01/74	FY74:	TOTAL: \$34,956
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kaula, W. M.	GSFC/Unavailable	11-Astronomy

(51-850 188-00-00)

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

NGR 22-012-026 Tufts University 2221
Investigation of atraumatic techniques for monitoring cardiovascular status and conditioning

<i>Period</i>	<i>Obligations</i>	
03/07/72-09/30/74	FY74: \$15,000	TOTAL: \$65,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Spodick, D. H. (72-970 970-51-12)	JSC/Jackson, M. M. (72-910 914-51-00)	53-Other Medical

NGR 22-012-031 Tufts University 2222
Sound propagation from wind tunnel source

<i>Period</i>	<i>Obligations</i>	
09/01/73-12/31/74	FY74: \$23,666	TOTAL: \$23,666
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cole, J. E. (21-702 743-36-11)	ARC/Ahtye, W. F.	41-Aero Engr

NAS 8-29073 University of Massachusetts - Amherst 2223
Working model of a general purpose end effector for a remote controlled manipulator

<i>Period</i>	<i>Obligations</i>	
06/23/72-06/01/74	FY74:	TOTAL: \$23,360
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Crossley, F. R. (62-720 112-30-13)	MSFC/Patterson, J. W.	46-Mech Engr

NGL 22-010-018 University of Massachusetts - Amherst 2224
Pulse frequency modulation in control systems

<i>Period</i>	<i>Obligations</i>	
03/12/68-01/01/75	FY74:	TOTAL: \$131,575
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Monopoli, R. V. (51-500 310-20-32)	GSFC/Rolinski, A. J.	45-Elec Engr

NGL 22-010-023 University of Massachusetts - Amherst 2225
Theoretical studies of diffuse reflection and transmission of radiation in planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
05/24/67-08/01/74	FY74: \$40,774	TOTAL: \$263,535
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Irvine, W. M. (10-840 196-41-85)	HQ-SL/Brunk, W. E. HQ-SL/Fellows, R. F. (10-840 196-00-00)	11-Astronomy

NGL 22-010-025 University of Massachusetts - Amherst 2226
Study of solar chromosphere from balloon altitudes

<i>Period</i>	<i>Obligations</i>	
10/24/67-08/01/73	FY74: \$40,000	TOTAL: \$536,007
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Strong, J. (10-850 188-38-52)	HQ-SG/Weldon, J. M. HQ-SG/Oertel, G. K.	11-Astronomy

NGL 22-010-089 University of Massachusetts - Amherst 2227
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
03/16/71-01/31/77	FY74: \$20,300	TOTAL: \$79,841
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Haggerty, S. E. (72-810 388-10-01)	JSC/Harris, J. W.	13-Physics

NGR 22-010-039 University of Massachusetts - Amherst 2228
A research program in solar radio physics

<i>Period</i>	<i>Obligations</i>	
10/30/68-08/31/74	FY74: \$50,000	TOTAL: \$380,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hueuenin, G. R. (10-850 188-38-52)	HQ-SG/Weldon, J. M. HQ-SG/Oertel, G. K.	11-Astronomy

NGR 22-010-052 University of Massachusetts - Amherst 2229
Structural analysis of Mare Orientale

<i>Period</i>	<i>Obligations</i>	
05/19/70-07/01/74	FY74:	TOTAL: \$26,248
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McGill, G. E. Wise, D. U. (10-810 383-00-00)	HQ-SM/Bryson, R. P. HQ-SM/Allenby, R. J. (10-810 383-09-50)	32-Geological Sci

NGR 22-010-054 University of Massachusetts - Amherst 2230
Study of Mariner photography for evidences of wind action and related phenomena on Mars

<i>Period</i>	<i>Obligations</i>	
03/19/70-12/31/74	FY74:	TOTAL: \$11,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hartshorn, J. H. (10-840 384-50-80)	HQ-SL/Dwormik, S. E. (10-840 384-00-00)	32-Geological Sci

NGR 22-010-076 University of Massachusetts - Amherst 2231
Reconnaissance study of large geologic ring structures on Mars

<i>Period</i>	<i>Obligations</i>	
05/19/70-10/31/74	FY74: \$23,999	TOTAL: \$71,624
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McGill, G. E. Wise, D. U. (10-840 384-50-80)	HQ-SL/Dwormik, S. E. HQ-SL/Holt, H. E. (10-840 384-00-00)	32-Geological Sci

NAS 9-12563 Woods Hole Oceanographic Institute 2232
Gravity and crystal structure data analysis

<i>Period</i>	<i>Obligations</i>	
04/28/72-07/01/75	FY74: \$22,310	TOTAL: \$94,310
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bowin, C. (72-810 383-30-02)	JSC/Hardee, N.	32-Geological Sci

NAS 9-12564 Woods Hole Oceanographic Institute 2233
Volcanology and morphology data analysis

<i>Period</i>	<i>Obligations</i>	
04/28/72-07/01/75	FY74:	TOTAL: \$54,722
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bryan, W. B. (72-910 914-49-00)	JSC/Hardee, N.	32-Geological Sci

NGR 22-017-024 Worcester Polytechnic Institute 2234
Production of edible carbohydrates from formaldehyde in a spacecraft

<i>Period</i>	<i>Obligations</i>	
01/17/73-12/01/74	FY74: \$6,000	TOTAL: \$21,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weiss, A. H. (21-970 970-22-24)	ARC/Quattrone, P. D.	12-Chemistry

**NASA'S UNIVERSITY PROGRAM
MICHIGAN**

MICHIGAN

NAS 1-6860 Michigan State University 2235
 Beam time on 48 MeV accelerators
Period 11/01/67-11/01/77 *Obligations* FY74: TOTAL: \$6,840
Prin. Invest. Unavailable *NASA Tech. Officer* LARC/Unavailable *CASE Category* 13-Physics
 (23-742 124-00-00)

NAS 5-21834 Michigan State University 2236
 ERTS-A data user investigation of multidisciplinary analysis of Michigan resources
Period 08/17/72-10/01/74 *Obligations* FY74: TOTAL: \$90,469
Prin. Invest. Anderson, A. *NASA Tech. Officer* GSFC/Szajna, E. F. *CASE Category* 39-Env Sci, NEC
 (51-680 641-14-01)

NAS 9-13332 Michigan State University 2237
 Earth resources experiment on Skylab
Period 04/25/72-09/30/74 *Obligations* FY74: TOTAL: \$126,000
Prin. Invest. Manderscheid, L. V. *NASA Tech. Officer* JSC/Forbes, C. D. *CASE Category* 19-Phys Sci, NEC
 (72-960 948-63-82)

NGL 23-004-083 Michigan State University 2238
 Use of remote sensing for land use policy formulation
Period 06/08/72-05/31/77 *Obligations* FY74: \$110,000 TOTAL: \$440,000
Prin. Invest. Boylan, M. G. *NASA Tech. Officer* HQ-PY/Vitale, J. A. *CASE Category* 39-Env Sci, NEC
 (10-371 340-00-00)

NGR 23-004-069 Michigan State University 2239
 Life detection based on soil atmosphere analysis
Period 08/27/70-06/30/73 *Obligations* FY74: TOTAL: \$96,300
Prin. Invest. Erickson, A. E. *NASA Tech. Officer* HQ-SL/Young, R. S. *CASE Category* 51-Biology
 (10-840 192-55-63)

NGR 23-004-085 Michigan State University 2240
 Application of wave mechanics theory to fluid dynamic problems
Period 06/14/72-06/14/74 *Obligations* FY74: TOTAL: \$50,000
Prin. Invest. Krzywoblocki, M. Z. *NASA Tech. Officer* LARC/Weinstein, L. M. *CASE Category* 41-Aero Engr
 LARC/Young, W. H., Jr.
 (23-760 136-00-00)

NGR 23-004-089 Michigan State University 2241
 Experimental investigation of the initial condition effects on a turbulent shear layer
Period 05/09/73-06/30/74 *Obligations* FY74: TOTAL: \$3,000
Prin. Invest. Foss, J. F. *NASA Tech. Officer* LARC/Morrisette, E. L. *CASE Category* 41-Aero Engr
 (23-704 501-06-08)

NGR 23-004-091 Michigan State University 2242
 Structure of a large angle oblique jet impingement flow
Period 11/01/73-11/30/74 *Obligations* FY74: \$18,000 TOTAL: \$18,000
Prin. Invest. Foss, J. F. *NASA Tech. Officer* LARC/Hardin, J. C. *CASE Category* 13-Physics
 (23-704 501-04-01)

NAS 9-14195 Oakland University 2243
 Investigation of correlation classification techniques
Period 07/01/74-07/01/75 *Obligations* FY74: \$64,800 TOTAL: \$64,800
Prin. Invest. Haskell, R. E. *NASA Tech. Officer* JSC/Dragg, J. L. *CASE Category* 21-Mathematics
 JSC/Trichel, M. C.
 (72-680 177-32-9X)

NAS 2-6057 University of Michigan - Ann Arbor 2244
 Vestibular research in space
Period 06/30/70-10/31/74 *Obligations* FY74: \$37,041 TOTAL: \$145,828
Prin. Invest. Von Baumgarten A, R. *NASA Tech. Officer* ARC/Schillinger, G. *CASE Category* 61-Biol Aspects
 J. Baldrighi, G. G. *ARC/Tremor, J. W.*
 (21-970 970-21-61) (21-970 970-00-00)

NAS 2-7877 University of Michigan - Ann Arbor 2245
 Design and development of an electron temperature probe
Period 10/23/73-07/10/74 *Obligations* FY74: \$45,000 TOTAL: \$45,000
Prin. Invest. Nagy, A. F. *NASA Tech. Officer* ARC/Wilhelmi, A. J. *CASE Category* 31-Atmos Sci
 ARC/Hall, C. F.
 (21-840 186-68-63)

NAS 5-11073 University of Michigan - Ann Arbor 2246
 Omegatron mass spectrometer system for the San Marco /C/ satellite
Period 06/30/67-08/31/74 *Obligations* FY74: \$38,757 TOTAL: \$698,298
Prin. Invest. Carignan, G. R. *NASA Tech. Officer* GSFC/Spencer, N. W. *CASE Category* 13-Physics
 (51-840 185-47-56) (51-850 874-31-00) (51-850 894-12-00)

NAS 5-11128 University of Michigan - Ann Arbor 2247
 Two flight tests of a quadrupole mass spectrometer system
Period 06/06/69-07/31/75 *Obligations* FY74: \$62,000 TOTAL: \$401,523
Prin. Invest. Carignan, G. R. *NASA Tech. Officer* GSFC/Niemann, H. B. *CASE Category* 31-Atmos Sci
 GSFC/Cooley, J. E.
 (51-680 175-61-41) (51-840 185-47-52) (51-840 185-47-54)

NAS 5-11174 University of Michigan - Ann Arbor 2248
 IMP-I radio astronomy experiment
Period 05/08/69-08/31/73 *Obligations* FY74: TOTAL: \$362,000
Prin. Invest. Haddock, F. T. *NASA Tech. Officer* GSFC/Madden, J. J. *CASE Category* 13-Physics
 (51-850 861-52-00)

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

NAS 5-11309	University of Michigan - Ann Arbor	2249		
Aeros A-2 neutral atmosphere temperature experiment				
<i>Period</i>	<i>Obligations</i>			
06/30/70-08/15/75	FY74: \$40,000	TOTAL: \$694,392		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Carignan, G. R.	GSFC/Pelz, D. T.	11-Astronomy		
Caldwell, J.				
(51-850 874-32-00)				
NAS 5-11376	University of Michigan - Ann Arbor	2250		
AE-C, D, & E Pelz experiment				
<i>Period</i>	<i>Obligations</i>			
01/07/71-01/07/76	FY74: \$143,000	TOTAL: \$855,750		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Carignan, G. R.	GSFC/Pelz, D. T.	31-Atmos Sci		
(51-850 852-22-00)				
NAS 5-11380	University of Michigan - Ann Arbor	2251		
AE-C, D, and E neutral temperature experiment				
<i>Period</i>	<i>Obligations</i>			
02/03/71-06/30/77	FY74: \$181,000	TOTAL: \$706,818		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Carignan, G. R.	GSFC/Spencer, N. W.	31-Atmos Sci		
(51-830 490-01-04)	(51-850 852-22-00)			
NAS 5-20622	University of Michigan - Ann Arbor	2252		
Nitric oxide detector				
<i>Period</i>	<i>Obligations</i>			
06/18/74-01/30/75	FY74: \$60,000	TOTAL: \$60,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	GSFC/	43-Chem Engr		
(51-680 607-12-00)				
NAS 5-21038	University of Michigan - Ann Arbor	2253		
A program of aeronomical research utilizing the thermosphere probe				
<i>Period</i>	<i>Obligations</i>			
06/17/69-07/31/74	FY74:	TOTAL: \$880,300		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Carignan, G. R.	GSFC/Spencer, N. W.	31-Atmos Sci		
(51-850 879-11-00)				
NAS 5-21147	University of Michigan - Ann Arbor	2254		
Pitot tube rocket payloads				
<i>Period</i>	<i>Obligations</i>			
03/02/70-05/15/74	FY74:	TOTAL: \$679,686		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Horvath, R.	GSFC/Wright, D. U., Jr.	31-Atmos Sci		
(51-680 607-00-00)				
NAS 5-23006	University of Michigan - Ann Arbor	2255		
Atmosphere Explorer visual airglow photometer				
<i>Period</i>	<i>Obligations</i>			
08/24/71-06/30/77	FY74: \$209,000	TOTAL: \$839,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Hays, P. B.	GSFC/Findlay, J. A.	31-Atmos Sci		
Carignan, G. R.				
Shepherd, G. G.				
(51-850 852-22-00)				
NAS 5-23230	University of Michigan - Ann Arbor	2256		
Program of aeronautical research utilizing thermosphere probe				
<i>Period</i>	<i>Obligations</i>			
06/18/73-06/18/76	FY74: \$101,927	TOTAL: \$186,927		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Carignan, G. R.	GSFC/Spencer, N. W.	31-Atmos Sci		
(51-850 879-11-00)				
NAS 5-23267	University of Michigan - Ann Arbor	2257		
Pulse circuitry for application to spark chambers				
<i>Period</i>	<i>Obligations</i>			
06/21/73-06/30/74	FY74: \$8,000	TOTAL: \$17,354		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
MacNee, A. B.	GSFC/Trainor, J. H.	13-Physics		
(51-850 188-46-54)	(51-850 188-78-51)			
NAS 5-23310	University of Michigan - Ann Arbor	2258		
Lower atmosphere composition experiment				
<i>Period</i>	<i>Obligations</i>			
10/29/73-08/31/74	FY74: \$97,000	TOTAL: \$97,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Unavailable	GSFC/Spencer	31-Atmos Sci		
(51-840 186-68-63)				
NAS 8-20228	University of Michigan - Ann Arbor	2259		
Investigation and study of transient heat transfer.				
<i>Period</i>	<i>Obligations</i>			
06/30/65-10/31/73	FY74: \$1,458	TOTAL: \$371,462		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Merte, H., Jr.	MSFC/Littles, J. W.	49-Engr, NEC		
(62-710 113-31-12)	(62-910 933-33-00)			
NAS 8-28294	University of Michigan - Ann Arbor	2260		
Potential environment problems relative to the space shuttle operations				
<i>Period</i>	<i>Obligations</i>			
04/06/72-01/05/74	FY74:	TOTAL: \$99,967		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Cicerone, R. J.	MSFC/Devries, L. L.	13-Physics		
(62-980 909-52-47)	(62-980 908-52-47)			
NAS 8-30625	University of Michigan - Ann Arbor	2261		
Environmental impact of OSS launch vehicle and propulsion programs				
<i>Period</i>	<i>Obligations</i>			
05/01/74-11/01/74	FY74: \$25,250	TOTAL: \$25,250		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Stedman, D. H.	MSFC/Devries, L. L.	31-Atmos Sci		
Nelson, A.	MSFC/Kaufman, J. W.			
(62-830 180-70-50)				
NGI 23-005-005	University of Michigan - Ann Arbor	2262		
Research on heat resistant alloys for use in supersonic aircrafts				
<i>Period</i>	<i>Obligations</i>			
12/15/60-07/01/74	FY74:	TOTAL: \$598,006		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Wilson, D. J.	LERC/Freche, J. C.	47-Materials Engr		
	LERC/Harf, F. H.			
(10-740 129-00-00)	(22-760 720-00-00)			

NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)

NGL 23-005-010 University of Michigan - Ann Arbor 2263
Structural analysis of aircraft tires

<i>Period</i>	<i>Obligations</i>	
02/01/63-12/31/75	FY74:	TOTAL: \$357,731
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clark, S. R.	LARC/McCarty, J. L.	41-Aero Engr
(23-740 114-08-05)	(23-760 126-00-00)	(23-763 133-61-12)

NGL 23-005-183 University of Michigan - Ann Arbor 2264
Microwave device investigations

<i>Period</i>	<i>Obligations</i>	
12/09/69-09/01/73	FY74:	TOTAL: \$440,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Haddad, G. I.	GSFC/Hughes, W. E.	45-Elec Engr
(25-750 125-00-00)	(51-750 125-00-00)	

NGL 23-005-275 University of Michigan - Ann Arbor 2265
Solar research program of McMath-Hulbert Observatory and improvement of photoheliographic telescope

<i>Period</i>	<i>Obligations</i>	
04/08/68-03/31/75	FY74: \$40,000	TOTAL: \$445,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mohler, O. C.	HQ-SG/Weldon, J. M.	11-Astronomy
	HQ-SG/Oertel, G. K.	
(10-850 188-38-52)	(10-850 188-00-00)	

NGL 23-005-336 University of Michigan - Ann Arbor 2266
Two-phase detonation as related to rocket motor combustion instability

<i>Period</i>	<i>Obligations</i>	
04/11/69-01/01/75	FY74:	TOTAL: \$342,405
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nicholls, J. A.	LERC/Priem, R. J.	46-Mech Engr
(22-710 128-00-00)	(22-710 113-31-08)	

NGR 23-005-015 University of Michigan - Ann Arbor 2267
Theoretical investigation of space charge waves in ionosphere and space plasma sheaths

<i>Period</i>	<i>Obligations</i>	
10/28/63-09/30/74	FY74: \$105,000	TOTAL: \$892,805
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nagy, A. F.	HQ-SG/Schmerling, E. R.	31-Atmos Sci
	HQ-SG/Kavanagh, L. D., Jr.	
(10-850 188-36-56)	(10-850 385-36-00)	

NGR 23-005-094 University of Michigan - Ann Arbor 2268
An investigation of plasma kinetics, with emphasis on the interaction between rarefied plasmas and moving bodies

<i>Period</i>	<i>Obligations</i>	
06/26/64-04/30/75	FY74: \$30,902	TOTAL: \$284,228
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liu, V. C.	HQ-SL/Fellows, W. R.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	
(10-840 185-47-81)	(10-840 185-00-00)	

NGR 23-005-185 University of Michigan - Ann Arbor 2269
Application of new bioelectronics to cardiovascular stresses

<i>Period</i>	<i>Obligations</i>	
05/13/66-09/30/73	FY74: \$6,536	TOTAL: \$234,736
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
French, J. R., Jr.	HQ-JG/Arnoldi, L. B.	53-Other Medical
Campbell, D.	HQ-JG/Mockbee, J. C.	
Vickers, R.		
(10-030 010-00-00)		

NGR 23-005-320 University of Michigan - Ann Arbor 2270
Theoretical and experimental studies of spacecraft space plasma interactions

<i>Period</i>	<i>Obligations</i>	
01/29/69-10/31/74	FY74: \$45,000	TOTAL: \$252,557
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Samir, U.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics
	HQ-SG/Schmerling, E. R.	
(10-850 188-36-56)		

NGR 23-005-360 University of Michigan - Ann Arbor 2271
A program in aeronomy

<i>Period</i>	<i>Obligations</i>	
12/29/69-06/30/74	FY74: \$120,000	TOTAL: \$728,101
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sharp, W. E.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics
Hays, P. B.	HQ-SG/Ott, E. J.	
(10-850 879-11-00)	(10-850 879-00-00)	

NGR 23-005-464 University of Michigan - Ann Arbor 2272
Optical studies of galactic X-ray sources

<i>Period</i>	<i>Obligations</i>	
03/02/71-02/28/75	FY74: \$13,991	TOTAL: \$55,983
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hiltner, W. A.	HQ-SG/Bogges, N. W.	11-Astronomy
	HQ-SG/Roman, N. G.	
(10-850 385-41-00)	(10-850 188-41-51)	

NGR 23-005-523 University of Michigan - Ann Arbor 2273
Study of flow near the foot of a weak shock terminating a region of supersonic flow

<i>Period</i>	<i>Obligations</i>	
04/20/72-04/30/75	FY74: \$31,178	TOTAL: \$88,178
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Adamson, T. C., Jr.	LARC/Czarnecki, K. R.	41-Aero Engr
Sichel, M.		
(23-704 501-06-05)	(23-702 760-64-60)	

NGR 23-005-528 University of Michigan - Ann Arbor 2274
Fiber-reinforced solids possessing great fracture toughness & the role of interfacial strength

<i>Period</i>	<i>Obligations</i>	
07/26/72-08/01/74	FY74:	TOTAL: \$29,379
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Atkins, A. G.	LARC/Fichter, W. B.	46-Mech Engr
(23-704 501-22-02)		

NGR 23-005-536 University of Michigan - Ann Arbor 2275
Ignition of metals, lubricants, and contaminants in oxygen-rich atmospheres

<i>Period</i>	<i>Obligations</i>	
07/01/72-12/31/74	FY74: \$25,000	TOTAL: \$70,400
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nicholls, J. A.	LERC/Priem, R. J.	46-Mech Engr
Adamson, T. C., Jr.		
(22-741 111-05-02)	(22-704 502-28-04)	

NGR 23-005-537 University of Michigan - Ann Arbor 2276
Application of mossbauer spectroscopy to the determination of source material and thermal histories of tektites

<i>Period</i>	<i>Obligations</i>	
06/23/72-05/31/75	FY74: \$23,000	TOTAL: \$45,494
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Evans, B. J.	HQ-SM/Bryson, R. P.	32-Geological Sci
(10-810 195-42-67)		

NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)

NGR 23-005-538 University of Michigan - Ann Arbor 2277
Transmissivity of the 2935 YM carbon monoxide band
Period Obligations
11/16/71-11/30/72. FY74: \$5 TOTAL: \$20,105
Prin. Invest. NASA Tech. Officer CASE Category
Bartman, F. L. LARC/Russell, J. M., III 31-Atmos Sci
(23-680 160-44-64) (23-680 160-20-56)

NGR 23-005-540 University of Michigan - Ann Arbor 2278
Experimental and theoretical study of sound from meteors
Period Obligations
01/07/72-12/31/74 FY74: \$34,000 TOTAL: \$69,000
Prin. Invest. NASA Tech. Officer CASE Category
Bartman, F. L. HQ-SG/Dubin, M. 31-Atmos Sci
Revelle, D. O. HQ-SM/Bryson, R. P.
(10-850 188-45-52)

NGR 23-005-543 University of Michigan - Ann Arbor 2279
Basic research in solar physics
Period Obligations
11/17/72-12/31/74 FY74: TOTAL: \$15,664
Prin. Invest. NASA Tech. Officer CASE Category
Teske, R. G. HQ-SG/Weldon, J. M. 11-Astronomy
(10-850 188-38-52)

NGR 23-005-549 University of Michigan - Ann Arbor 2280
OGO-V solar radio burst analysis
Period Obligations
08/22/72-12/31/73 FY74: TOTAL: \$49,993
Prin. Invest. NASA Tech. Officer CASE Category
Haddock, F. T. HQ-SG/Oertel, G. K. 11-Astronomy
(10-850 385-38-00)

NGR 23-005-561 University of Michigan - Ann Arbor 2281
OGO-VI data analysis
Period Obligations
08/07/72-09/30/74 FY74: \$18,307 TOTAL: \$78,307
Prin. Invest. NASA Tech. Officer CASE Category
Carignan, G. R. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.
(10-840 384-47-81) (10-840 384-00-00)

NGR 23-005-563 University of Michigan - Ann Arbor 2282
Studies on the polar CO2 ice caps of Mars
Period Obligations
06/23/72-08/31/74 FY74: \$13,000 TOTAL: \$32,186
Prin. Invest. NASA Tech. Officer CASE Category
Smith, C. I. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Allingham, J. W.
(10-840 384-50-80) (10-840 185-00-00)

NGR 23-005-599 University of Michigan - Ann Arbor 2283
Determination of hydrochloride in air
Period Obligations
05/09/73-05/31/74 FY74: TOTAL: \$13,000
Prin. Invest. NASA Tech. Officer CASE Category
Stedman, D. H. LARC/Lanford, W. E. 12-Chemistry
(23-830 180-72-50)

NGR 23-005-600 University of Michigan - Ann Arbor 2284
Boundary-layer transition in hypersonic nozzles -phase I;
documentation and verification
Period Obligations
10/01/73-09/30/74 FY74: \$9,966 TOTAL: \$9,966
Prin. Invest. NASA Tech. Officer CASE Category
Nicholls, J. A. LARC/Beckwith, I. E. 41-Aero Engr
(23-704 501-06-07)

NGR 23-005-602 University of Michigan - Ann Arbor 2285
Study of genetic direct-search algorithms for function optimization
Period Obligations
04/23/73-04/22/74 FY74: TOTAL: \$15,190
Prin. Invest. NASA Tech. Officer CASE Category
Zeigler, B. P. LARC/Tripp, J. S. 49-Engr, NEC
(23-701 599-85-00)

NGR 23-005-603 University of Michigan - Ann Arbor 2286
Wear of multiphase materials
Period Obligations
09/15/73-03/14/75 FY74: \$16,800 TOTAL: \$16,800
Prin. Invest. NASA Tech. Officer CASE Category
Ludema, K. C. LERC/Buckley, D. H. 47-Materials Engr
LERC/Johnson, R. L.
(22-704 501-15-83)

NGR 23-005-616 University of Michigan - Ann Arbor 2287
Photochemistry of the upper atmosphere
Period Obligations
01/01/74-09/30/74 FY74: \$29,560 TOTAL: \$29,560
Prin. Invest. NASA Tech. Officer CASE Category
Stolarski, R. S. JSC/Hudson, R. D. 31-Atmos Sci
Cicerone, R. J. JSC/Robbins, D. E.
(72-704 502-24-82)

NGR 23-005-617 University of Michigan - Ann Arbor 2288
Computer programs for the calculation of atmospherical infrared transmittance
Period Obligations
11/12/73-11/01/74 FY74: \$26,166 TOTAL: \$26,166
Prin. Invest. NASA Tech. Officer CASE Category
Drayson, S. R. LARC/Reichle, H. G., Jr. 31-Atmos Sci
LARC/Orr, H. D.
(23-680 160-44-64)

NGR 23-005-622 University of Michigan - Ann Arbor 2289
Theory of reliable systems
Period Obligations
01/01/74-12/31/74 FY74: \$40,000 TOTAL: \$40,000
Prin. Invest. NASA Tech. Officer CASE Category
Meyer, J. E. LARC/Bavuso, S. J. 21-Mathematics
LARC/Pitts, F. L.
(23-704 501-23-32)

NSG 1003 University of Michigan - Ann Arbor 2290
Measurement of ozone transmissivity at low temperature
Period Obligations
03/01/74-05/31/75 FY74: \$39,322 TOTAL: \$39,322
Prin. Invest. NASA Tech. Officer CASE Category
Drayson, S. R. LARC/Russell, J. M., III 31-Atmos Sci
Kuhn, W. R. LARC/Davis, R. E.
Chaney, L. W.
(23-680 176-21-31)

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

NSG 1080 University of Michigan - Ann Arbor 2291
Definition of tire properties for landing system analyses
Period *Obligations*
09/01/74-08/31/75 FY74: \$38,462 TOTAL: \$38,462
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Clark, S. K. LARC/McCarty, J. L. 41-Aero Engr
(23-740 134-14-01) (23-763 133-61-16)

NSG 2018 University of Michigan - Ann Arbor 2292
GRAD research aeronautics program
Period *Obligations*
04/01/74-04/01/75 FY74: \$59,562 TOTAL: \$59,562
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Buning, H. ARC/Feistel, T. W. 41-Aero Engr
Kuethe, A. M. ARC/Maki, R. L.
Leshner, E. J.
(21-702 760-60-01) (21-704 501-26-04)

NSG 7004 University of Michigan - Ann Arbor 2293
IMP-6 solar radio burst analysis
Period *Obligations*
11/01/73-11/08/74 FY74: \$88,703 TOTAL: \$88,703
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Haddock, F. T. HQ-SG/Oertel, G. K. 11-Astronomy
HQ-SG/Weldon, J. M.
(10-850 385-38-00)

NSR 23-005-364 University of Michigan - Ann Arbor 2294
Analysis & synthesis of manual control system
Period *Obligations*
04/21/70-12/31/73 FY74: TOTAL: \$257,617
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Howe, R. M. LARC/Adams, J. A. 99-Multi-Discip
Pew, R. W.
(10-750 125-00-00) (23-770 137-51-02) (23-770 127-00-00)

NSR 23-005-376 University of Michigan - Ann Arbor 2295
High altitude radiation measurements
Period *Obligations*
05/04/70-05/30/74 FY74: TOTAL: \$452,673
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bartman, F. L. GSFC/Wexler, R. 31-Atmos Sci
Kuhn, W. R.
Chaney, L. W.
(51-680 160-44-54) (51-680 160-00-00)

NAS 8-29823 Wayne State University 2296
Electrophoretic separation of proteins in space
Period *Obligations*
05/15/73-09/15/74 FY74: \$25,000 TOTAL: \$75,880
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brown, R. K. MSFC/Allen, R. E. 47-Materials Engr
MSFC/Scott, F. E.
(62-630 162-01-02)

NGR 23-006-057 Wayne State University 2297
Study of effects of guard ring structures of excess junction current
in silicon solar cells
Period *Obligations*
03/10/72-10/01/74 FY74: TOTAL: \$26,814
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wang, E. Y. LERC/Brandhorst, H. W., Jr. 45-Elec Engr
(22-704 502-05-50)

NGR 23-006-063 Wayne State University 2298
NASA/WSU internship laser power solar cell research
Period *Obligations*
04/10/73-09/27/74 FY74: \$21,200 TOTAL: \$21,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wang, E. Y. LERC/Dunning, J. W., Jr. 45-Elec Engr
(22-704 502-05-50)

NSG 2008 Wayne State University 2299
Mathematical models of in vivo measurement of human ulnar
strength
Period *Obligations*
02/01/74-02/01/75 FY74: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Orne, D. ARC/Young, D. R. 53-Other Medical
(21-970 970-21-14) (21-970 970-21-17)

NSG 3014 Wayne State University 2300
Solar energy research
Period *Obligations*
06/19/74-12/18/75 FY74: \$11,060 TOTAL: \$11,060
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wang, E. Y. LERC/Brandhorst, H. W., Jr. 13-Physics
LERC/Bernatowicz, D. T.
(22-704 502-05-50)

MINNESOTA

NAS 1-9697 Univ of Minnesota - Minneapolis-St Paul 2301
Participation in the science planning for the Viking 1975 missions
in the area of entry science
Period *Obligations*
03/20/70-03/31/77 FY74: \$96,619 TOTAL: \$290,519
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nier, A. O. LARC/Soffen, G. A. 31-Atmos Sci
(23-840 815-20-00)

NAS 1-11676 Univ of Minnesota - Minneapolis-St Paul 2302
Fabrication, testing, and calibration of flight mass spectrometers
for dual air density project
Period *Obligations*
06/16/72-08/26/75 FY74: \$145,999 TOTAL: \$505,731
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nier, A. O. LARC/Melfi, L. T., Jr. 31-Atmos Sci
Mauersberger, K. LARC/Prior, E. J.
(23-850 863-11-00)

NAS 2-7900 Univ of Minnesota - Minneapolis-St Paul 2303
Design and development of a neutral mass spectrometer
Period *Obligations*
10/01/73-07/10/74 FY74: \$20,666 TOTAL: \$20,666
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Von Zahn, U. ARC/Polaski, L. J. 31-Atmos Sci
Nier, A. O. ARC/Hall, C. F.
Mauersberger, K.
(21-840 186-68-63)

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

NAS 5-3838 Univ of Minnesota - Minneapolis-St Paul 2304
Zodiacal light experiment

<i>Period</i>	<i>Obligations</i>	
06/25/64-06/30/74	FY74: TOTAL: \$489,581	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Epney, O.	GSFC/Staff, W. O.	13-Physics
(51-850 821-22-00)		

NAS 5-11173 Univ of Minnesota - Minneapolis-St Paul 2305
Magnetic fields experiment for S3

<i>Period</i>	<i>Obligations</i>	
10/22/68-06/30/75	FY74: \$50,000 TOTAL: \$391,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cahill, L. J., Jr.	GSFC/Sizemore, K. O.	49-Engr, NEC
(51-850 857-12-00)		

NAS 5-11310 Univ of Minnesota - Minneapolis-St Paul 2306
Ac electric fields experiment Helios

<i>Period</i>	<i>Obligations</i>	
06/29/70-06/30/76	FY74: \$120,000 TOTAL: \$961,555	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kellogg, P. J.	GSFC/White, C. E.	13-Physics
(51-840 823-12-00)		

NAS 5-11438 Univ of Minnesota - Minneapolis-St Paul 2307
Open source neutral mass spectrometers for AE spacecraft, missions C, D, & E

<i>Period</i>	<i>Obligations</i>	
06/15/71-06/30/77	FY74: \$180,000 TOTAL: \$752,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nier, A. O.	GSFC/Findlay, J. A.	31-Atmos Sci
(51-850 852-22-00)		

NAS 5-11687 Univ of Minnesota - Minneapolis-St Paul 2308
Study of particle acceleration mechanisms for the ATS-F

<i>Period</i>	<i>Obligations</i>	
05/21/69-05/30/76	FY74: \$24,000 TOTAL: \$574,683	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Winckler, J. R.	GSFC/Wainscott, F. H.	49-Engr, NEC
(51-620 630-22-00)		

NAS 5-23273 Univ of Minnesota - Minneapolis-St Paul 2309
Data reduction & analysis from electromagnetic field experiment aboard the IMP-I satellite

<i>Period</i>	<i>Obligations</i>	
06/30/73-10/30/73	FY74: TOTAL: \$20,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kellogg, P. J.	GSFC/Davis, M. A.	13-Physics
Cartwright, D. G.		
(51-850 861-52-00)		

NAS 8-27977 Univ of Minnesota - Minneapolis-St Paul 2310
Design, development, & operation of Cerenkov portion of the ACR-7 heavy nuclei experiment under the HEAO program

<i>Period</i>	<i>Obligations</i>	
06/16/72-02/15/78	FY74: TOTAL: \$275,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Waddington, C. J.	MSFC/Krome, H. O.	11-Astronomy
	MSFC/Cochran, J.	
(62-850 832-12-00)		

NAS 9-12560 Univ of Minnesota - Minneapolis-St Paul 2311
Storage stability & improvement of intermediate moisture foods

<i>Period</i>	<i>Obligations</i>	
03/23/72-03/17/77	FY74: \$25,000 TOTAL: \$100,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Labuza, T. P.	JSC/Heidelbaugh, N. D.	59-Life Sci, NEC
(72-970 970-52-24)	(72-970 970-51-14)	

NGL 24-005-008 Univ of Minnesota - Minneapolis-St Paul 2312
Analytic and experimental research in space physics including balloon and rocket flight experiments

<i>Period</i>	<i>Obligations</i>	
08/20/62-06/30/75	FY74: TOTAL: \$4,196,132	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Winckler, J. R.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics
	HQ-SG/Roman, N. G.	
(10-850 188-36-55)	(10-850 188-41-55)	(10-850 188-00-00)

NGL 24-005-009 Univ of Minnesota - Minneapolis-St Paul 2313
Development and application of mass spectrometers to studies of earths upper atmosphere and planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
08/01/62-05/31/76	FY74: TOTAL: \$1,175,189	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nier, A. O.	HQ-SL/Fellows, R. F.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	
(10-840 185-00-00)	(10-840 185-47-80)	

NGL 24-005-160 Univ of Minnesota - Minneapolis-St Paul 2314
Investigation of environmental microbiology as related to planetary quarantine

<i>Period</i>	<i>Obligations</i>	
06/13/68-05/31/76	FY74: TOTAL: \$1,225,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pflug, I. J.	HQ-SL/Hall, L. B.	51-Biology
	HQ-SL/Gallagher, S. G.	
(10-840 193-58-61)	(10-870 189-00-00)	(10-870 191-00-00)

NGL 24-005-225 Univ of Minnesota - Minneapolis-St Paul 2315
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
01/26/71-01/31/77	FY74: \$94,900 TOTAL: \$380,660	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pepin, R. O.	JSC/Harris, J. W.	13-Physics
(72-810 388-10-02)		

NGL 24-005-263 Univ of Minnesota - Minneapolis-St Paul 2316
Study of Minnesota forests and lakes using data from earth resources technology satellites

<i>Period</i>	<i>Obligations</i>	
07/06/72-06/30/76	FY74: TOTAL: \$150,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cahill, L. J., Jr.	HQ-PY/Vitale, J. A.	39-Env Sci, NEC
(10-371 340-00-00)		

NGR 24-005-006 Univ of Minnesota - Minneapolis-St Paul 2317
Computer analysis of circadian rhythms

<i>Period</i>	<i>Obligations</i>	
07/01/63-06/01/74	FY74: TOTAL: \$692,500	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Halberg, F.	ARC/Winget, C. M.	61-Biol Aspects
(10-870 189-00-00)	(21-870 189-00-00)	

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

NGR 24-005-050 Univ of Minnesota - Minneapolis-St Paul 2318
Measurement of the gamma ray flux of various celestial point sources from high altitude balloons

<i>Period</i>	<i>Obligations</i>	
04/21/65-09/30/74	FY74: \$45,105	TOTAL: \$547,887
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Waddington, C. J. (10-850 188-46-56)	HQ-SG/Opp, A. G. (10-850 188-46-54)	11-Astronomy

NGR 24-005-111 Univ of Minnesota - Minneapolis-St Paul 2319
Electron radar techniques as a probe of the trapped radiation belts

<i>Period</i>	<i>Obligations</i>	
09/29/66-09/14/74	FY74:	TOTAL: \$529,591
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Winckler, J. R. (10-850 879-11-00)	HQ-SG/Kavanagh, L. D., Jr. (10-850 879-00-00)	13-Physics

NGR 24-005-196 Univ of Minnesota - Minneapolis-St Paul 2320
Studying the neutral constituents of the polar atmospheres above 100 km during calendar year 1970

<i>Period</i>	<i>Obligations</i>	
03/16/70-12/31/74	FY74:	TOTAL: \$210,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nier, A. O. (10-850 879-11-00)	HQ-SG/Dubin, M. (10-850 879-00-00)	11-Astronomy

NGR 24-005-223 Univ of Minnesota - Minneapolis-St Paul 2321
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
05/22/71-01/31/75	FY74: \$72,000	TOTAL: \$233,750
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Murthy, V. R. (72-810 388-10-02)	JSC/Harris, J. W.	13-Physics

NGR 24-005-248 Univ of Minnesota - Minneapolis-St Paul 2322
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
08/03/71-01/31/75	FY74: \$52,485	TOTAL: \$187,145
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Banerjee, S. K. (72-810 388-10-03)	JSC/Harris, J. W.	32-Geological Sci

NGR 24-005-253 Univ of Minnesota - Minneapolis-St Paul 2323
Particle and field studies of the magnetosphere

<i>Period</i>	<i>Obligations</i>	
11/01/71-06/30/75	FY74: \$92,000	TOTAL: \$308,186
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cahill, L. J., Jr. (10-850 879-11-00)	HQ-SG/Kavanagh, L. D., Jr. HQ-SG/Ott, E. J.	13-Physics

NGR 24-005-265 Univ of Minnesota - Minneapolis-St Paul 2324
2-10 micron photometric studies of stellar water and circumstellar and interstellar ice

<i>Period</i>	<i>Obligations</i>	
02/26/73-06/30/74	FY74: \$16,000	TOTAL: \$16,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Woolf, N. J. (21-850 352-02-03)	ARC/Cameron, R. M. ARC/Gillespie, C. M., Jr.	11-Astronomy

NGR 24-005-267 Univ of Minnesota - Minneapolis-St Paul 2325
Photometric investigation of wavelength dependence of radiation from objects, showing excess long wave radiation (10 to 30 microns)

<i>Period</i>	<i>Obligations</i>	
02/26/73-12/31/74	FY74: \$20,000	TOTAL: \$49,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ney, E. P. (21-850 352-02-03)	ARC/Cameron, R. M.	11-Astronomy

NGR 24-005-275 Univ of Minnesota - Minneapolis-St Paul 2326
Iodine 129 as a possible factor in prebiotic synthesis of biopolymers

<i>Period</i>	<i>Obligations</i>	
04/25/73-06/30/74	FY74:	TOTAL: \$4,008
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Swain, F. M. (10-840 192-55-61)	HQ-SL/Geib, D. S.	12-Chemistry

NGT 24-005-012 Univ of Minnesota - Minneapolis-St Paul 2327
Training of graduate students in space-related science and technology

<i>Period</i>	<i>Obligations</i>	
04/01/62-08/01/72	FY74:	TOTAL: \$1,450,131
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Crawford, B., Jr. (10-370 181-00-00)	HQ-PY/Carter, C. H.	99-Multi-Discip

NGT 24-005-078 Univ of Minnesota - Minneapolis-St Paul 2328
Training of predoctoral graduate students in space sciences and technology

<i>Period</i>	<i>Obligations</i>	
06/24/65-08/01/78	FY74:	TOTAL: \$18,298
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, G. W. (10-370 181-00-00)	HQ-PY/Carter, C. H.	99-Multi-Discip

NSG 2014 Univ of Minnesota - Minneapolis-St Paul 2329
Exploratory astrophysics and infrared astronomy

<i>Period</i>	<i>Obligations</i>	
02/01/74-01/31/75	FY74: \$80,000	TOTAL: \$80,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ney, E. P. (21-850 352-02-03)	ARC/Cameron, R. M.	11-Astronomy

NSG 7005 Univ of Minnesota - Minneapolis-St Paul 2330
Energetic particles in the magnetosphere and space

<i>Period</i>	<i>Obligations</i>	
07/01/73-06/30/76	FY74: \$180,000	TOTAL: \$180,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Winckler, J. R. (10-850 188-36-55)	HQ-SG/Kavanagh, L. D., Jr. HQ-SG/Ott, E. J.	13-Physics

NSR 24-005-238 Univ of Minnesota - Minneapolis-St Paul 2331
Development of a photometer system for use with the 91 cm IR telescope

<i>Period</i>	<i>Obligations</i>	
06/13/72-08/31/74	FY74:	TOTAL: \$60,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ney, E. P. (10-850 352-03-00)	ARC/Cameron, R. M. ARC/Bader, M.	11-Astronomy

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

NSR 24-005-245 Univ of Minnesota - Minneapolis-St Paul 2332
Study of the proper motion of stars using the automated proper motion system
Period 01/13/72-11/30/74 *Obligations* FY74: \$51,324 TOTAL: \$224,077
Prin. Invest. Luyten, W. J. *NASA Tech. Officer* HQ-SG/Roman, N. G. *CASE Category* 11-Astronomy
GFC/Mead, J. M.
(10-850 188-41-51)

NSG 3004 Jackson State College 2338
Numerical solution of Navier-Stokes equations for steady laminar incompressible flow between two plates with abrupt change of spacings
Period 03/01/74-02/28/75 *Obligations* FY74: \$21,520 TOTAL: \$21,520
Prin. Invest. Chu, C. S. *NASA Tech. Officer* LERC/Zuk, J. *CASE Category* 49-Engr, NEC
(22-371 340-00-00)

MISSISSIPPI

NGR 25-012-001 Alcorn A&M College 2333
Radio tracking of geostationary satellites
Period 09/01/73-08/31/74 *Obligations* FY74: \$41,548 TOTAL: \$41,548
Prin. Invest. Paul, M. P. *NASA Tech. Officer* GSFC/Schmid, P. E. *CASE Category* 31-Atmos Sci
GSFC/Marini, J. W.
(51-371 340-00-00)

NSG 8015 Jackson State College 2339
Study aquatic plants as filtration systems for photographic waste
Period 06/03/74-06/02/75 *Obligations* FY74: \$24,919 TOTAL: \$24,919
Prin. Invest. Perkins, J. *NASA Tech. Officer* MSFC/Wolverton, B. C. *CASE Category* 39-Env Sci, NEC
MSFC/Kent, M. I.
(62-371 340-00-00)

NSG 8005 Alcorn A&M College 2334
Bio-degradation of rocket propellant waste (ammonium perchlorate)
Period 04/01/74-04/01/75 *Obligations* FY74: \$20,518 TOTAL: \$20,518
Prin. Invest. Naqvi, S. M. *NASA Tech. Officer* MSFC/Wolverton, B. C. *CASE Category* 39-Env Sci, NEC
Latif, A. *MSFC/Kent, M. I.*
(62-371 340-00-00)

NAS 5-21817 Mississippi State University 2340
ERTS-A data user for land use planning
Period 08/11/72-07/04/74 *Obligations* FY74: TOTAL: \$24,138
Prin. Invest. Ingels, F. M. *NASA Tech. Officer* GSFC/Stonesifer, G. R. *CASE Category* 32-Geological Sci
(51-680 641-14-08)

NAS 5-21881 Mississippi State University 2341
ERTS-A data users investigation for the study of applications of remote sensing data to agricultural practices in the Mississippi delta region
Period 10/27/72-05/27/74 *Obligations* FY74: \$32,630 TOTAL: \$102,630
Prin. Invest. Bouchillon, C. W. *NASA Tech. Officer* GSFC/Stonesifer, G. R. *CASE Category* 39-Env Sci, NEC
Shepard, C. G.
(51-680 641-14-01)

NGR 25-011-001 Jackson State College 2335
Research in marshland ecology
Period 05/12/72-07/31/74 *Obligations* FY74: TOTAL: \$37,097
Prin. Invest. Nelson, F. *NASA Tech. Officer* HQ-PY/Pohly, J. G. *CASE Category* 51-Biology
(10-371 340-00-00)

NAS 8-26749 Mississippi State University 2342
A study of trends and techniques for space base electronics
Period 01/12/71-01/11/75 *Obligations* FY74: \$25,000 TOTAL: \$65,000
Prin. Invest. Gassaway, J. D. *NASA Tech. Officer* MSFC/Hollis, B. R., Jr. *CASE Category* 49-Engr, NEC
MSFC/Kennedy, B. W.
(62-704 502-23-51)

NGR 25-011-002 Jackson State College 2336
Aquatic plants as filtration systems for photographic waste
Period 06/29/72-06/30/73 *Obligations* FY74: TOTAL: \$35,115
Prin. Invest. Perkins, J. *NASA Tech. Officer* HQ-PY/Pohly, J. G. *CASE Category* 61-Biol Aspects
MTF/Wolverton, B. C.
(10-371 340-00-00)

NAS 8-29036 Mississippi State University 2343
Application of Saturn/Apollo automated data system capabilities to problems of environmental impacts of urban transportation
Period 06/16/72-12/17/73 *Obligations* FY74: TOTAL: \$5,000
Prin. Invest. McKee, J. C., Jr. *NASA Tech. Officer* MSFC/McDonough, G. F. *CASE Category* 39-Env Sci, NEC
MSFC/Daniels, J. L., Jr.
(62-910 933-00-00)

NGR 25-011-005 Jackson State College 2337
Establishment of an analytical model for natural water system
Period 11/01/73-11/01/74 *Obligations* FY74: \$20,933 TOTAL: \$20,933
Prin. Invest. Sekhon, B. S. *NASA Tech. Officer* MSFC/Wolverton, B. C. *CASE Category* 39-Env Sci, NEC
MSFC/Kent, M. I.
(62-371 340-00-00)

NASA'S UNIVERSITY PROGRAM
MISSISSIPPI (Continued)

NAS 8-30618 Mississippi State University 2344
Fabrication of thermo-plastic hologram storage devices

<i>Period</i>	<i>Obligations</i>	
03/15/74-03/14/75	FY74: \$15,000	TOTAL: \$15,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rogers, T. W.	MSFC/Pitts, E. H.	45-Elec Engr
	MSFC/Kerr, J. H.	

(62-680 177-32-71)

NAS 8-30623 Mississippi State University 2345
Application of remote sensing to the identification of archaeological and potential recreational sites along the Tennessee-Tombigbee waterway route

<i>Period</i>	<i>Obligations</i>	
04/01/74-10/01/74	FY74: \$10,645	TOTAL: \$10,645
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miller, W. F.	MSFC/Daniels, J. L., Jr.	39-Env Sci, NEC
	MSFC/Bensko, J., Jr.	

(62-680 177-52-75)

NAS 9-13363 Mississippi State University 2346
Study of application of Skylab EREP data to agriculture in the Mississippi delta alluvial plains region - Skylab EREP investigation no. 339

<i>Period</i>	<i>Obligations</i>	
04/23/73-06/30/75	FY74:	TOTAL: \$45,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bouchillon, C. W.	MTF/Mooneyhan, D. W.	99-Multi-Discip
	Ingels, F. M.	

(72-960 948-63-82)

NGL 25-001-032 Mississippi State University 2347
Special support of Saturn/Apollo utilizing Mississippi test facility

<i>Period</i>	<i>Obligations</i>	
03/06/69-01/01/73	FY74:	TOTAL: \$275,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bouchillon, C. W.	MSFC/Kent, M. I.	99-Multi-Discip

(62-910 933-50-00)

NGL 25-001-040 Mississippi State University 2348
Interdisciplinary program in earth resource and environmental research

<i>Period</i>	<i>Obligations</i>	
05/07/71-01/01/75	FY74:	TOTAL: \$100,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Brown, L. R.	HQ-PY/Redding, E. R.	39-Env Sci, NEC
	MSFC/Kent, M. I.	

(10-371 340-00-00)

NGL 25-001-054 Mississippi State University 2349
Application of remotely sensed data to state and regional problems

<i>Period</i>	<i>Obligations</i>	
11/01/73-01/31/77	FY74: \$200,000	TOTAL: \$200,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bouchillon, C. W.	HQ-PY/Vitale, J. A.	39-Env Sci, NEC
	MSFC/McDonough, G. F.	

(10-371 340-00-00)

NGR 25-001-050 Mississippi State University 2350
Stiffness and damping of inherently compensated gas thrusting bearing with finite square geometry

<i>Period</i>	<i>Obligations</i>	
01/30/73-12/29/74	FY74: \$8,652	TOTAL: \$17,292
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stiffler, A. K.	LERC/Fleming, D. P.	46-Mech Engr
	LERC/Cunningham, R. E.	

(22-704 501-24-10)

NGR 25-001-055 Mississippi State University 2351
Numerical solution of the Navier-Stokes equations for arbitrary two-dimensional multi-element airfoils

<i>Period</i>	<i>Obligations</i>	
01/01/74-01/01/75	FY74: \$25,000	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Thompson, J. F.	LARC/Bobbitt, P. J.	41-Aero Engr
	LARC/Newman, P. A.	

(23-704 501-06-05)

NSG 8009 Mississippi Valley State Univ. 2352
Biological indicators for monitoring the water quality of Mississippi Test Facility canals system

<i>Period</i>	<i>Obligations</i>	
04/25/74-04/24/75	FY74: \$20,054	TOTAL: \$20,054
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sethi, S. L.	MSFC/Wolverton, B. C.	51-Biology
	MSFC/Kent, M. I.	

(62-371 340-00-00)

NGL 25-005-007 University of Southern Mississippi 2353
Remote sensing study of land use & sedimentation in Rose Barnett reservoir, Jackson, Mississippi area

<i>Period</i>	<i>Obligations</i>	
02/15/72-02/28/76	FY74:	TOTAL: \$150,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pinson, J. W.	HQ-PY/Vitale, J. A.	39-Env Sci, NEC
	MTF/Mooneyhan, D. W.	

(10-371 340-00-00)

NGR 25-005-005 University of Southern Mississippi 2354
Novel diacids & dianhydrides as polymer precursors

<i>Period</i>	<i>Obligations</i>	
06/09/71-06/30/75	FY74:	TOTAL: \$97,050
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Thames, S. F.	LARC/Johnston, N. J.	12-Chemistry
	LARC/Bell, V. L.	

(23-704 501-21-22) (23-740 134-03-22)

MISSOURI

NGL 26-006-021 Saint Louis University 2355
Computer method for redesigning and nonlinear analysis of a redundant complex structure

<i>Period</i>	<i>Obligations</i>	
02/04/69-11/10/74	FY74:	TOTAL: \$108,005
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rhodes, J. L.	LARC/Fulton, R. E.	41-Aero Engr

(23-760 126-00-00)

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

NGR 26-006-039 Saint Louis University 2356
Evaluation of cutaneous sensitivity
Period Obligations
08/23/71-10/31/74 FY74: \$7,000 TOTAL: \$27,291
Prin. Invest. NASA Tech. Officer CASE Category
Van Beaumont, W. ARC/Greenleaf, J. E. 53-Other Medical
(21-970 970-21-14)

NGR 26-006-042 Saint Louis University 2357
Reinterpretation of Mariner 9 IRIS data
Period Obligations
10/03/73-12/30/74 FY74: \$14,991 TOTAL: \$14,991
Prin. Invest. NASA Tech. Officer CASE Category
Pallman, A. J. HQ-SL/Fellows, R. F. 11-Astronomy
(10-840 384-47-81)

NSG 2023 Saint Louis University 2358
Monitoring of local sweating response with the onset of motion sickness
Period Obligations
05/01/74-05/01/75 FY74: \$12,800 TOTAL: \$12,800
Prin. Invest. NASA Tech. Officer CASE Category
Van Beaumont, W. ARC/Anliker, J. E. 53-Other Medical
(21-970 970-21-11)

NAS 9-9209 University of Missouri - Columbia 2359
Blood analyses for Apollo hematology procedures
Period Obligations
04/28/69-06/30/74 FY74: TOTAL: \$110,788
Prin. Invest. NASA Tech. Officer CASE Category
Mengel, C. E. JSC/Kimzey, S. L. 59-Life Sci, NEC
JSC/Alexander, W. A.
(72-960 948-60-91) (72-910 914-50-00)

NAS 9-12369 University of Missouri - Columbia 2360
Energy and nutrient intake monitoring
Period Obligations
01/19/72-09/30/74 FY74: TOTAL: \$74,966
Prin. Invest. NASA Tech. Officer CASE Category
Rambaut, P. C. JSC/Smith, M. C., Jr. 59-Life Sci, NEC
(72-970 970-51-14)

NAS 9-12526 University of Missouri - Columbia 2361
Development of a mathematical model
Period Obligations
03/07/72-07/31/74 FY74: TOTAL: \$28,000
Prin. Invest. NASA Tech. Officer CASE Category
Winnick, J. JSC/Ellis, W. E. 43-Chem Engr
(72-970 970-52-21) (72-910 914-52-00)

NAS 9-13436 University of Missouri - Columbia 2362
Development and verification of a map model using system-10 computer-aided design program
Period Obligations
06/11/73-01/01/75 FY74: TOTAL: \$29,073
Prin. Invest. NASA Tech. Officer CASE Category
Tranter, W. H. JSC/Dawson, C. T. 21-Mathematics
(72-980 909-41-07)

NGL 26-004-021 University of Missouri - Columbia 2363
Effects of radiation on gastro-intestinal function and cyclic turnover of intestinal epithelium
Period Obligations
07/13/65-09/30/74 FY74: \$25,000 TOTAL: \$310,764
Prin. Invest. NASA Tech. Officer CASE Category
Musacchia, X. J. ARC/Holton, E. M. 51-Biology
(21-970 970-21-61) (53-970 970-71-61)

NGR 26-004-099 University of Missouri - Columbia 2364
Composite polymer films for long term biological sensors
Period Obligations
06/22/72-09/14/74 FY74: \$24,956 TOTAL: \$74,830
Prin. Invest. NASA Tech. Officer CASE Category
Millich, F. ARC/Sandler, H. 52-Clinical Med
(21-970 970-23-30)

NAS 2-7078 University of Missouri - Kansas City 2365
Study air pollutant detectors
Period Obligations
06/27/72-08/01/73 FY74: TOTAL: \$29,428
Prin. Invest. NASA Tech. Officer CASE Category
Unavailable HQ-SS/Starr, W. L. 39-Env Sci, NEC
(21-250 141-93-00)

NGR 26-001-018 University of Missouri - Rolla 2366
Luminescence of nucleic acids and dyes
Period Obligations
08/28/73-08/31/74 FY74: \$9,904 TOTAL: \$9,904
Prin. Invest. NASA Tech. Officer CASE Category
Millich, F. ARC/Ginoza, H. S. 12-Chemistry
(21-840 192-55-63)

NGR 26-003-069 University of Missouri - Rolla 2367
Nutation control during precession of a spinstabilized spacecraft
Period Obligations
07/01/73-06/30/74 FY74: TOTAL: \$16,000
Prin. Invest. NASA Tech. Officer CASE Category
Taylor, J. M. GSFC/Flatley, T. W. 49-Engr, NEC
(51-680 160-20-51)

NGR 26-004-097 University of Missouri - Rolla 2368
Research in bioenvironmental systems
Period Obligations
04/17/72-08/31/75 FY74: TOTAL: \$57,750
Prin. Invest. NASA Tech. Officer CASE Category
Miles, J. B. ARC/Chambers, A. B. 46-Mech Engr
ARC/Quattrone, P. D.
(21-970 970-22-20)

NSG 1050 University of Missouri - Rolla 2369
Structural-acoustic response and interior noise levels of fuselage structures
Period Obligations
09/01/74-08/31/75 FY74: \$29,949 TOTAL: \$29,949
Prin. Invest. NASA Tech. Officer CASE Category
Koval, L. R. LARC/Mixson, J. S. 41-Aero Engr
(23-702 760-61-02)

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

NAS 2-7613 Washington University 2370
Lifter rotor random modes and vibration
Period Obligations
07/01/73-06/30/76 FY74: \$182,644 TOTAL: \$182,644
Prin. Invest. NASA Tech. Officer CASE Category
Hohenemser, K. H. ARC/Morse, H. A. 41-Aero Engr
Prelewicz, D. A. ARC/Statler, I. C.
Yin, S. K.
(21-704 501-17-00)

NAS 8-26084 Washington University 2371
Wave propagation in thermoviscous media
Period Obligations
06/10/70-07/31/74 FY74: TOTAL: \$39,971
Prin. Invest. NASA Tech. Officer CASE Category
Rodin, E. Y. MSFC/Jones, J. H. 13-Physics
(62-920 982-52-00) (62-920 976-30-00) (62-742 124-00-00)

NAS 8-27976 Washington University 2372
Design, development and operation of a heavy nuclei experiment under the HEAO program
Period Obligations
06/16/72-02/15/78 FY74: TOTAL: \$137,004
Prin. Invest. NASA Tech. Officer CASE Category
Israel, M. H. MSFC/Krome, H. O. 11-Astronomy
MSFC/Cochran, J.
(62-850 832-12-00)

NAS 9-13741 Washington University 2373
Microanalysis of blood plasma
Period Obligations
08/01/73-07/31/74 FY74: \$10,000 TOTAL: \$10,000
Prin. Invest. NASA Tech. Officer CASE Category
Lowry, O. JSC/Leach, C. S. 52-Clinical Med
(72-960 948-60-90)

NGL 26-008-054 Washington University 2374
Application of satellite communications to educational development
Period Obligations
10/13/69-12/01/73 FY74: TOTAL: \$600,000
Prin. Invest. NASA Tech. Officer CASE Category
Morgan, R. P. HQ-EC/Silverman, D. 99-Multi-Discip
HQ-PY/Redding, E. R.
(10-371 340-00-00) (10-620 164-06-50) (10-370 183-00-00)

NGL 26-008-057 Washington University 2375
Development of solar wind shock models with tensor plasma pressure for data analysis
Period Obligations
12/29/69-01/15/75 FY74: \$14,771 TOTAL: \$49,771
Prin. Invest. NASA Tech. Officer CASE Category
Abrahamshrauner, B. HQ-SG/Kavanagh, L. D., Jr. 13-Physics
HQ-SG/Schmerling, E. R.
(10-850 188-36-55) (10-850 188-00-00)

NGL 26-008-065 Washington University 2376
Lunar sample analysis
Period Obligations
02/01/71-01/31/77 FY74: \$235,623 TOTAL: \$1,109,153
Prin. Invest. NASA Tech. Officer CASE Category
Walker, R. M. JSC/Harris, J. W. 13-Physics
(72-810 388-10-01)

NGR 26-008-001 Washington University 2377
Determination of characteristics of high altitude primary cosmic radiation at low latitudes
Period Obligations
09/01/61-01/31/75 FY74: \$100,001 TOTAL: \$1,048,281
Prin. Invest. NASA Tech. Officer CASE Category
Klarman, J. HQ-SG/Opp, A. G. 11-Astronomy
Israel, M. H. HQ-SG/Kavanagh, L. D., Jr.
(10-850 188-46-56) (10-850 188-46-51) (10-850 188-00-00)

NGR 26-008-069 Washington University 2378
Astronomy at sub-millimeter wavelengths
Period Obligations
04/26/71-07/31/74 FY74: TOTAL: \$119,666
Prin. Invest. NASA Tech. Officer CASE Category
Friedlander, M. W. HQ-SG/Boggett, N. W. 11-Astronomy
(10-850 188-41-55)

NSG 1016 Washington University 2379
High resolution ultrasonic sensor for observation of particles in fluids
Period Obligations
03/15/74-03/14/75 FY74: \$29,958 TOTAL: \$29,958
Prin. Invest. NASA Tech. Officer CASE Category
Miller, J. G. LARC/Heyman, J. S. 13-Physics
LARC/Hendricks, H. D.
(23-704 502-23-56)

NSG 7016 Washington University 2380
Lunar data analysis and synthesis program on lunar surface dynamics
Period Obligations
12/01/73-11/30/74 FY74: \$59,158 TOTAL: \$59,158
Prin. Invest. NASA Tech. Officer CASE Category
Hohenberg, C. M. HQ-SM/Hosterman, J. W. 32-Geological Sci
Arvidson, R. E. HQ-SM/Roberson, F. I.
Podosek, F. A.
(10-810 383-20-02)

MONTANA

NGR 27-001-040 Montana State University 2381
Establishment of a mission-oriented gravitation research center
Period Obligations
06/28/71-09/30/74 FY74: \$30,000 TOTAL: \$94,350
Prin. Invest. NASA Tech. Officer CASE Category
Nordvedt, K., Jr. HQ-SG/Roman, N. G. 11-Astronomy
HQ-SG/Ashworth, C. D.
(10-850 188-41-54)

NAS 5-21826 University of Montana 2382
Investigation of applicability of ERTS-A to Montana geology
Period Obligations
08/11/72-07/30/74 FY74: TOTAL: \$88,889
Prin. Invest. NASA Tech. Officer CASE Category
Weidman, R. M. GSFC/Gordon, F., Jr. 32-Geological Sci
(51-680 641-14-03)

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

NGR 27-002-006 **University of Montana** **2383**
Satellite-related biotelemetry equipment development

<i>Period</i>	<i>Obligations</i>	
08/21/70-07/31/73	FY74:	TOTAL: \$42,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Craighead, J. J.	HQ-ER/Jacobs, G. J.	51-Biology
	HQ-ER/Park, A. B.	
Varney, J. R.		
(10-680 160-75-01)		

NSG 2030 **University of Montana** **2384**
Satellite wildlife research

<i>Period</i>	<i>Obligations</i>	
05/01/74-06/06/75	FY74: \$15,000	TOTAL: \$15,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Craighead, J. J.	ARC/Sebesta, P. D.	39-Env Sci, NEC
	ARC/Billingham, J.	
(21-680 177-56-13)		

NEBRASKA

NAS 5-21756 **University of Nebraska - Lincoln** **2385**
Evaluation of ERTS-A imagery in mapping and managing soil and range resources in the sand hills region of Nebraska

<i>Period</i>	<i>Obligations</i>	
05/25/72-02/01/75	FY74:	TOTAL: \$51,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Drew, J. V.	GSFC/Stonesifer, G. R.	39-Env Sci, NEC
Burzlauff, D. F.		
(51-680 641-14-01)	(51-680 641-14-00)	

NAS 5-23125 **University of Nebraska - Lincoln** **2386**
Calibration of magnetic electron multipliers

<i>Period</i>	<i>Obligations</i>	
06/23/72-01/31/75	FY74: \$10,642	TOTAL: \$31,408
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Samson, J. A.	GSFC/Kalet, M. W.	11-Astronomy
(51-850 879-11-00)	(51-850 188-38-53)	(51-850 188-38-64)

NAS 9-11045 **University of Nebraska - Lincoln** **2387**
Health protection and food preservation by gamma irradiation of food

<i>Period</i>	<i>Obligations</i>	
06/29/70-11/01/74	FY74: \$20,000	TOTAL: \$89,977
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hartung, T. E.	JSC/Heidelbaugh, N. D.	59-Life Sci, NEC
(72-970 970-00-00)		

NGL 28-004-020 **University of Nebraska - Lincoln** **2388**
Applications of remote sensing in resource management in Nebraska

<i>Period</i>	<i>Obligations</i>	
04/20/72-05/31/77	FY74: \$100,000	TOTAL: \$250,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Drew, J. V.	HQ-PY/Vitale, J. A.	39-Env Sci, NEC
(10-371 340-00-00)		

NGR 28-004-021 **University of Nebraska - Lincoln** **2389**
Interaction of radiation with planetary gases

<i>Period</i>	<i>Obligations</i>	
02/23/73-01/31/77	FY74: \$84,409	TOTAL: \$84,409
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Samson, J. A.	HQ-SL/Brunk, W. E.	31-Atmos Sci
	HQ-SL/Fellows, R. F.	
(10-840 185-47-85)		

NGR 28-004-025 **University of Nebraska - Lincoln** **2390**
Study into effects of oxidized titanium on hydrogen transport in titanium at low temperatures

<i>Period</i>	<i>Obligations</i>	
09/01/73-08/31/74	FY74: \$8,017	TOTAL: \$8,017
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Johnson, D. L.	ARC/Nelson, H. G.	47-Materials Engr
(21-704 501-21-21)		

NGR 28-004-028 **University of Nebraska - Lincoln** **2391**
Physical properties of old novae

<i>Period</i>	<i>Obligations</i>	
05/01/74-04/30/75	FY74: \$3,000	TOTAL: \$3,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gallagher, J. S.	GSFC/Kupperian, J. E.	11-Astronomy
(51-850 831-43-00)		

NEVADA

NAS 5-21870 **University of Nevada - Reno** **2392**
Study of the use of ERTS-A imagery for wildland resource evaluation

<i>Period</i>	<i>Obligations</i>	
10/03/72-03/01/74	FY74:	TOTAL: \$40,651
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tueller, P. A.	GSFC/Crump, E. W.	39-Env Sci, NEC
(51-680 641-14-01)		

NAS 9-13274 **University of Nevada - Reno** **2393**
The great basin investigation

<i>Period</i>	<i>Obligations</i>	
02/05/73-09/30/74	FY74:	TOTAL: \$96,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Quade, J.	JSC/Miller, M. L.	32-Geological Sci
(72-960 948-63-83)		

NEW HAMPSHIRE

NAS 5-21749 **Dartmouth College** **2394**
ERTS-A data user investigation of land use of northern megalopolis

<i>Period</i>	<i>Obligations</i>	
05/02/72-12/19/73	FY74: \$27,322	TOTAL: \$90,523
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simpson, R. B.	GSFC/Szajna, E. F.	39-Env Sci, NEC
(51-680 641-14-02)		

**NASA'S UNIVERSITY PROGRAM
NEW HAMPSHIRE (Continued)**

NAS 9-13311 Dartmouth College 2395
Investigation of thermal anomalies in central American volcanic chain and evaluation of utility of thermal anomaly monitoring in predicting volcanic eruptions

<i>Period</i>	<i>Obligations</i>	
03/06/73-09/30/74	FY74: TOTAL: \$10,600	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stoiber, R. E.	JSC/Miller, M. L.	32-Geological Sci

(72-960 948-63-83)

NGR 30-001-041 Dartmouth College 2396
Processing and analysis of data from VLF-LF experiments on the OGO-4 and OGO-6 spacecraft and continuation of studies at ground stations

<i>Period</i>	<i>Obligations</i>	
10/02/72-06/30/74	FY74: \$60,000 TOTAL: \$160,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Laaspere, T.	HQ-SG/Schmerling, E. R.	31-Atmos Sci
	HQ-SG/Hallenbeck, D. R.	

(10-850 385-36-00)

NSG 5014 Dartmouth College 2397
Geological applications of ERTS data

<i>Period</i>	<i>Obligations</i>	
07/01/74-06/30/75	FY74: \$124,400 TOTAL: \$124,400	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stoiber, R. E.	GSFC/Jastrow, R.	39-Env Sci, NEC
Drake, C. L.		
Reynolds, R. C.		

(51-704 502-23-43) (51-704 502-24-08)

NAS 5-11276 University of New Hampshire 2398
Design, testing, & calibration of GSF Pioneer F & G cosmic ray unit

<i>Period</i>	<i>Obligations</i>	
02/11/70-08/30/74	FY74: \$30,000 TOTAL: \$114,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Webber, W. R.	GSFC/Teegarden, B. J.	11-Astronomy

(51-840 811-22-00)

NAS 5-11694 University of New Hampshire 2399
Low energy electron-proton experiment for ATS-F

<i>Period</i>	<i>Obligations</i>	
05/01/69-05/01/76	FY74: \$24,626 TOTAL: \$480,726	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arnoldy, R. L.	GSFC/Wales, R. O.	11-Astronomy

(51-620 630-22-00)

NAS 5-23263 University of New Hampshire 2400
Design & fabrication of flight electronics, balloon gondola with pointing system, and ground stations

<i>Period</i>	<i>Obligations</i>	
06/25/73-01/15/74	FY74: TOTAL: \$42,131	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chinburg, D. L.	GSFC/Orwig, L. E.	31-Atmos Sci

(51-850 188-38-53) (51-850 385-38-00)

NGL 30-002-018 University of New Hampshire 2401
Investigation of energy levels in foil excited atomic beams

<i>Period</i>	<i>Obligations</i>	
03/15/65-01/31/75	FY74: \$10,000 TOTAL: \$157,355	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chupp, E. L.	HQ-SG/Weldon, J. M.	11-Astronomy
	HQ-SG/Oertel, G. K.	

(10-850 188-38-53) (10-850 188-38-52)

NGL 30-002-021 University of New Hampshire 2402
Investigation and development of techniques for solar neutron and gamma ray detection

<i>Period</i>	<i>Obligations</i>	
02/28/66-01/31/75	FY74: \$80,000 TOTAL: \$755,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chupp, E. L.	HQ-SG/Opp, A. G.	11-Astronomy
	HQ-SG/Roman, N. G.	

(10-850 188-46-57)

NGR 30-002-052 University of New Hampshire 2403
Research program in area of cosmic ray and X-ray astronomy

<i>Period</i>	<i>Obligations</i>	
02/12/70-09/30/74	FY74: \$120,000 TOTAL: \$550,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Webber, W. R.	HQ-SG/Opp, A. G.	11-Astronomy
	HQ-SG/Kavanagh, L. D., Jr.	

(10-850 188-46-56) (10-850 188-46-51)

NGR 30-002-054 University of New Hampshire 2404
Auroral particle measurements

<i>Period</i>	<i>Obligations</i>	
09/12/69-06/30/75	FY74: \$65,000 TOTAL: \$226,811	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arnoldy, R. L.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics
	HQ-SG/Ott, E. J.	

(10-850 879-11-00) (10-850 879-00-00)

NGR 30-002-097 University of New Hampshire 2405
Interrelationships of interplanetary energetic particles, solar wind plasma, and coronal magnetic structures deduced from H photographs

<i>Period</i>	<i>Obligations</i>	
07/01/73-06/30/74	FY74: \$25,666 TOTAL: \$25,666	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Roelof, E. C.	HQ-SG/Calahan, H. D.	13-Physics
	HQ-SG/Kavanagh, L. D., Jr.	

(10-850 385-36-00)

NGR 30-002-104 University of New Hampshire 2406
Gamma ray detector on OSO-7

<i>Period</i>	<i>Obligations</i>	
12/04/73-08/31/74	FY74: \$70,535 TOTAL: \$70,535	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chupp, E. L.	HQ-SG/Weldon, J. M.	11-Astronomy
	HQ-SG/Oertel, G. K.	

(10-850 385-38-00)

NEW JERSEY

NGL 31-006-010 Fairleigh Dickinson University 2407
Lunar and planetary spectral reflectivity

<i>Period</i>	<i>Obligations</i>	
08/08/72-02/29/76	FY74: TOTAL: \$106,400	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Adams, J. B.	HQ-SM/Bryson, R. P.	32-Geological Sci
	HQ-SM/Allenby, R. J.	

(10-810 383-09-53) (10-810 383-09-57)

**NASA'S UNIVERSITY PROGRAM
NEW JERSEY (Continued)**

NGL 31-006-011 Fairleigh Dickinson University **2408**
Lunar sample analysis
Period *Obligations*
09/19/72-01/31/77 FY74: \$78,775 TOTAL: \$279,865
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Adams, J. B. JSC/Harris, J. W. 13-Physics
(72-810 388-10-03)

NSG 7047 Fairleigh Dickinson University **2409**
Spectral reflectance CF/lunar samples to telescopic spectra of
unvisited parts of the moon
Period *Obligations*
02/01/74-01/31/75 FY74: \$25,700 TOTAL: \$25,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hartung, J. B. HQ-SM/Kosofsky, L. J. 32-Geological Sci
HQ-SM/Roberson, F. I.
(10-810 383-20-02)

NAS 1-9705 Princeton University **2410**
Participation in the science planning for the Viking 1975 missions
in the area of magnetic properties
Period *Obligations*
04/03/70-03/31/77 FY74: \$14,828 TOTAL: \$101,063
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hargraves, R. B. LARC/Soffen, G. A. 13-Physics
(23-840 815-20-00)

NAS 1-11231 Princeton University **2411**
Flight test program to improve the ease and quality of landing
Period *Obligations*
11/24/71-10/15/74 FY74: \$9,425 TOTAL: \$145,790
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Seckel, E. LARC/Crane, H. L. 41-Aero Engr
LARC/Stuckle, J. W.
(23-702 760-60-01)

NAS 2-6705 Princeton University **2412**
Study of aircraft fire safety
Period *Obligations*
11/15/71-08/31/74 FY74: \$40,000 TOTAL: \$63,980
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sirignano, W. A. ARC/Cagliostro, D. E. 43-Chem Engr
Glassman, I. ARC/Parker, J. A.
(21-704 501-21-22)

NAS 2-7187 Princeton University **2413**
Study mecor for V/STOL design
Period *Obligations*
10/05/72-09/30/74 FY74: \$35,000 TOTAL: \$86,847
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Durbin, E. J. ARC/Gossett, T. D. 41-Aero Engr
ARC/Morse, H. A.
(21-702 760-17-00)

NAS 2-7350 Princeton University **2414**
STOL approach & landing research
Period *Obligations*
03/02/73-12/31/74 FY74: \$124,989 TOTAL: \$224,989
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Seckel, E. ARC/Franklin, J. A. 41-Aero Engr
(21-702 766-71-02) (21-702 760-61-03)

NAS 2-7615 Princeton University **2415**
Effects of distributed blade properties on stability of hingeless
blades
Period *Obligations*
05/30/73-06/30/74 FY74: TOTAL: \$40,345
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dowell, E. H. ARC/Ormiston, R. A. 41-Aero Engr
Curtiss, H. C. ARC/Morse, H. A.
(21-704 501-01-02)

NAS 5-1810 Princeton University **2416**
Design, development, fabrication, & testing of orbiting astronomi-
cal observatory experiment
Period *Obligations*
06/08/72-12/01/78 FY74: \$387,200 TOTAL: \$16,646,798
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spitzer, L., Jr. GSFC/Kupperian, J. E. 11-Astronomy
(51-850 831-42-00)

NAS 5-20069 Princeton University **2417**
Large high resolution integrating TV sensor study
Period *Obligations*
04/11/74-11/11/74 FY74: \$77,000 TOTAL: \$77,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spitzer, L., Jr. GSFC/Sobieski, S. 11-Astronomy
Lowrance, J. L. GSFC/Sturgell, C. C.
(51-850 188-78-56)

NAS 5-20507 Princeton University **2418**
Permanent magnet focusing study
Period *Obligations*
04/23/74-11/23/74 FY74: \$33,400 TOTAL: \$33,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lowrance, J. L. GSFC/Kelsall, T. 49-Engr, NEC
GSFC/Sobieski, S.
(51-850 188-78-56)

NAS 5-23284 Princeton University **2419**
Instrument definition study for the high resolution imaging camera
for large space telescope
Period *Obligations*
07/20/73-12/31/74 FY74: \$17,511 TOTAL: \$17,511
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Danielson, R. E. GSFC/Sobieski, S. 11-Astronomy
(51-850 188-78-56) (51-850 188-78-58)

NAS 8-29239 Princeton University **2420**
Evaluation of Stratoscope III television system
Period *Obligations*
09/06/72-09/01/74 FY74: TOTAL: \$3,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Danielson, R. E. MSFC/Bordelon, C. S. 45-Elec Engr
MSFC/Spangler, D. E.
(62-850 188-41-60)

NGL 31-001-005 Princeton University **2421**
Formation & stability of magnetogasdynamic front in a pitch
discharge
Period *Obligations*
09/24/62-01/01/76 FY74: \$160,000 TOTAL: \$1,942,912
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jahn, R. G. HQ-RP/Mullin, J. P. 42-Astro Engr
HQ-RP/Lazar, J.
(10-704 502-04-14)

**NASA'S UNIVERSITY PROGRAM
NEW JERSEY (Continued)**

NGL 31-001-007	Princeton University	2422			
Theoretical & experimental studies of ultraviolet phenomena of astronomical interest & galactic gas dynamics					
<i>Period</i>	<i>Obligations</i>				
05/06/63-03/31/77	FY74: \$100,000	TOTAL: \$1,577,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Spitzer, L., Jr.	HQ-SG/Rosendhal, J. D.	11-Astronomy			
(10-850 188-41-51)	(10-850 188-00-00)				
NGL 31-001-109	Princeton University	2423			
Design of principles for predicting ignition performance of solid propellant rocket motors					
<i>Period</i>	<i>Obligations</i>				
03/05/68-09/01/74	FY74:	TOTAL: \$250,478			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Summerfield, M.	JPL/Strand, L.	41-Aero Engr			
(23-710 128-00-00)	LARC/Sullivan, E. M.	(23-710 113-32-04)			
NGL 31-001-119	Princeton University	2424			
Theoretical problems connected with sonic boom					
<i>Period</i>	<i>Obligations</i>				
01/29/68-09/30/75	FY74:	TOTAL: \$167,790			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hayes, W. D.	LARC/Hilton, D. A.	41-Aero Engr			
(23-704 501-06-11)	(10-740 129-00-00)	(23-760 136-13-02)			
NGL 31-001-129	Princeton University	2425			
Combustion of metals					
<i>Period</i>	<i>Obligations</i>				
04/24/68-09/30/74	FY74:	TOTAL: \$174,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Glassman, I.	LERC/Dunning, J. W.	12-Chemistry			
(22-710 113-31-08)	(22-710 128-00-00)				
NGL 31-001-146	Princeton University	2426			
Boundary layer noise and panel flutter					
<i>Period</i>	<i>Obligations</i>				
11/01/68-10/31/76	FY74: \$26,820	TOTAL: \$312,280			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Dowell, E. H.	LARC/Mixson, J. S.	42-Astro Engr			
(23-704 501-22-04)	(23-740 114-08-05)	(23-760 126-00-00)			
NGL 31-001-252	Princeton University	2427			
Air traffic control technology					
<i>Period</i>	<i>Obligations</i>				
11/17/71-11/01/76	FY74: \$50,000	TOTAL: \$200,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Graham, D.	LARC/Mace, W. D.	41-Aero Engr			
(23-704 501-03-02)	(23-750 135-06-02)				
NGL 31-001-283	Princeton University	2428			
Lunar sample analysis					
<i>Period</i>	<i>Obligations</i>				
06/30/72-01/31/77	FY74: \$76,000	TOTAL: \$199,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hollister, L. S.	JSC/Harris, J. W.	11-Astronomy			
(72-810 388-10-01)	(72-910 914-40-00)				
NGR 31-001-001	Princeton University	2429			
Stratoscope II program					
<i>Period</i>	<i>Obligations</i>				
02/12/70-12/30/74	FY74:	TOTAL: \$2,740,925			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Millich, F.	HQ-SG/Roman, N. G.	11-Astronomy			
(10-850 188-41-51)					
NGR 31-001-142	Princeton University	2430			
Application of digital computer and optical analog techniques to rectification and enhancement of astronomical images					
<i>Period</i>	<i>Obligations</i>				
12/18/68-12/31/73	FY74:	TOTAL: \$195,700			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Danielson, R. E.	HQ-SG/Sures, A. H.	11-Astronomy			
Lowrance, J. L.	HQ-SG/Aucremagne, M. J.				
(10-850 188-00-00)	(10-850 188-78-57)				
NGR 31-001-151	Princeton University	2431			
Molecular beam studies of inelastic neutral particle cross sections					
<i>Period</i>	<i>Obligations</i>				
10/01/68-09/30/72	FY74:	TOTAL: \$95,993			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kelly, A. J.	HQ-NS/Harrison, H. H.	13-Physics			
(10-720 112-02-20)	(45-720 112-02-20)				
NGR 31-001-152	Princeton University	2432			
Analytical methods of trajectory analysis					
<i>Period</i>	<i>Obligations</i>				
01/15/70-10/31/74	FY74: \$37,000	TOTAL: \$229,600			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lion, P. M.	GSFC/Barbieri, R. W.	42-Astro Engr			
(51-830 180-06-50)					
NGR 31-001-185	Princeton University	2433			
Continued research on analysis of nuclear rocket engine systems					
<i>Period</i>	<i>Obligations</i>				
05/04/70-09/30/73	FY74: \$15,000	TOTAL: \$610,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Layton, J. P.	HQ-RD/Schwenk, F. C.	49-Engr, NEC			
(10-720 112-30-17)	HQ-RD/Thom, K.	(45-701 792-91-02) (10-701 792-91-01)			
NGR 31-001-197	Princeton University	2434			
Three-dimensional boundary layer effects on panel flutter					
<i>Period</i>	<i>Obligations</i>				
03/25/70-01/01/75	FY74: \$64,580	TOTAL: \$171,280			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Dowell, E. H.	ARC/Gaspers, P. A., Jr.	41-Aero Engr			
(21-704 501-22-05)					
NGR 31-001-202	Princeton University	2435			
Lunar retro-reflector ranging					
<i>Period</i>	<i>Obligations</i>				
05/27/70-06/14/76	FY74:	TOTAL: \$15,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Dicke, R. H.	HQ-SM/Strickland, A. T.	13-Physics			
(10-810 383-00-00)					

**NASA'S UNIVERSITY PROGRAM
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NGR 31-001-221 **Princeton University** **2436**
Investigation of structure-property relations in systematic series
of novel polymers

<i>Period</i>	<i>Obligations</i>	
03/11/71-02/28/75	FY74: \$26,972 TOTAL: \$105,011	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gillham, J. K.	LARC/Johnston, N. J.	12-Chemistry
	LARC/Bell, V. L.	
(23-704 501-21-23)	(23-704 501-21-22)	(23-740 134-03-22)

NGR 31-001-230 **Princeton University** **2437**
High speed hydrogen/graphite interaction

<i>Period</i>	<i>Obligations</i>	
04/16/71-06/01/73	FY74: TOTAL: \$160,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kelly, A. J.	HQ-NS/Schwenk, F. C.	42-Astro Engr
Harje, D. T.	HQ-NS/Gerstein, N.	
(45-720 122-00-00)		

NGR 31-001-236 **Princeton University** **2438**
Large high resolution integrating TV sensor for astronomical
applications

<i>Period</i>	<i>Obligations</i>	
06/15/71-10/31/74	FY74: \$151,000 TOTAL: \$531,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Spitzer, L., Jr.	HQ-SG/Sures, A. H.	11-Astronomy
	HQ-SG/Aucremmanne, M. J.	
(51-850 188-78-56)	(10-980 975-84-00)	(10-850 188-78-56)

NGR 31-001-242 **Princeton University** **2439**
A new spectroscopic technique utilizing the Fabry-Perot in-
terferometer

<i>Period</i>	<i>Obligations</i>	
07/13/72-06/30/74	FY74: \$52,409 TOTAL: \$67,529	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, W. H.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Fellows, R. F.	
(10-840 196-41-84)	(10-840 196-00-00)	

NGR 31-001-267 **Princeton University** **2440**
Theoretical analysis of impact in composite plates

<i>Period</i>	<i>Obligations</i>	
04/03/72-05/01/75	FY74: \$54,970 TOTAL: \$93,950	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Moon, F. C.	LERC/Chamis, C. C.	41-Aero Engr
Dowell, E. H.	LERC/Younger, C. L.	
(22-704 502-22-09)	(22-704 501-22-03)	

NGR 31-001-272 **Princeton University** **2441**
Structure property relations in low temperature adhesives

<i>Period</i>	<i>Obligations</i>	
03/31/72-10/31/74	FY74: \$20,000 TOTAL: \$80,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gillham, J. K.	LARC/McHatton, A. D.	19-Phys Sci, NEC
(23-704 501-22-10)	(23-703 320-00-00)	

NGR 31-001-274 **Princeton University** **2442**
Studies in elastic and electromagnetic wave scattering in the
lunar crust

<i>Period</i>	<i>Obligations</i>	
06/29/72-06/30/74	FY74: TOTAL: \$80,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Phinney, R. A.	HQ-SM/Bryson, R. P.	32-Geological Sci
Jordan, T. H.	HQ-SM/Allenby, R. J.	
(10-810 383-09-53)		

NGR 31-001-277 **Princeton University** **2443**
VTOL mathematical model designs for optimal control systems
designs

<i>Period</i>	<i>Obligations</i>	
04/20/72-10/31/74	FY74: \$50,000 TOTAL: \$99,330	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Durbin, E. J.	ARC/Smith, G. A.	41-Aero Engr
Dukes, T. A.		
(21-704 501-03-11)		

NGR 31-001-306 **Princeton University** **2444**
High resolution spectrograph for the large space telescope

<i>Period</i>	<i>Obligations</i>	
10/01/73-12/31/74	FY74: \$1,600 TOTAL: \$1,600	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Morton, D. C.	GSFC/Sobieski, S.	11-Astronomy
York, D. G.	GSFC/Levin, G. M.	
(51-850 188-78-58)		

NGR 31-001-307 **Princeton University** **2445**
Fundamental and applied research on core engine combustion
noise of aircraft engines

<i>Period</i>	<i>Obligations</i>	
06/01/73-06/14/76	FY74: TOTAL: \$39,444	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Summerfield, M.	LERC/Gray, V. H.	41-Aero Engr
(22-704 501-15-83)		

NGR 31-001-312 **Princeton University** **2446**
Chemical laser action in low pressure metal flames

<i>Period</i>	<i>Obligations</i>	
10/01/73-09/30/74	FY74: \$20,500 TOTAL: \$20,500	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Glassman, I.	LERC/Dunning, J. W., Jr.	19-Phys Sci, NEC
(22-704 502-04-25)		

NGR 31-001-328 **Princeton University** **2447**
Nuclear fission plasma characterization and applications analysis
research

<i>Period</i>	<i>Obligations</i>	
10/01/73-12/30/74	FY74: \$75,000 TOTAL: \$75,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Layton, J. P.	HQ-RR/Thom, K.	13-Physics
Stoenescu, M.	LERC/Kaufman, S. J.	
(10-704 502-01-01)		

NSG 1070 **Princeton University** **2448**
Resonant Doppler velocimeter

<i>Period</i>	<i>Obligations</i>	
07/01/74-06/30/75	FY74: \$52,051 TOTAL: \$52,051	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miles, R. B.	LARC/Hunter, W. W., Jr.	13-Physics
	LARC/Exton, R. J.	
(23-704 503-10-01)		

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NSG 7053 Princeton University 2449
Theoretical & laboratory planetary physics
Period Obligations
04/01/74-03/31/75 FY74: \$36,882 TOTAL: \$36,882
Prin. Invest. NASA Tech. Officer CASE Category
Danielson, R. E. HQ-SL/Brunk, W. E. 11-Astronomy
HQ-SL/Fellows, R. F.
(10-840 196-41-84)

NSR 31-001-127 Princeton University 2450
Evaluation and development of television tubes for space astronomy
Period Obligations
06/26/68-12/31/73 FY74: TOTAL: \$464,958
Prin. Invest. NASA Tech. Officer CASE Category
Spitzer, L. HQ-SG/Roman, N. G. 11-Astronomy
HQ-SG/Aucremanne, M. J.
(10-850 188-00-00) (10-850 188-78-57)

NSR 31-001-259 Princeton University 2451
Development and evaluation of infrared sensitive image sensors for space astronomy
Period Obligations
03/16/72-04/30/74 FY74: \$39 TOTAL: \$89,462
Prin. Invest. NASA Tech. Officer CASE Category
Morton, D. C. HQ-SG/Sures, A. H. 11-Astronomy
Lowrance, J. L. HQ-SG/Aucremanne, M. J.
(10-850 188-78-57)

NSR 31-001-286 Princeton University 2452
Development of a small television tube for space astronomy
Period Obligations
06/11/73-07/13/73 FY74: TOTAL: \$90,000
Prin. Invest. NASA Tech. Officer CASE Category
Lowrance, J. L. GSFC/Bogges, A., III 11-Astronomy
Spitzer, L., Jr.
(10-850 878-21-00) (10-850 188-78-57) (10-850 188-00-00)

NSR 31-001-313 Princeton University 2453
Economic analysis of solar system exploration space missions
Period Obligations
08/08/73-08/07/74 FY74: \$49,794 TOTAL: \$49,794
Prin. Invest. NASA Tech. Officer CASE Category
Layton, J. P. HQ-SL/Tarver, P. 42-Astro Engr
Greenberg, J. S.
Hazelrigg, G. A.
(10-840 684-89-00)

NSR 31-001-901 Princeton University 2454
Ultraviolet spectrographic investigations by high altitude rocket flights
Period Obligations
06/30/67-03/31/75 FY74: TOTAL: \$1,494,196
Prin. Invest. NASA Tech. Officer CASE Category
Lowrance, J. L. HQ-SG/Roman, N. G. 11-Astronomy
Spitzer, L., Jr. HQ-SG/Ott, E. J.
(10-850 879-11-00)

NGR 31-004-049 Rutgers University - Newark 2455
Zodiacal light experiment of OSO-6
Period Obligations
02/17/72-11/30/74 FY74: \$30,000 TOTAL: \$90,000
Prin. Invest. NASA Tech. Officer CASE Category
Carroll, B. HQ-SG/Dubin, M. 13-Physics
HQ-SG/Ashworth, C. D.
(10-850 385-45-00)

NGL 31-003-020 Stevens Institute of Technology 2456
Proximity effects between superconducting and normal metals
Period Obligations
03/08/65-03/01/74 FY74: TOTAL: \$139,900
Prin. Invest. NASA Tech. Officer CASE Category
Meissner, H. HQ-NS/Harrison, H. H. 13-Physics
(10-740 129-00-00)

NEW MEXICO

NGT 32-010-001 New Mexico Highlands University 2457
Training of four undergraduate students in the space-related sciences and engineering
Period Obligations
06/01/74-05/31/75 FY74: \$14,000 TOTAL: \$14,000
Prin. Invest. NASA Tech. Officer CASE Category
Maestas, S. HQ-PY/Pohly, J. G. 99-Multi-Discip
HQ-U/Jenkins, H. G.
(10-030 010-00-00)

NAS 1-12715 New Mexico State University - Las Cruces 2458
Meteor patrol triangulation network
Period Obligations
09/01/73-05/30/74 FY74: \$6,041 TOTAL: \$6,041
Prin. Invest. NASA Tech. Officer CASE Category
Beebe, R. LARC/Harvey, G. A. 11-Astronomy
(23-850 188-45-52)

NAS 2-6484 New Mexico State University - Las Cruces 2459
Sparks launch support
Period Obligations
06/04/71-07/31/74 FY74: \$100,000 TOTAL: \$125,000
Prin. Invest. NASA Tech. Officer CASE Category
Connell, H. L. ARC/Van Ess, J. C. 19-Phys Sci, NEC
(21-850 879-40-00) (21-850 879-00-00)

NAS 5-20565 New Mexico State University - Las Cruces 2460
Minitrack antenna calibration
Period Obligations
07/01/74-06/30/75 FY74: \$10,000 TOTAL: \$10,000
Prin. Invest. NASA Tech. Officer CASE Category
Post, C. C. GSFC/Lantz, P. A. 45-Elec Engr
Henry, D. G.
Snow, L. L.
(51-500 311-20-20)

NAS 5-21432 New Mexico State University - Las Cruces 2461
Calibration services for stadan minitrack antennas
Period Obligations
07/01/71-06/30/73 FY74: TOTAL: \$164,239
Prin. Invest. NASA Tech. Officer CASE Category
Snow, L. L. GSFC/Flowers, J. 45-Elec Engr
(51-500 311-20-20)

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NAS 5-21433 New Mexico State University - Las Cruces 2462
Data reduction for photogenic plates & films

<i>Period</i>	<i>Obligations</i>	
07/01/71-06/30/73	FY74: TOTAL: \$62,204	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chavez, R.	GSFC/Oosterhout, J. D.	11-Astronomy
(51-500 311-20-20)		

NAS 5-22203 New Mexico State University - Las Cruces 2463
Minitrack antenna calibration

<i>Period</i>	<i>Obligations</i>	
07/01/73-06/30/74	FY74: \$83,387 TOTAL: \$93,387	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Post, C. C.	GSFC/Lantz, P. A.	45-Elec Engr
Henry, D. G.		
Snow, L. L.		
(51-500 311-20-20)		

NAS 5-22219 New Mexico State University - Las Cruces 2464
Space Tracking and Data Network (STDN) data reduction

<i>Period</i>	<i>Obligations</i>	
07/01/73-06/30/74	FY74: \$7,965 TOTAL: \$26,965	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sayles, A., Jr.	GSFC/Oosterhout, J. D.	49-Engr, NEC
Henry, D. G.		
Snow, L. L.		
(51-500 311-20-20)		

NAS 5-23001 New Mexico State University - Las Cruces 2465
Telemetry engineering analytical & field support services for sounding rocket program

<i>Period</i>	<i>Obligations</i>	
05/11/73-07/31/74	FY74: \$890,800 TOTAL: \$2,965,800	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lawrence, O. H.	GSFC/Bissell, E. E.	19-Phys Sci, NEC
GSFC/Conrad, R. W.		
(51-850 879-21-00) (51-850 879-40-00)		

NAS 9-95435 New Mexico State University - Las Cruces 2466
Definition of a radiometer calibration facility

<i>Period</i>	<i>Obligations</i>	
05/24/74-08/31/74	FY74: \$30,045 TOTAL: \$30,045	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Henry, D. G.	JSC/Fenner, R. G.	39-Env Sci, NEC
(72-680 640-04-04)		

NAS10-7399 New Mexico State University - Las Cruces 2467
Telemetry research & development in telemetry field services in support of unmanned launch operations

<i>Period</i>	<i>Obligations</i>	
12/02/70-12/01/74	FY74: \$262,000 TOTAL: \$1,586,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bumgarner, R. A.	KSC/Schlimmer, G. E.	45-Elec Engr
Noda, T. T.		
(76-830 492-22-00) (76-950 954-55-00)		

NGL 32-003-001 New Mexico State University - Las Cruces 2468
Photographic patrol and study of physical conditions on the moon and planets

<i>Period</i>	<i>Obligations</i>	
04/15/61-04/14/77	FY74: \$123,865 TOTAL: \$1,674,047	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, B. A.	HQ-SL/Brunk, W. E.	11-Astronomy
HQ-SL/Fellows, R. F.		
(10-840 196-41-80) (10-840 185-00-00)		

NGL 32-003-069 New Mexico State University - Las Cruces 2469
X-ray crystal reflectivity measurements

<i>Period</i>	<i>Obligations</i>	
05/01/72-05/01/74	FY74: TOTAL: \$13,203	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liefeld, R. J.	HQ-SG/Roman, N. G.	11-Astronomy
HQ-SG/Opp, A. G.		
(10-850 188-00-00)		

NGR 32-003-075 New Mexico State University - Las Cruces 2470
Evaluation of Martian dust storm statistics

<i>Period</i>	<i>Obligations</i>	
09/01/73-11/30/74	FY74: \$30,000 TOTAL: \$30,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, B. A.	HQ-SL/Dwornik, S. E.	32-Geological Sci
HQ-SL/Allingham, J. W.		
(10-840 384-50-80)		

NGR 32-003-076 New Mexico State University - Las Cruces 2471
Analysis of scattering properties of dust in the Martian atmosphere

<i>Period</i>	<i>Obligations</i>	
07/01/73-08/30/74	FY74: \$28,934 TOTAL: \$28,934	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, B. A.	HQ-SL/Fellows, R. F.	31-Atmos Sci
(10-840 384-47-81)		

NAS 1-11855 University of New Mexico 2472
Participation in science planning for Viking 1975 missions in area of inorganic chemistry

<i>Period</i>	<i>Obligations</i>	
08/18/72-03/01/77	FY74: \$12,500 TOTAL: \$25,500	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Keil, K.	LARC/Soffen, G. A.	12-Chemistry
(23-840 815-20-00)		

NAS 3-18522 University of New Mexico 2473
Technical search and processing of abstracts into documents for five (5) specific fields of energy

<i>Period</i>	<i>Obligations</i>	
05/16/74-08/15/75	FY74: \$15,522 TOTAL: \$15,522	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Long, W. W.	LERC/Hyland, R. F.	49-Engr, NEC
(22-702 770-18-01)		

NAS 5-9314 University of New Mexico 2474
Solar ultraviolet energy survey experiment for the orbiting geophysical observatories program, OGO-F mission

<i>Period</i>	<i>Obligations</i>	
03/23/66-09/30/73	FY74: TOTAL: \$824,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Regener, V. H.	GSFC/Meese, K. J.	13-Physics
(51-850 841-00-00)		

NASW 2399 University of New Mexico 2475
Operation of a Regional Dissemination Center in the Technology Application Center

<i>Period</i>	<i>Obligations</i>	
09/22/72-06/01/74	FY74: \$220,000 TOTAL: \$410,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shinnick, W. A.	HQ-KT/Holley, H. L.	99-Multi-Discip
(10-250 141-93-01) (10-250 141-00-00)		

**NASA'S UNIVERSITY PROGRAM
NEW MEXICO (Continued)**

NASW 2534 University of New Mexico 2476
Study of ERTS contributions to state and local needs on a regional basis
Period *Obligations*
06/28/73-08/31/73 FY74: \$71,000 TOTAL: \$71,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shinnick, W. A. HQ-KT/Holley, H. L. 75-Political Sci
(10-250 141-93-02) (10-680 160-88-50)

NGL 32-004-011 University of New Mexico 2477
Comparative study of lunar craters and terrestrial volcano-tectonic depressions in rhyolite ash-flow plateaus
Period *Obligations*
10/12/64-05/31/76 FY74: TOTAL: \$380,880
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Elston, W. E. HQ-SM/Bryson, R. P. 32-Geological Sci
(10-810 383-09-50) (10-840 185-00-00)

NGL 32-004-042 University of New Mexico 2478
The proof-of-concept approach to the design and management of public policy problems
Period *Obligations*
02/19/68-06/30/75 FY74: TOTAL: \$470,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rosenthal, A. H. HQ-PY/Morris, J. D. 75-Political Sci
(10-371 340-00-00) (10-370 183-00-00)

NGL 32-004-063 University of New Mexico 2479
Lunar sample analysis
Period *Obligations*
01/06/71-01/31/77 FY74: \$101,170 TOTAL: \$417,145
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Keil, K. JSC/Harris, J. W. 12-Chemistry
(72-810 388-10-01)

NGL 32-004-064 University of New Mexico 2480
Mineralogy and chemistry of polymiot-brecciated stone meteorites
Period *Obligations*
06/14/71-05/31/76 FY74: TOTAL: \$179,363
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Keil, K. HQ-SM/Bryson, R. P. 32-Geological Sci
HQ-SM/Pomeroy, J. H.
(10-810 383-09-57) (10-810 383-09-51)

NGR 32-004-026 University of New Mexico 2481
Numerical study of the flow in the vortex rate sensor
Period *Obligations*
05/27/66-06/30/74 FY74: TOTAL: \$75,918
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Richards, C. G. LARC/Hellbaum, R. F. 46-Mech Engr
(23-750 125-00-00) (23-702 760-71-04)

NGR 32-004-062 University of New Mexico 2482
Search for evidence of dynamic process
Period *Obligations*
06/22/70-12/31/74 FY74: \$21,990 TOTAL: \$90,250
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Elston, W. E. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Holt, H. E.
(10-840 384-50-80)

NGR 32-004-068 University of New Mexico 2483
Thermal radiation from interplanetary dust
Period *Obligations*
12/15/71-03/01/74 FY74: TOTAL: \$51,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Peterson, A. W. HQ-SG/Dubin, M. 11-Astronomy
(10-850 188-45-51)

NGR 32-004-086 University of New Mexico 2484
Correlation between interplanetary magnetic field, solar wind, and cosmos
Period *Obligations*
08/15/73-11/14/74 FY74: \$20,560 TOTAL: \$20,560
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ahluwalia, H. S. HQ-SG/Calahan, H. D. 13-Physics
HQ-SG/Kavanagh, L. D., Jr.
(10-850 385-36-00)

NEW YORK

NAS 9-9964 Albany Medical College 2485
Study of toxicological evaluation of fire suppressants and extinguishers
Period *Obligations*
10/07/69-12/31/74 FY74: TOTAL: \$286,293
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Coulston, F. JSC/Carter, V. L. 59-Life Sci, NEC
(72-910 914-50-00) (72-910 914-51-00)

NASW 2504 Alfred University 2486
Joint sponsorship of Conference on Surfaces and Interfaces of Glass and Ceramics
Period *Obligations*
07/03/73-04/30/74 FY74: \$3,314 TOTAL: \$3,314
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frechette, V. D. HQ-RW/Gangler, J. J. 47-Materials Engr
(10-704 502-01-03)

NAS 5-20041 City College of New York 2487
Global wave forecasting methodology
Period *Obligations*
02/22/74-03/22/75 FY74: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pierson, W. J. GSFC/Eckerman, J. 33-Oceanography
Greenwood, J. A.
Salfi, R.
(51-630 161-03-02)

NAS 6-2439 City College of New York 2488
GEOS-C research study
Period *Obligations*
02/04/74-06/30/74 FY74: \$11,700 TOTAL: \$11,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pierson, W. J. WFC/Rossi, L. C. 32-Geological Sci
(53-630 855-33-00)

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAS 8-29616 City College of New York 2489
Study of eastern test range ocean wave statistics for space shuttle booster design and recovery operations
Period Obligations
06/05/73-04/01/74 FY74: TOTAL: \$10,000
Prin. Invest. NASA Tech. Officer CASE Category
Pierson, W. J. MSFC/Brown, S. C. 33-Oceanography
(62-920 976-30-00)

NAS 9-13642 City College of New York 2490
Joint meteorological, oceanographic and sensor evaluation program. Skylab experiment S-193
Period Obligations
07/01/73-12/31/74 FY74: \$147,940 TOTAL: \$147,940
Prin. Invest. NASA Tech. Officer CASE Category
Pierson, W. J. JSC/Byrns, Z. H. 13-Physics
(72-680 177-91-00) (72-960 948-63-84)

NAS 9-13940 City College of New York 2491
Communication systems analysis study
Period Obligations
04/04/74-04/14/75 FY74: \$99,892 TOTAL: \$99,892
Prin. Invest. NASA Tech. Officer CASE Category
Schilling, D. L. JSC/Batson, B. H. 45-Elec Engr
Oh, S. J. JSC/Dawson, C. T.
Thau, F.
(72-980 909-44-29)

NGL 33-013-029 City College of New York 2492
Effect of particle and fluid properties on heat transfer coefficient and pressure drop of a dilute flowing gas solid suspension
Period Obligations
10/04/67-07/31/74 FY74: TOTAL: \$49,124
Prin. Invest. NASA Tech. Officer CASE Category
Pfeffer, R. LERC/Putre, H. 13-Physics
(22-720 122-00-00)

NGL 33-013-034 City College of New York 2493
Investigations of electromagnetics and statistical dynamics as applied to plasma propulsion
Period Obligations
03/22/68-07/31/75 FY74: TOTAL: \$80,000
Prin. Invest. NASA Tech. Officer CASE Category
Tchen, C. M. HQ-NS/Thom, K. 13-Physics
(10-740 129-00-00)

NGL 33-013-040 City College of New York 2494
Theoretical research in astrophysics and astronomy
Period Obligations
04/23/69-09/30/76 FY74: \$20,000 TOTAL: \$294,000
Prin. Invest. NASA Tech. Officer CASE Category
Lea, R. M. GSFC/Stothers, R. B. 11-Astronomy
GSFC/Chiu, H. Y.
(51-850 405-02-02) (51-840 404-02-02)

NGR 33-013-048 City College of New York 2495
Optimal space communications techniques
Period Obligations
09/17/69-09/14/72 FY74: TOTAL: \$74,800
Prin. Invest. NASA Tech. Officer CASE Category
Schilling, D. L. GSFC/Brown, J. P. 45-Elec Engr
(51-620 164-06-53) (25-750 125-00-00) (51-750 125-00-00)

NGR 33-013-077 City College of New York 2496
Optimal space communications techniques
Period Obligations
01/22/73-01/21/74 FY74: \$35,000 TOTAL: \$35,000
Prin. Invest. NASA Tech. Officer CASE Category
Schilling, D. L. GSFC/Brown, J. P. 45-Elec Engr
(51-620 164-21-58)

NGR 33-013-086 City College of New York 2497
Models for large scale meteorological prediction experiments
Period Obligations
10/01/73-10/01/74 FY74: \$45,000 TOTAL: \$45,000
Prin. Invest. NASA Tech. Officer CASE Category
Spar, J. GSFC/Halem, M. 31-Atmos Sci
GSFC/Hansen, J. E.
(51-680 408-02-02)

NSG 5013 City College of New York 2498
Efficient processing of video signals
Period Obligations
06/15/74-06/14/75 FY74: \$35,000 TOTAL: \$35,000
Prin. Invest. NASA Tech. Officer CASE Category
Schilling, D. L. GSFC/Miller, J. E. 45-Elec Engr
GSFC/Brown, J.
(51-620 643-10-00)

NSG 7028 City Univ of Ny - Grad School & Univ Cen 2499
A statistical chemical and thermodynamic approach to the study of lunar rocks
Period Obligations
01/01/74-12/31/74 FY74: \$17,786 TOTAL: \$17,786
Prin. Invest. NASA Tech. Officer CASE Category
Saxena, S. K. HQ-SM/Kosofsky, L. J. 32-Geological Sci
HQ-SM/Roberson, F. I.
(10-810 383-20-04)

NGL 33-007-075 Clarkson College of Technology 2500
Structural synthesis of stiffened shells of revolution
Period Obligations
03/14/69-08/31/74 FY74: TOTAL: \$72,000
Prin. Invest. NASA Tech. Officer CASE Category
Thornton, W. A. LARC/Stroud, W. J. 41-Aero Engr
(23-742 124-00-00) (23-760 126-00-00)

NAS 5-11362 Columbia University 2501
OSO-I wheel experiment hardware
Period Obligations
01/28/71-06/30/75 FY74: \$730,190 TOTAL: \$2,579,000
Prin. Invest. NASA Tech. Officer CASE Category
Novick, R. GSFC/Donley, J. L. 19-Phys Sci, NEC
(51-850 821-32-00)

NAS 6-2455 Columbia University 2502
Mapping of ocean tides using GEOS-C data
Period Obligations
03/15/74-03/14/76 FY74: \$30,900 TOTAL: \$30,900
Prin. Invest. NASA Tech. Officer CASE Category
Kuo, J. T. WFC/Stanley, H. R. 33-Oceanography
Jachens, R. C. WFC/Rossi, L. C.
(53-630 369-07-01)

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAS 8-27405	Columbia University	2503			
Bragg crystal X-ray spectrometer - HEAO mission experiment feasibility study					
<i>Period</i>	<i>Obligations</i>				
06/08/71-09/30/73	FY74:	TOTAL: \$278,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Angel, J. R.	MSFC/Neuschaefer, R. W.	11-Astronomy			
(62-850 832-12-00)					
NAS 8-27970	Columbia University	2504			
Design and development of the HEAO large area focusing collector experiment					
<i>Period</i>	<i>Obligations</i>				
06/27/72-03/15/77	FY74:	TOTAL: \$583,618			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Novick, R.	MSFC/Lavender, R. E.	11-Astronomy			
MSFC/Jones, J. B.					
(62-850 832-12-00)					
NAS 8-30532	Columbia University	2505			
Participation in HEAO mission B definition					
<i>Period</i>	<i>Obligations</i>				
11/29/73-05/31/74	FY74: \$15,125	TOTAL: \$15,125			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Novick, R.	MSFC/Manning, H.	11-Astronomy			
MSFC/Powers, J.					
(62-850 832-12-00)					
NAS 9-6037	Columbia University	2506			
Heat flow experiment for ALSEP					
<i>Period</i>	<i>Obligations</i>				
06/06/66-12/31/74	FY74: \$136,872	TOTAL: \$1,400,972			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Langseth, M. G.	JSC/Eichelman, W. F.	19-Phys Sci, NEC			
(72-810 383-25-03) (72-910 914-40-00)					
NAS 9-11751	Columbia University	2507			
Traverse gravimeter					
<i>Period</i>	<i>Obligations</i>				
06/22/71-06/30/74	FY74:	TOTAL: \$239,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Talwani, M.	JSC/Eichelman, W. F.	19-Phys Sci, NEC			
(72-910 914-40-00)					
NGL 33-008-012	Columbia University	2508			
Theoretical research in space science					
<i>Period</i>	<i>Obligations</i>				
07/18/63-08/01/74	FY74:	TOTAL: \$1,944,993			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Woltjer, L.	GSFC/Thaddeus, P.	19-Phys Sci, NEC			
HQ-PY/Redding, E. R.					
(51-840 404-02-02)					
NGL 33-008-090	Columbia University	2509			
Systems approach to device circuit interaction in electrical power processing					
<i>Period</i>	<i>Obligations</i>				
06/20/67-03/01/74	FY74:	TOTAL: \$214,081			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Stern, T.	LERC/Lalli, V. R.	45-Elec Engr			
(25-710 120-00-00) (22-710 120-00-00)					
NGL 33-008-098	Columbia University	2510			
Research into the theory of the superbloom					
<i>Period</i>	<i>Obligations</i>				
08/31/67-07/01/72	FY74:	TOTAL: \$180,498			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Friedman, M. B.	LARC/Danberg, J. E.	41-Aero Engr			
LARC/Carlson, H. W.					
(10-740 129-00-00) (10-760 136-13-02)					
NGL 33-008-118	Columbia University	2511			
Reactions of people to aircraft noise & sonic booms					
<i>Period</i>	<i>Obligations</i>				
04/04/69-10/31/74	FY74: \$140,000	TOTAL: \$700,415			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Borsky, P. N.	LARC/Shepherd, W. T.	62-Social Aspects			
(23-704 504-29-11) (23-704 501-29-11) (23-770 137-09-02)					
NGR 33-008-102	Columbia University	2512			
Research in X-ray astronomy					
<i>Period</i>	<i>Obligations</i>				
01/30/68-03/31/75	FY74: \$185,000	TOTAL: \$1,048,840			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Novick, R.	HQ-SG/Roman, N. G.	11-Astronomy			
Angel, J. R.					
(10-850 879-11-00) (10-850 188-41-59)					
NGR 33-008-106	Columbia University	2513			
The structural geometry and tectonic history of the Sudbury basin Canadian shield					
<i>Period</i>	<i>Obligations</i>				
06/30/71-06/30/74	FY74:	TOTAL: \$45,774			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Dalziel, I. W.	HQ-SM/Bryson, R. P.	32-Geological Sci			
(10-810 195-00-00)					
NGR 33-008-125	Columbia University	2514			
Solar X-ray astronomy polarization study of solar X-ray flares					
<i>Period</i>	<i>Obligations</i>				
10/02/69-12/31/73	FY74:	TOTAL: \$176,242			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Novick, R.	HQ-SG/Oertel, G. K.	11-Astronomy			
(10-850 385-38-00)					
NGR 33-008-146	Columbia University	2515			
Study of strain buildup, release and earthquake prediction					
<i>Period</i>	<i>Obligations</i>				
02/09/71-08/31/74	FY74: \$40,530	TOTAL: \$147,380			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Scholz, C. H.	GSFC/Smith, D. E.	32-Geological Sci			
Sykes, L. R.					
(51-630 161-02-01) (51-680 160-00-00)					
NGR 33-008-158	Columbia University	2516			
Mosaic crystal devices for stellar and solar X-ray spectroscopy and polarimetry					
<i>Period</i>	<i>Obligations</i>				
11/04/71-06/30/73	FY74:	TOTAL: \$74,754			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Novick, R.	HQ-SG/Bogges, N. W.	11-Astronomy			
HQ-SG/Roman, N. G.					
(10-850 188-41-59)					

**NASA'S UNIVERSITY PROGRAM
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NGR 33-008-168 Columbia University 2517
Economic impact of the NASA program
Period Obligations
09/21/71-09/30/74 FY74: TOTAL: \$71,850
Prin. Invest. NASA Tech. Officer CASE Category
Ginzberg, E. HQ-PY/Hansing, F. D. 72-Economics
(10-371 340-00-00)

NGR 33-008-169 Columbia University 2518
Lunar sample analysis
Period Obligations
11/01/72-01/31/75 FY74: \$17,410 TOTAL: \$42,910
Prin. Invest. NASA Tech. Officer CASE Category
Horai, K. JSC/Harris, J. W. 13-Physics
(72-810 388-10-03)

NGR 33-008-177 Columbia University 2519
Lunar sample analysis
Period Obligations
11/01/72-01/31/75 FY74: \$10,490 TOTAL: \$25,690
Prin. Invest. NASA Tech. Officer CASE Category
Horai, K. JSC/Harris, J. W. 13-Physics
(72-810 388-10-03)

NGR 33-008-183 Columbia University 2520
Study of nonequilibrium conditions in active regions during solar flares
Period Obligations
07/01/73-10/31/74 FY74: \$25,259 TOTAL: \$25,259
Prin. Invest. NASA Tech. Officer CASE Category
Wolff, R. S. HQ-SG/Hallenbeck, D. R. 11-Astronomy
(10-850 385-38-00)

NGR 33-008-189 Columbia University 2521
Study of X-ray polarization of solar flares
Period Obligations
09/01/73-11/30/74 FY74: \$25,287 TOTAL: \$25,287
Prin. Invest. NASA Tech. Officer CASE Category
Wolff, R. S. HQ-SG/Oertel, G. K. 11-Astronomy
(10-850 385-38-00)

NGR 33-008-191 Columbia University 2522
Multidisciplinary research in the space sciences
Period Obligations
02/15/73-02/14/75 FY74: \$807,519 TOTAL: \$807,519
Prin. Invest. NASA Tech. Officer CASE Category
Broecker, W. S. GSFC/Thaddeus, P. 11-Astronomy
Hartmann, S. R. GSFC/Somerville, R. C.
(51-680 408-02-01) (51-680 408-02-02) (51-840 404-02-01)

NGR 33-008-194 Columbia University 2523
Detailed studies of the nonperiodic time variability of several galactic X-ray sources
Period Obligations
11/01/73-01/31/75 FY74: \$20,500 TOTAL: \$20,500
Prin. Invest. NASA Tech. Officer CASE Category
Weisskopf, M. C. HQ-SG/Kelsall, T. 11-Astronomy
HQ-SG/Roman, N. G.
(10-850 385-41-00)

NGR 33-008-199 Columbia University 2524
Petrological study of lithic clasts in Apollo 14 breccias: determination of bulk chemistry and mineralogy as constraints on highlands petrogenesis and evolution
Period Obligations
02/01/74-01/31/75 FY74: \$33,455 TOTAL: \$33,455
Prin. Invest. NASA Tech. Officer CASE Category
Ridley, W. I. JSC/Harris, J. W. 12-Chemistry
(72-810 388-10-01)

NGR 33-008-200 Columbia University 2525
Analysis and interpretation of rocket X-ray polarimetric data for solar X-ray astronomy
Period Obligations
10/01/73-12/30/74 FY74: \$24,860 TOTAL: \$24,860
Prin. Invest. NASA Tech. Officer CASE Category
Novick, R. HQ-SG/Oertel, G. K. 11-Astronomy
HQ-SG/Weldon, J. M.
(10-850 385-38-00)

NGT 33-008-013 Columbia University 2526
Training of predoctoral graduate students in space-related science & technology
Period Obligations
05/16/63-08/01/72 FY74: TOTAL: \$1,125,073
Prin. Invest. NASA Tech. Officer CASE Category
Robey, R. C. HQ-PY/Carter, C. H. 99-Multi-Discip
(10-370 181-00-00)

NSG 1059 Columbia University 2527
Structural response of reusable surface insulation panels of space shuttle to random pressure fields
Period Obligations
07/01/74-06/30/75 FY74: \$8,009 TOTAL: \$8,009
Prin. Invest. NASA Tech. Officer CASE Category
Vailaitas, R. LARC/Mixson, J. S. 41-Aero Engr
(23-704 501-22-04)

NAS 1-9683 Cornell University 2528
Participation in the science planning for the Viking 1975 missions in the area of imaging
Period Obligations
04/08/70-03/31/77 FY74: \$30,710 TOTAL: \$169,413
Prin. Invest. NASA Tech. Officer CASE Category
Sagan, C. LARC/Soffen, G. A. 13-Physics
(23-840 815-20-00)

NAS 2-7846 Cornell University 2529
Study on cells and embryogenesis in space
Period Obligations
09/01/73-08/31/74 FY74: \$32,300 TOTAL: \$32,300
Prin. Invest. NASA Tech. Officer CASE Category
Steward, F. C. ARC/Tremor, J. W. 51-Biology
Krikorian, A. D.
(21-970 970-21-62)

NAS 5-21781 Cornell University 2530
Phenology experiment using ERTS-A data
Period Obligations
08/08/72-09/08/74 FY74: TOTAL: \$233,763
Prin. Invest. NASA Tech. Officer CASE Category
Dethier, B. E. GSFC/Szajna, E. F. 39-Env Sci, NEC
(51-680 641-14-01)

**NASA'S UNIVERSITY PROGRAM
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NAS 5-21844 **Cornell University** **2531**
Engineering analysis of ERTS data for southeast Asian agriculture
Period *Obligations*
10/02/72-11/08/74 **FY74:** **TOTAL: \$100,986**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McNair, A. J. GSFC/Szajna, E. F. 59-Life Sci, NEC
(51-680 641-14-01)

NAS 5-23236 **Cornell University** **2532**
Feasibility study for infrared interferometer, spectrometer, & radiometer for Mariner/Jupiter 1977 launch
Period *Obligations*
05/01/73-06/30/77 **FY74: \$5,800** **TOTAL: \$8,300**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gierasch, P. J. GSFC/Conrath, B. J. 13-Physics
GSFC/Hanel, R. A.
(51-840 802-31-00)

NAS 9-13364 **Cornell University** **2533**
Evaluation of satellite imagery & an information service for inventorying land use & natural resources
Period *Obligations*
04/24/73-11/30/74 **FY74:** **TOTAL: \$56,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hardy, E. E. JSC/Joosten, R. E. 39-Env Sci, NEC
(72-960 948-63-85)

NASW 2366 **Cornell University** **2534**
Development of control elements for an unmanned extraterrestrial vehicle
Period *Obligations*
03/22/72-06/14/72 **FY74:** **TOTAL: \$70,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wehe, R. L. HQ-SL/Tarver, P. 42-Astro Engr
HQ-SL/Herman, D. H.
(10-840 186-00-00)

NASW 2445 **Cornell University** **2535**
Development of control elements for an unmanned Martian roving vehicle
Period *Obligations*
12/11/72-06/30/73 **FY74:** **TOTAL: \$95,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Unavailable HQ-SL/Raring, R. H. 32-Geological Sci
(10-840 186-68-55) (10-840 186-00-00)

NASW 2573 **Cornell University** **2536**
Control elements for an unmanned Martian roving vehicle
Period *Obligations*
09/01/73-11/30/74 **FY74: \$95,000** **TOTAL: \$95,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wehe, R. L. HQ-SL/Tarver, P. 49-Engr, NEC
HQ-SL/Herman, D. H.
(10-840 186-68-55)

NGL 33-010-005 **Cornell University** **2537**
Studies of lunar surface & solar atmosphere in vicinity of the moon
Period *Obligations*
03/13/63-10/31/75 **FY74: \$27,558** **TOTAL: \$1,623,508**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gold, T. HQ-SM/Bryson, R. P. 32-Geological Sci
HQ-SM/Roberson, F. I.
(10-810 195-42-66) (10-840 185-00-00)

NGL 33-010-042 **Cornell University** **2538**
Study of high temperature heat transfer
Period *Obligations*
06/29/66-06/01/74 **FY74:** **TOTAL: \$406,016**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moore, F. K. LERC/Evvard, J. C. 46-Mech Engr
(22-720 112-28-20) (22-704 503-04-01)

NGL 33-010-054 **Cornell University** **2539**
Sonic boom research
Period *Obligations*
09/14/67-08/01/74 **FY74:** **TOTAL: \$201,500**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Seebass, A. R. LARC/Carlson, H. W. 13-Physics
George, A. R.
(10-740 129-00-00)

NGL 33-010-057 **Cornell University** **2540**
Sonic boom phenomena
Period *Obligations*
09/06/67-08/31/75 **FY74: \$29,100** **TOTAL: \$126,168**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Seebass, A. R. ARC/Murman, E. M. 41-Aero Engr
(21-702 760-17-01) (10-740 129-00-00) (21-790 797-00-00)

NGL 33-010-064 **Cornell University** **2541**
Molecular energy transfer by fluid mixing
Period *Obligations*
03/29/68-12/31/74 **FY74: \$45,000** **TOTAL: \$243,492**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cool, T. A. LARC/Allario, F. 12-Chemistry
HQ-NS/Thom, K.

NGL 33-010-070 **Cornell University** **2542**
Finite element shell instability analysis
Period *Obligations*
12/16/68-10/01/74 **FY74:** **TOTAL: \$175,170**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gallagher, R. H. LARC/Stephens, W. B. 41-Aero Engr
(23-760 126-00-00) (23-740 134-14-05)

NGL 33-010-082 **Cornell University** **2543**
The study of lunar and planetary surfaces and atmospheres
Period *Obligations*
09/23/68-11/30/76 **FY74: \$62,805** **TOTAL: \$402,452**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sagan, C. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.
(10-840 185-47-81)

NGL 33-010-171 **Cornell University** **2544**
A program in remote sensing
Period *Obligations*
02/14/72-05/31/77 **FY74: \$100,000** **TOTAL: \$400,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Liang, T. HQ-PY/Vitale, J. A. 39-Env Sci, NEC
(10-371 340-00-00)

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NGL 33-010-186 Cornell University 2545
Studies of thermal structure and motion of planetary atmospheres
Period Obligations
04/18/73-06/14/76 FY74: TOTAL: \$52,400
Prin. Invest. NASA Tech. Officer CASE Category
Gierasch, P. J. HQ-SL/Fellows, R. F. 31-Atmos Sci
(10-840 185-47-81)

NGR 33-010-071 Cornell University 2546
Graduate engineering design program
Period Obligations
05/15/68-08/01/72 FY74: TOTAL: \$135,222
Prin. Invest. NASA Tech. Officer CASE Category
McHanus, H. N. HQ-PY/Vitale, J. A. 49-Engr, NEC
(10-370 183-00-00)

NGR 33-010-081 Cornell University 2547
2 to 4 micron spectroscopy of Mars
Period Obligations
03/01/73-09/30/74 FY74: \$25,921 TOTAL: \$43,521
Prin. Invest. NASA Tech. Officer CASE Category
Houck, J. R. ARC/Cameron, R. M. 11-Astronomy
ARC/Gillespie, C. M., Jr.
(21-850 352-02-03)

NGR 33-010-101 Cornell University 2548
An integrated program in exobiology and problems related to origin of life
Period Obligations
10/09/69-06/30/74 FY74: \$84,945 TOTAL: \$369,945
Prin. Invest. NASA Tech. Officer CASE Category
Sagan, C. HQ-SL/Young, R. S. 12-Chemistry
Khare, B. N.
(10-840 192-55-61)

NGR 33-010-108 Cornell University 2549
Implications of convection within the moon
Period Obligations
05/18/70-11/30/74 FY74: \$23,037 TOTAL: \$60,567
Prin. Invest. NASA Tech. Officer CASE Category
Turcotte, D. L. HQ-SM/Bryson, R. P. 32-Geological Sci
(10-810 383-09-56) (10-810 383-09-53) (10-810 383-00-00)

NGR 33-010-127 Cornell University 2550
Detection of soil microorganisms in situ by combined gas chromatography
Period Obligations
06/02/70-11/30/74 FY74: TOTAL: \$108,632
Prin. Invest. NASA Tech. Officer CASE Category
Duxbury, J. M. HQ-SL/Geib, D. S. 51-Biology
Alexander, M.
(10-840 192-55-63)

NGR 33-010-137 Cornell University 2551
Lunar sample analysis
Period Obligations
02/12/71-09/30/74 FY74: \$16,500 TOTAL: \$164,100
Prin. Invest. NASA Tech. Officer CASE Category
Gold, T. JSC/Harris, J. W. 13-Physics
(72-810 388-10-03)

NGR 33-010-145 Cornell University 2552
Cosmic gamma-ray telescope
Period Obligations
01/06/71-02/15/75 FY74: \$42,400 TOTAL: \$248,300
Prin. Invest. NASA Tech. Officer CASE Category
Greisen, K. I. HQ-SG/Opp, A. G. 11-Astronomy
HQ-SG/Roman, N. G.
(10-850 188-46-57) (10-850 188-46-54)

NGR 33-010-146 Cornell University 2553
Submillimeter astronomical spectrometry from aircraft
Period Obligations
02/16/72-08/31/74 FY74: \$23,000 TOTAL: \$65,800
Prin. Invest. NASA Tech. Officer CASE Category
Harwit, M. O. ARC/Cameron, R. M. 11-Astronomy
ARC/Mason, R. H.
(21-850 352-02-01)

NGR 33-010-161 Cornell University 2554
Studies of the magnetospheres of Earth and Jupiter
Period Obligations
01/18/72-12/31/74 FY74: \$30,000 TOTAL: \$87,790
Prin. Invest. NASA Tech. Officer CASE Category
Brice, N. M. HQ-SL/Fellows, R. F. 13-Physics
(10-840 185-47-81) (10-850 188-36-55)

NGR 33-010-169 Cornell University 2555
Analysis of a partially filled viscous ring damper
Period Obligations
02/01/72-09/18/73 FY74: \$4,030 TOTAL: \$23,490
Prin. Invest. NASA Tech. Officer CASE Category
Alfriend, K. T. GSFC/Hrastar, J. A. 49-Engr, NEC
(51-840 823-11-00) (51-840 823-12-00)

NGR 33-010-172 Cornell University 2556
A multiband far infrared surface with a balloon-borne telescope
Period Obligations
11/20/72-11/19/74 FY74: \$49,519 TOTAL: \$94,519
Prin. Invest. NASA Tech. Officer CASE Category
Harwit, M. O. HQ-SG/Bogges, N. W. 11-Astronomy
HQ-SG/Roman, N. G.
(10-850 188-41-55)

NGR 33-010-178 Cornell University 2557
Analysis of Apollo 12 and Explorer 35 magnetometer data
Period Obligations
06/13/72-06/30/74 FY74: TOTAL: \$41,693
Prin. Invest. NASA Tech. Officer CASE Category
Kuckes, A. F. HQ-SM/Bryson, R. P. 32-Geological Sci
HQ-SM/Allenby, R. J.
(10-810 383-09-56) (10-810 383-09-53)

NGR 33-010-179 Cornell University 2558
Central neural mechanisms governing postural cardiovascular reflexes
Period Obligations
05/25/72-06/15/75 FY74: \$43,000 TOTAL: \$130,760
Prin. Invest. NASA Tech. Officer CASE Category
Reis, D. J. ARC/Sandler, H. 53-Other Medical
(21-970 970-21-12)

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NGR 33-010-182	Cornell University	2559			
16 to 40 micron spectroscopy of Jupiter					
<i>Period</i>	<i>Obligations</i>				
12/20/72-08/01/74	FY74: \$40,322	TOTAL: \$62,318			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Houck, J. R.	ARC/Mason, R. H.	11-Astronomy			
(21-975 977-10-64)	ARC/Cameron, R. M.				
	(21-980 975-50-01)				
NGR 33-010-188	Cornell University	2560			
Astrophysical material science theory					
<i>Period</i>	<i>Obligations</i>				
02/00/32-07/31/74	FY74: \$34,000	TOTAL: \$68,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ashcroft, N. W.	LERC/Brown, G. V.	13-Physics			
Krumhansl, J. A.	LERC/Coles, W. D.				
(22-704 502-04-35)					
NGR 33-010-189	Cornell University	2561			
Ultra pressure materials science					
<i>Period</i>	<i>Obligations</i>				
10/31/72-07/31/74	FY74: \$90,000	TOTAL: \$150,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ruoff, A. L.	LERC/Laurence, J. C.	47-Materials Engr			
Ashcroft, N. W.	LERC/Coles, W. D.				
(22-704 502-04-35)	(22-710 113-31-02)				
NGR 33-010-203	Cornell University	2562			
Sonic boom research related to future air and space transportation systems					
<i>Period</i>	<i>Obligations</i>				
07/01/73-08/31/74	FY74: \$25,000	TOTAL: \$25,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Seebass, A. R.	LARC/Barger, R. L.	41-Aero Engr			
George, A. R.					
(23-702 743-65-31)					
NGR 33-010-210	Cornell University	2563			
High resolution 10-micron spectra at different planetary latitudes					
<i>Period</i>	<i>Obligations</i>				
09/01/73-08/31/74	FY74: \$28,691	TOTAL: \$28,691			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Harwit, M. O.	HQ-SL/Brunk, W. E.	45-Elec Engr			
	HQ-SL/Fellows, R. F.				
(10-840 196-41-80)					
NGR 33-010-220	Cornell University	2564			
Interdisciplinary investigations of Mariner 9 data					
<i>Period</i>	<i>Obligations</i>				
12/05/73-06/30/74	FY74: \$67,000	TOTAL: \$67,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sagan, C.	HQ-SL/Dwornik, S. E.	32-Geological Sci			
(10-840 185-50-81)	(10-840 384-50-80)				
NGT 33-010-052	Cornell University	2565			
Training of predoctoral graduate students in engineering design as related to aeronautical and space technology					
<i>Period</i>	<i>Obligations</i>				
05/02/67-08/01/72	FY74:	TOTAL: \$310,800			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Schultz, A., Jr.	HQ-PY/Carter, C. H.	99-Multi-Discip			
(10-370 181-00-00)					
NSG 3019	Cornell University	2566			
Flow processes in combustors					
<i>Period</i>	<i>Obligations</i>				
07/01/74-06/30/75	FY74: \$63,205	TOTAL: \$63,205			
<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.					
Moore, F. K.					
(22-704 501-24-02)					
NSR 33-012-006	Fordham University	2567			
Time and motion experiment					
<i>Period</i>	<i>Obligations</i>				
06/30/67-09/30/74	FY74:	TOTAL: \$557,157			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kubis, J. F.	JSC/Fedderson, W. E.	69-Psych, NEC			
(72-960 948-60-91)	(72-960 948-60-00)				
NGR 33-192-001	Hamilton College	2568			
Photographic interpretation of Mariner-Mars 6 and 7 photographs on the chaotic terrain					
<i>Period</i>	<i>Obligations</i>				
04/23/70-05/31/75	FY74: \$7,070	TOTAL: \$40,430			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Potter, D. B.	HQ-SL/Dwornik, S. E.	32-Geological Sci			
(10-840 384-50-80)	(10-840 384-00-00)				
NGR 33-209-002	Hofstra University	2569			
Wave height measurements with a correlation radar					
<i>Period</i>	<i>Obligations</i>				
02/28/72-11/30/75	FY74: \$17,332	TOTAL: \$44,316			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Weissman, D. E.	LARC/Swift, C. T.	45-Elec Engr			
(23-680 160-20-54)					
NAS 5-21792	Long Island University	2570			
Interdisciplinary study of the estuarine and coastal oceanography of Block Island sounds and adjacent New York coastal waters					
<i>Period</i>	<i>Obligations</i>				
06/30/72-01/23/74	FY74:	TOTAL: \$109,844			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Yost, E.	GSFC/Szajna, E. J.	33-Oceanography			
Hollman, R.					
(51-680 641-14-05)					
NAS 5-21793	Long Island University	2571			
In situ spectroradiometric quantifications of ERTS data					
<i>Period</i>	<i>Obligations</i>				
06/30/72-04/01/74	FY74:	TOTAL: \$36,833			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Yost, E.	GSFC/Gordon, F.	32-Geological Sci			
(51-680 641-14-02)					
NAS 9-13308	Long Island University	2572			
In situ spectroradiometric calibration of EREP imagery and oceanography of Block Island sound Skylab EREP investigation 069/070					
<i>Period</i>	<i>Obligations</i>				
04/10/73-09/30/74	FY74: \$58,925	TOTAL: \$58,925			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Yost, E.	JSC/York, L. B.	19-Phys Sci, NEC			
(72-960 948-63-86)					

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NGR 33-151-006	Long Island University	2573			
Photographic techniques for transforming multispectral photographic imagery into geologic information					
<i>Period</i>	<i>Obligations</i>				
12/01/72-02/28/74	FY74:	TOTAL: \$5,191			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Yost, E.	GSFC/Jastrow, R.	32-Geological Sci			
(51-680 408-02-02)					
NGR 33-230-001	New York Institute of Technology	2574			
Proposed novel techniques for interferometrically controlled ruling of improved large diffraction gratings					
<i>Period</i>	<i>Obligations</i>				
10/16/72-10/01/73	FY74:	TOTAL: \$68,970			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Stroke, G. W.	GSFC/Mangus, J. D.	19-Phys Sci, NEC			
(51-850 188-38-51)					
NAS 1-10090	New York University	2575			
The composite Radiometer-Scatterometer (RADSCAT) experiment for ocean surface modeling and electromagnetic scattering					
<i>Period</i>	<i>Obligations</i>				
06/08/70-06/30/74	FY74:	TOTAL: \$117,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Pierson, W. J., Jr.	LARC/Jones, W. L.	99-Multi-Discip			
(23-620 630-52-00)	(23-620 630-00-00)				
NAS 2-6813	New York University	2576			
Study transonic rotary wing aerodynamics					
<i>Period</i>	<i>Obligations</i>				
02/18/72-11/15/73	FY74:	TOTAL: \$30,948			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Isom, M. P.	ARC/Caradonna, F. X.	41-Aero Engr			
(21-760 136-9X-00)	ARC/McCroskey, W. J.				
NAS 2-7963	New York University	2577			
Pioneer F/G data analysis of zodiacal light experiment					
<i>Period</i>	<i>Obligations</i>				
01/04/74-06/30/74	FY74: \$94,396	TOTAL: \$94,396			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Unavailable	ARC/Unavailable	11-Astronomy			
(21-840 811-22-00)					
NAS 8-29578	New York University	2578			
Study of eastern test range ocean wave statistics for space shuttle booster design & recovery operations					
<i>Period</i>	<i>Obligations</i>				
02/05/73-06/05/73	FY74:	TOTAL: \$10,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Pierson, W. J.	MSFC/Brown, S. C.	33-Oceanography			
(62-920 976-30-00)	(62-920 976-00-00)				
MSFC/Fichtl, G. H.					
NGL 33-016-013	New York University	2579			
Theoretical research on the properties of the atmosphere of the earth and other planets and on the atmospheric effects of solar activity					
<i>Period</i>	<i>Obligations</i>				
06/01/73-06/30/76	FY74: \$70,000	TOTAL: \$591,181			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Schaeffer, O. A.	GSFC/Halem, M.	31-Atmos Sci			
(51-680 408-02-02)	(51-680 160-00-00)				
NGL 33-016-119	New York University	2580			
Engine effect on sonic boom; unsteady engine inlet interaction					
<i>Period</i>	<i>Obligations</i>				
06/20/67-07/31/74	FY74: \$64,909	TOTAL: \$454,629			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ferri, A.	LARC/Fetterman, D. E.	41-Aero Engr			
(23-702 743-65-31)	(10-740 129-00-00)				
NGR 33-016-131	New York University	2581			
Hypersonic engine airplane integration					
<i>Period</i>	<i>Obligations</i>				
03/11/68-07/31/74	FY74: \$115,280	TOTAL: \$854,186			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ferri, A.	LARC/Huber, P. W.	41-Aero Engr			
(23-704 501-04-03)	LARC/Henry, J. R.				
NGR 33-016-167	New York University	2582			
Numerical design of transonic shockless airfoils					
<i>Period</i>	<i>Obligations</i>				
09/01/70-09/30/74	FY74: \$50,000	TOTAL: \$355,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Garabedian, P. R.	LARC/South, J. C., Jr.	41-Aero Engr			
(23-704 501-06-01)	(23-702 760-64-60)				
NGR 33-016-174	New York University	2583			
Investigation of models for large scale meteorological prediction experiments					
<i>Period</i>	<i>Obligations</i>				
11/01/71-10/31/73	FY74:	TOTAL: \$84,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Spar, J.	GSFC/Halem, M.	31-Atmos Sci			
(51-680 408-02-02)	GSFC/Holan, J. S.				
NGR 33-016-177	New York University	2584			
Fluid dynamic aspects of jet noise generation					
<i>Period</i>	<i>Obligations</i>				
08/29/72-10/01/74	FY74: \$50,000	TOTAL: \$106,378			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ferri, A.	LARC/Maestrello, L.	41-Aero Engr			
(23-704 501-04-01)	LARC/Manning, J. C.				
NGR 33-016-179	New York University	2585			
Reynolds number and Mach number effect on space shuttle configuration					
<i>Period</i>	<i>Obligations</i>				
09/01/71-03/01/74	FY74:	TOTAL: \$89,744			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Zakkay, V.	LARC/Dunavant, J. C.	41-Aero Engr			
(23-704 502-37-01)	LARC/Whitehead, A. H., Jr.				
NGR 33-016-193	New York University	2586			
Convective cooling forces					
<i>Period</i>	<i>Obligations</i>				
08/01/72-10/01/72	FY74:	TOTAL: \$25,100			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ferri, A.	LARC/Hefner, J. N.	41-Aero Engr			
(23-702 760-66-01)	LARC/Kirkham, F. S.				

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NGR 33-016-196	New York University	2587			
Physical properties of molecular clouds					
<i>Period</i>	<i>Obligations</i>				
09/01/73-10/31/74	FY74: \$20,000	TOTAL: \$20,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Glassgold, A. E.	HQ-SG/Kelsall, T.	11-Astronomy			
(10-850 188-41-51)					
NGR 33-016-197	New York University	2588			
Scale model wind tunnel study of dispersion of pollutants in the Cleveland area					
<i>Period</i>	<i>Obligations</i>				
03/15/73-03/14/75	FY74: \$50,000	TOTAL: \$90,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hoydysh, W. G.	LERC/Neustadter, H. E.	39-Env Sci, NEC			
(22-702 770-18-01)					
NGR 33-016-201	New York University	2589			
Study of transonic flow over yawed wings					
<i>Period</i>	<i>Obligations</i>				
05/29/73-08/31/74	FY74:	TOTAL: \$50,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Garabedian, P. R.	ARC/Hicks, R. M.	41-Aero Engr			
(21-702 760-64-01)					
NSG 1049	New York University	2590			
Skin friction drag reduction					
<i>Period</i>	<i>Obligations</i>				
04/01/74-03/31/75	FY74: \$79,000	TOTAL: \$79,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ferri, A.	LARC/Hefner, J. N.	41-Aero Engr			
Zakkay, V.					
(23-702 760-64-60)					
NAS 2-8399	Polytechnic Institute of New York	2591			
Radiation integrals in helicopter rotor research					
<i>Period</i>	<i>Obligations</i>				
06/03/74-08/31/74	FY74: \$11,144	TOTAL: \$11,144			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Isom, M. P.	ARC/Schmitz, F. H.	41-Aero Engr			
(21-702 760-17-00)					
NGR 33-006-047	Polytechnic Institute of New York	2592			
Investigation of diffraction by planetary atmospheres					
<i>Period</i>	<i>Obligations</i>				
03/25/68-03/31/75	FY74: \$25,000	TOTAL: \$164,509			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Gross, S. H.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics			
(10-850 188-36-56)	HQ-SG/Schmerling, E. R.	(10-850 188-00-00)			
	(10-850 188-36-55)				
NGR 33-006-068	Polytechnic Institute of New York	2593			
Study of escape of gases from comets, planets, and satellites					
<i>Period</i>	<i>Obligations</i>				
12/26/72-03/31/75	FY74: \$28,903	TOTAL: \$55,451			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Gross, S. H.	HQ-SL/Fellows, R. F.	13-Physics			
(10-840 185-47-81)	HQ-SL/Brunk, W. E.				
NGR 33-006-070	Polytechnic Institute of New York	2594			
Synthesis of polypeptides, sugar phosphates and polynucleotides from intermediates under simulated conditions					
<i>Period</i>	<i>Obligations</i>				
04/26/73-06/14/75	FY74: \$44,120	TOTAL: \$83,948			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Eirich, F. R.	HQ-SL/Young, R. S.	12-Chemistry			
(10-840 192-55-61)					
NGT 33-006-003	Polytechnic Institute of New York	2595			
Training of graduate students in space-related science and technology					
<i>Period</i>	<i>Obligations</i>				
04/02/63-08/01/72	FY74:	TOTAL: \$1,178,896			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Giordano, A. B.	HQ-PY/Carter, C. H.	99-Multi-Discip			
(10-370 181-00-00)					
NSG 9008	Queens College	2596			
An inquiry into the low seismic attenuation of the lunar crust					
<i>Period</i>	<i>Obligations</i>				
06/10/74-03/09/75	FY74: \$15,345	TOTAL: \$15,345			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Schreiber, E.	JSC/Harris, J. W.	13-Physics			
(72-810 388-10-03)					
NAS 8-26146	Rensselaer Polytechnic Institute	2597			
Growth of single crystals by vapor transport in zero gravity environment					
<i>Period</i>	<i>Obligations</i>				
06/04/70-03/05/75	FY74: \$28,000	TOTAL: \$148,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wiedemeier, H. T.	MSFC/Davidson, M. C.	13-Physics			
(62-630 179-12-13)	MSFC/Arnett, G. M.	(62-980 975-90-95)			(62-740 129-00-00)
NAS 8-28307	Rensselaer Polytechnic Institute	2598			
Vapor growth of II-VI compounds					
<i>Period</i>	<i>Obligations</i>				
10/11/72-04/30/74	FY74:	TOTAL: \$30,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wiedemeier, H.	MSFC/Adams, W. R.	19-Phys Sci, NEC			
(62-960 948-90-95)	MSFC/Davidson, M. C.				
NAS 8-30578	Rensselaer Polytechnic Institute	2599			
Crystal growth from vapor phase in zero environment					
<i>Period</i>	<i>Obligations</i>				
01/11/74-03/31/76	FY74: \$72,000	TOTAL: \$72,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wiedemeier, H.	MSFC/Adams, W. R.	19-Phys Sci, NEC			
(62-930 966-30-00)	MSFC/Boese, A.				
NGL 33-018-003	Rensselaer Polytechnic Institute	2600			
Interdisciplinary materials research including fundamental physics & chemistry of materials, environmental effects, and related problems					
<i>Period</i>	<i>Obligations</i>				
09/01/70-04/30/77	FY74: \$200,000	TOTAL: \$3,809,400			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wiberly, S. E.	LERC/Lad, R. A.	47-Materials Engr			

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NGL 33-018-007 Rensselaer Polytechnic Institute 2601
Investigation of composition & chemical behavior of atmosphere of Venus

<i>Period</i>	<i>Obligations</i>	
06/19/62-08/31/76	FY74: \$100,000	TOTAL: \$1,187,400
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Harteck, P.	HQ-SL/Fellows, R. F.	31-Atmos Sci
	HQ-SL/Hipsher, H. F.	
(10-840 185-47-85)	(10-840 185-47-82)	(10-840 185-00-00)

NSG 1052 Rensselaer Polytechnic Institute 2608
Utilization of ion implanted filaments as ion sources for in-situ calibration of unmanned space vehicles and other applications

<i>Period</i>	<i>Obligations</i>	
05/01/74-04/30/75	FY74: \$10,000	TOTAL: \$10,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
White, F. A.	LARC/Wood, G. M.	19-Phys Sci, NEC
	LARC/Yeager, P. R.	
(23-704 502-03-53)		

NGL 33-018-017 Rensselaer Polytechnic Institute 2602
Spatial nucleation and crystal growth

<i>Period</i>	<i>Obligations</i>	
06/23/64-12/31/73	FY74:	TOTAL: \$323,832
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hudson, J. B.	HQ-SG/Dubin, M.	11-Astronomy
	GSFC/Donn, B.	
(51-850 188-00-00)	(10-850 188-45-53)	(10-850 188-00-00)

NSG 3007 Rensselaer Polytechnic Institute 2609
Relationship between boron fiber properties and its use in composites

<i>Period</i>	<i>Obligations</i>	
06/01/74-05/31/75	FY74: \$35,000	TOTAL: \$35,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Diefendorf, R. J.	LERC/Grimes, H. H.	47-Materials Engr
	LERC/Lad, R. A.	
(22-704 502-01-02)		

NGL 33-018-091 Rensselaer Polytechnic Institute 2603
Analysis and design of a capsule landing system and surface vehicle control system for Mars exploration

<i>Period</i>	<i>Obligations</i>	
06/14/67-05/31/76	FY74: \$105,000	TOTAL: \$690,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yerazunis, S. W.	HQ-SL/Tarver, P.	49-Engr, NEC
	HQ-SL/Herman, D. H.	
(10-840 186-68-55)		

NSG 7065 Rensselaer Polytechnic Institute 2610
Structure-function studies on bacillus Stearothermophilus

<i>Period</i>	<i>Obligations</i>	
06/01/74-05/31/75	FY74: \$20,800	TOTAL: \$20,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wedler, F. C.	HQ-SL/Young, R. S.	51-Biology
	Boyle, C. W.	
(10-840 192-55-64)		

NGR 33-018-148 Rensselaer Polytechnic Institute 2604
Photochemical investigations of the atmosphere of other planets

<i>Period</i>	<i>Obligations</i>	
08/27/70-08/31/74	FY74: \$32,000	TOTAL: \$114,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ferris, J. P.	HQ-SL/Geib, D. S.	12-Chemistry
	HQ-SL/Young, R. S.	
(10-840 192-55-61)		

NAS 2-8179 Rockefeller University 2611
Electrophysiological equipment

<i>Period</i>	<i>Obligations</i>	
03/25/74-06/30/74	FY74: \$3,700	TOTAL: \$3,700
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Eisenberg, L.	ARC/Daunton, N. G.	51-Biology
(21-790 797-00-00)		

NGR 33-018-152 Rensselaer Polytechnic Institute 2605
Mechanics of high energy brakes

<i>Period</i>	<i>Obligations</i>	
06/29/70-06/14/74	FY74:	TOTAL: \$207,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ling, F. F.	LERC/Miller, C. D.	47-Materials Engr
	LERC/Weiss, S.	
(22-704 501-38-12)		

NAS 8-30251 State Univ of New York - Albany 2612
Data analysis of SO73 gegenschein/zodiacal light experiment

<i>Period</i>	<i>Obligations</i>	
10/01/73-04/29/75	FY74: \$157,294	TOTAL: \$157,294
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weinberg, J. L.	MSFC/Ousley, A. T.	11-Astronomy
	MSFC/Fryman, J. C.	
(62-960 948-70-70)		

NGR 33-018-183 Rensselaer Polytechnic Institute 2606
Digital adaptive flight controller development

<i>Period</i>	<i>Obligations</i>	
09/15/72-06/14/75	FY74: \$75,400	TOTAL: \$110,700
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kauffman, H.	LARC/Elliott, J. R.	41-Aero Engr
(23-702 766-75-02)		

NGR 33-182-018 State Univ of New York - Albany 2613
Polarimetric observations of comet Kohoutek from the ground

<i>Period</i>	<i>Obligations</i>	
12/03/73-09/02/74	FY74: \$15,750	TOTAL: \$15,750
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weinberg, J. L.	GSFC/Hobbs, R. W.	11-Astronomy
(51-850 188-45-51)		

NGR 33-018-188 Rensselaer Polytechnic Institute 2607
Design & analysis of communication subsystem for planetary entry missions

<i>Period</i>	<i>Obligations</i>	
04/26/73-05/31/75	FY74: \$25,000	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Modestino, J. W.	ARC/Grant, T. L.	45-Elec Engr
(21-840 186-68-65)		

NAS 8-29745 State Univ of New York - Buffalo 2614
Electrophoretic separation of cells in space

<i>Period</i>	<i>Obligations</i>	
05/15/73-09/16/74	FY74: \$30,000	TOTAL: \$79,995
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bigazzi, P. E.	MSFC/Allen, R. E.	13-Physics
	MSFC/Krupnick, A. C.	
(62-630 162-01-03)		

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NGL 33-183-012	State Univ of New York - Buffalo	2615			
Radar studies of bird migration					
<i>Period</i>		<i>Obligations</i>			
08/01/70-06/01/74	FY74:	TOTAL: \$13,026			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Williams, T. C.	WFC/Vaughn, C. R.	51-Biology			
(53-680 160-75-27)					
NGL 33-183-013	State Univ of New York - Buffalo	2616			
Lunar sample analysis					
<i>Period</i>		<i>Obligations</i>			
02/01/73-01/31/77	FY74: \$59,283	TOTAL: \$59,283			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Cadenhead, D. A.	JSC/Harris, J. W.	12-Chemistry			
(72-810 388-10-03)					
NGR 33-015-002	State Univ of New York - Buffalo	2617			
Studies in cellular theory and molecular mechanisms					
<i>Period</i>		<i>Obligations</i>			
07/30/63-09/30/74	FY74: \$120,000	TOTAL: \$742,237			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Danielli, J. F.	HQ-SL/Geib, D. HQ-SL/Young, R. S.	12-Chemistry			
(10-840 192-55-61)					
NGR 33-015-108	State Univ of New York - Buffalo	2618			
Planetary curriculum and related geologic research					
<i>Period</i>		<i>Obligations</i>			
06/02/70-05/14/75	FY74: \$19,993	TOTAL: \$131,463			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
King, J. S.	HQ-SL/Dwornik, S. E. HQ-SL/Holt, H. E.	32-Geological Sci			
(10-840 185-50-81) (10-840 384-50-80)					
NAS 1-10493	State Univ of New York - Stony Brook	2619			
Participation in the science planning for the Viking 1975 missions in the area of molecular analysis					
<i>Period</i>		<i>Obligations</i>			
01/18/71-03/31/77	FY74: \$15,106	TOTAL: \$84,744			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Owens, T.	LARC/Soffen, G. A.	13-Physics			
(23-840 815-20-00)					
NGL 33-015-035	State Univ of New York - Stony Brook	2620			
Investigation of thermodynamic properties of interstitial elements in refractory metals					
<i>Period</i>		<i>Obligations</i>			
06/17/66-05/01/73	FY74:	TOTAL: \$131,885			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Seigle, L. L.	LERC/Lad, R. A.	47-Materials Engr			
(10-740 129-00-00) (22-740 129-00-00)					
NGL 33-015-082	State Univ of New York - Stony Brook	2621			
Study of high energy and relativistic astrophysics					
<i>Period</i>		<i>Obligations</i>			
10/16/69-09/30/74	FY74: \$10,000	TOTAL: \$189,940			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Owen, T.	GSFC/Chiu, H. Y.	11-Astronomy			
(51-850 405-02-02)					
NGL 33-015-130	State Univ of New York - Stony Brook	2622			
Lunar sample analysis					
<i>Period</i>		<i>Obligations</i>			
02/11/71-01/31/77	FY74: \$111,110	TOTAL: \$508,810			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Papike, J. J.	JSC/Harris, J. W.	13-Physics			
(72-810 388-10-01)					
NGL 33-015-174	State Univ of New York - Stony Brook	2623			
Lunar sample analysis					
<i>Period</i>		<i>Obligations</i>			
02/01/73-01/31/76	FY74: \$50,000	TOTAL: \$200,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Schaeffer, O. A.	JSC/Harris, J. W.	12-Chemistry			
(72-810 388-10-02)					
NGR 33-015-068	State Univ of New York - Stony Brook	2624			
Techniques for interferometrically controlled ruling of improved large diffraction gratings					
<i>Period</i>		<i>Obligations</i>			
12/07/67-06/30/73	FY74:	TOTAL: \$506,970			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Stroke, G. W.	HQ-SG/Weldon, J. M. GSFC/Mangus, J. D.	13-Physics			
(10-850 188-38-51) (10-850 188-00-00)					
NGR 33-015-139	State Univ of New York - Stony Brook	2625			
Quantitative spectroscopic measurements on the principal constituents in planetary atmospheres					
<i>Period</i>		<i>Obligations</i>			
04/12/71-05/31/76	FY74: \$39,000	TOTAL: \$145,038			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Varanasi, P.	HQ-SL/Fellows, R. F. HQ-SL/Brunk, W. E.	31-Atmos Sci			
(10-840 185-47-83)					
NGR 33-015-140	State Univ of New York - Stony Brook	2626			
Infrared spectroscopy of astronomical objects with a Fourier transform spectrometer at high altitudes					
<i>Period</i>		<i>Obligations</i>			
06/07/71-08/15/74	FY74:	TOTAL: \$33,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Knacke, R. E.	ARC/Mason, R. H.	11-Astronomy			
(21-850 352-02-01) (10-850 352-02-01)					
NGR 33-015-141	State Univ of New York - Stony Brook	2627			
Spectroscopic observations of the planets					
<i>Period</i>		<i>Obligations</i>			
01/26/71-03/31/75	FY74: \$29,086	TOTAL: \$114,425			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Owen, T.	HQ-SL/Brunk, W. E. HQ-SL/Fellows, R. F.	11-Astronomy			
(10-840 196-41-80)					
NGR 33-015-160	State Univ of New York - Stony Brook	2628			
Thermodynamics and kinetics of reactions in protective coating systems					
<i>Period</i>		<i>Obligations</i>			
04/12/72-06/01/75	FY74: \$38,733	TOTAL: \$109,673			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Seigle, L. L.	LERC/Levine, S. R.	47-Materials Engr			
(22-704 501-01-06)					

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NGR 33-015-163 State Univ of New York - Stony Brook 2629
 Research on atmospheric pollution effects of turbine engine products over range of operating altitudes
Period *Obligations*
 05/22/72-05/01/75 FY74: TOTAL: \$48,544
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Berlad, A. L. LERC/Belles, F. E. 39-Env Sci, NEC
 LERC/Gordon, S.
 (22-704 501-24-07)

NGR 33-015-165 State Univ of New York - Stony Brook 2630
 Planetary atmospheres research
Period *Obligations*
 11/01/72-08/31/74 FY74: \$15,917 TOTAL: \$45,911
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Owen, T. GSFC/Hansen, J. 31-Atmos Sci
 GSFC/Stone, P.
 (51-840 404-02-02)

NGR 33-015-166 State Univ of New York - Stony Brook 2631
 Infrared interferometry of astronomical objects using an airborne 91.5 cm telescope
Period *Obligations*
 03/01/73-08/31/74 FY74: TOTAL: \$9,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Gebel, W. ARC/Cameron, R. M. 11-Astronomy
 (21-850 352-02-03)

NGR 33-015-169 State Univ of New York - Stony Brook 2632
 Organic molecules in the atmosphere of Jupiter; investigation of colors in Jovian cloud deck
Period *Obligations*
 10/16/72-12/30/74 FY74: \$17,592 TOTAL: \$37,578
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Owen, T. HQ-SL/Geib, D. S. 12-Chemistry
 (10-840 192-55-61)

NGR 33-015-180 State Univ of New York - Stony Brook 2633
 Cosmic rays in interplanetary space
Period *Obligations*
 01/07/74-08/31/74 FY74: \$24,800 TOTAL: \$24,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Forman, M. A. HQ-SG/Opp, A. G. 11-Astronomy
 (10-850 385-46-00)

NGR 33-015-195 State Univ of New York - Stony Brook 2634
 Observations of comet Kohoutek at far infrared and submillimeter wavelengths
Period *Obligations*
 12/10/73-09/09/74 FY74: \$3,470 TOTAL: \$3,470
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Simon, M. GSFC/Hobbs, R. W. 11-Astronomy
 GSFC/Maran, S. P.
 (51-840 196-41-53)

NGR 33-015-196 State Univ of New York - Stony Brook 2635
 Proposed novel techniques for interferometrical controlled ruling of improved large diffraction gratings
Period *Obligations*
 01/01/74-09/31/74 FY74: \$12,000 TOTAL: \$12,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Stroke, G. W. GSFC/Mangus, J. D. 13-Physics
 GSFC/Osantowski, J. F.
 (51-910 914-40-00)

NSG 5015 State Univ of New York - Stony Brook 2636
 Theoretical studies of the atmospheres of the giant planets
Period *Obligations*
 07/01/74-07/01/75 FY74: \$33,026 TOTAL: \$33,026
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Cess, R. D. GSFC/Hansen, J. E. 31-Atmos Sci
 GSFC/Stone, P.
 (51-840 404-02-02)

NSG 7003 State Univ of New York - Stony Brook 2637
 Organic molecules in the atmosphere of cloud deck
Period *Obligations*
 11/01/73-10/31/74 FY74: \$24,000 TOTAL: \$24,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Stroke, G. W. HQ-SG/Weldon, J. M. 45-Elec Engr
 HQ-SG/Oertel, G. K.
 (10-850 188-38-53)

NSG 7036 State Univ of New York - Stony Brook 2638
 Lunar rock surface phenomena
Period *Obligations*
 02/01/74-01/31/75 FY74: \$18,640 TOTAL: \$18,640
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hartung, J. B. HQ-SM/Kosofsky, L. J. 32-Geological Sci
 HQ-SM/Roberson, F. I.
 (10-810 383-20-04)

NAS 5-22277 State Univ of New York - Downstate Med Ctr 2639
 Redox determination of bacteriological presence in urine
Period *Obligations*
 11/13/73-11/12/74 FY74: \$4,000 TOTAL: \$4,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Fealey, R. D. GSFC/Chen, W. T. 52-Clinical Med
 Damadian, R. GSFC/Friedman, D. S.
 (51-250 141-95-02)

NAS 9-11846 State Univ of New York - Upstate Med Ctr 2640
 Analyses of urine samples for antidiuretic hormone
Period *Obligations*
 06/10/71-08/31/75 FY74: \$20,000 TOTAL: \$69,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Miller, M. JSC/Leach, C. S. 59-Life Sci, NEC
 (72-970 970-51-16)

NAS 9-12770 State Univ of New York Col - Genesee 2641
 Lunar geology eastern maria data analysis experiment
Period *Obligations*
 06/20/72-07/01/75 FY74: TOTAL: \$46,646
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Young, R. A. JSC/Hardee, S. N. 32-Geological Sci
 (72-910 914-49-00)

NGR 33-219-002 State Univ of New York Col - Genesee 2642
 Comparison of Lyman 2 and HE 1 & 10830 line structures and variations in early type star atmosphere
Period *Obligations*
 05/14/73-08/31/74 FY74: TOTAL: \$1,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Meisel, D. D. HQ-SG/Roman, N. G. 11-Astronomy
 (10-850 188-41-55)

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NGL 33-022-090 Syracuse University 2643
Multidisciplinary studies in management and development programs in the public sector

<i>Period</i>	<i>Obligations</i>	
02/05/68-09/30/74	FY74: TOTAL: \$1,070,500	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Barzelay, M. E.	HQ-PY/Morris, J. D.	79-Soc Sci, NEC
(10-370 183-00-00)	(10-680 160-00-00)	

NGR 33-022-150 Syracuse University 2644
Interfacing user to large data base system

<i>Period</i>	<i>Obligations</i>	
09/18/72-01/17/74	FY74: TOTAL: \$37,166	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Foster, G. H.	GSFC/Pease, P. B.	21-Mathematics
(51-500 150-22-36)		

NGR 33-022-157 Syracuse University 2645
Application of strain range partitioning to crack propagation

<i>Period</i>	<i>Obligations</i>	
09/01/73-08/31/74	FY74: \$16,950 TOTAL: \$16,950	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liu, H. W.	LERC/Hirschberg, M. H.	47-Materials Engr
(22-704 501-21-21)		

NGR 33-032-004 Union College 2646
Optically pumped submillimeter waveguide maser amplifiers and oscillators

<i>Period</i>	<i>Obligations</i>	
04/15/74-12/14/74	FY74: \$20,000 TOTAL: \$20,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Galantowicz, A.	GSFC/McAvoy, N.	13-Physics
(51-620 643-60-00)	GSFC/Carrion, W. J.	

NAS 1-9689 University of Rochester 2647
Participation in the science planning for biology

<i>Period</i>	<i>Obligations</i>	
06/11/70-03/31/77	FY74: TOTAL: \$146,531	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vishniac, W. V.	LARC/Soffen, G. A.	51-Biology
(23-840 815-20-00)		

NAS 5-20028 University of Rochester 2648
Optical components associated with investigation of solar phenomena in ultraviolet region

<i>Period</i>	<i>Obligations</i>	
01/15/74-02/07/75	FY74: \$13,200 TOTAL: \$13,200	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Baumeister, P.	GSFC/Osantowski, J. F.	13-Physics
(51-850 188-41-51)		

NGR 33-019-002 University of Rochester 2649
Research on automatic remote direction bacteria including modification of detection device for chemical analysis of lunar & planetary surface materials

<i>Period</i>	<i>Obligations</i>	
12/19/61-06/30/74	FY74: \$31,686 TOTAL: \$1,048,028	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vishniac, W. V.	HQ-SL/Geib, D. S.	51-Biology
(10-840 192-55-63)	HQ-SL/Young, R. S.	

NGR 33-019-126 University of Rochester 2650
Radiative damping of waves in solar atmospheres

<i>Period</i>	<i>Obligations</i>	
04/07/72-12/31/73	FY74: TOTAL: \$15,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clark, A.	HQ-SG/Weldon, J. M.	11-Astronomy
(10-850 188-38-53)	HQ-SG/Oertel, G. K.	

NGR 33-019-127 University of Rochester 2651
50 microns 100 microns observations of strong sources with a lamellar grating interferometer on the C-141 infrared telescope

<i>Period</i>	<i>Obligations</i>	
03/06/73-08/31/74	FY74: \$20,000 TOTAL: \$40,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pipher, J. L.	ARC/Cameron, R. M.	11-Astronomy
Duthie, J. G.	ARC/Gillespie, C. M., Jr.	
(21-850 352-02-03)		

NORTH CAROLINA

NAS 8-29286 Appalachian State University 2652
Statistical studies of atmospheric variables related to Skylab and space shuttle programs

<i>Period</i>	<i>Obligations</i>	
10/06/72-10/06/74	FY74: \$5,264 TOTAL: \$20,226	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carter, M. C.	MSFC/Falls, L. W.	21-Mathematics
(62-704 501-08-10)	MSFC/Smith, O. E.	

NGT 34-017-001 Bennett College 2653
Training of two undergraduate students in the space-related sciences and engineering

<i>Period</i>	<i>Obligations</i>	
06/01/74-05/31/75	FY74: \$7,000 TOTAL: \$7,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sayles, J. H.	HQ-PY/Pohly, J. G.	99-Multi-Discip
(10-030 010-00-00)	HQ-U/Jenkins, H. G.	

NSG 1032 Bennett College 2654
Development of a laboratory transportable absorption column applicable to air sampling industrial launch sites for GLC analysis

<i>Period</i>	<i>Obligations</i>	
04/15/74-04/14/75	FY74: \$35,531 TOTAL: \$35,531	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Maggiolo, A.	LARC/Lanford, W. E.	12-Chemistry
Duhart, B. T.	LARC/Gregory, G. L.	
(23-371 340-00-00)		

NAS 2-7655 Duke University 2655
Brain and scalp sections of mice

<i>Period</i>	<i>Obligations</i>	
06/20/73-06/19/74	FY74: TOTAL: \$21,500	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vogel, F. S.	ARC/Harmaker, W. E.	53-Other Medical
(21-970 970-21-63)		

**NASA'S UNIVERSITY PROGRAM
NORTH CAROLINA (Continued)**

NGL 34-001-001 Duke University 2656
Research on satellite electrical power conversion systems and circuit protection
Period *Obligations*
02/19/65-02/28/77 FY74: \$70,000 TOTAL: \$806,031
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilson, T. J. GSFC/Rodriguez, G. E. 45-Elec Engr
(51-704 502-25-72)

NGR 34-001-041 Duke University 2657
Satellite power conversion system
Period *Obligations*
02/01/72-05/31/75 FY74: \$3,100 TOTAL: \$17,226
Prin. Invest. *NASA Tech. Officer* *CASE Category*
O'Foghliudha, F. GSFC/Trombka, J. I. 11-Astronomy
(51-810 383-09-61) (51-810 383-20-01)

NGR 34-001-054 Duke University 2658
Cosmic ray track interactions in lunar pyroxenes
Period *Obligations*
02/01/74-01/31/75 FY74: \$700 TOTAL: \$700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cocks, F. H. JSC/Harris, J. W. 13-Physics
(72-810 388-10-03)

NGR 34-012-003 North Carolina A&T State University 2659
Applications of scattering theory to spectral line satellites
Period *Obligations*
08/14/70-08/31/74 FY74: TOTAL: \$56,130
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Madan, R. N. HQ-PY/Pohly, J. G. 45-Elec Engr
GSFC/Temkin, A.
(10-371 340-00-00) (10-370 183-00-00)

NGR 34-012-004 North Carolina A&T State University 2660
Microelectronic components and metallic oxide studies and applications
Period *Obligations*
04/17/70-08/31/74 FY74: \$40,000 TOTAL: \$130,120
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Williams, L. LARC/Fripp, A. L. 45-Elec Engr
Edwards, D. A.
(23-371 340-00-00) (10-371 340-00-00) (10-370 183-00-00)

NGR 34-012-013 North Carolina A&T State University 2661
Consolidation and analysis of ceramics data
Period *Obligations*
12/01/73-11/30/74 FY74: \$23,199 TOTAL: \$23,199
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Craft, W. J. JPL/Mounihan, P. I. 47-Materials Engr
(56-371 340-00-00)

NAS 1-12833 North Carolina State Univ. - Raleigh 2662
Development of a thin film solid-state gaseous HCL sensor
Period *Obligations*
12/10/73-04/15/75 FY74: \$24,974 TOTAL: \$24,974
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Monteith, L. K. LARC/Lassiter, W. S. 45-Elec Engr
(23-704 502-04-41)

NAS 5-21732 North Carolina State Univ. - Raleigh 2663
Utilization of ERTS-A data in geological evaluation, regional planning, forest management and water management in North Carolina
Period *Obligations*
05/02/72-07/01/74 FY74: TOTAL: \$18,028
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Welby, C. W. GSFC/Ensor, G. J. 32-Geological Sci
Lammi, J. O.
Carson, R. J., III
(51-680 641-14-00)

NAS 9-13321 North Carolina State Univ. - Raleigh 2664
Geological evaluation, regional planning, forest management and water management in North Carolina; EREP 018
Period *Obligations*
03/08/73-12/31/74 FY74: \$35,650 TOTAL: \$39,650
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Welby, C. MSFC/Derington, J. C. 39-Env Sci, NEC
Carson, R. J.
Lammi, J. O.
(62-960 948-63-83) (62-960 948-63-85)

NGL 34-002-017 North Carolina State Univ. - Raleigh 2665
Transverse instabilities of magnetically self-focusing streams in plasmas
Period *Obligations*
12/03/64-11/01/75 FY74: TOTAL: \$156,871
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bennett, W. H. HQ-NS/Thom, K. 13-Physics
(10-720 112-02-22) (45-720 112-02-22)

NGL 34-002-032 North Carolina State Univ. - Raleigh 2666
Mathematical theory of optimal control
Period *Obligations*
10/13/65-09/14/74 FY74: TOTAL: \$137,460
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sagan, H. LARC/Armstrong, E. S. 21-Mathematics
(23-750 125-00-00)

NGL 34-002-084 North Carolina State Univ. - Raleigh 2667
A theoretical study of the process and initiation of spallation of a plate subjected to hypervelocity impact
Period *Obligations*
10/22/68-12/31/73 FY74: TOTAL: \$66,674
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chang, T. S. LARC/Thomson, R. G. 41-Aero Engr
(23-742 124-00-00)

NGL 34-002-095 North Carolina State Univ. - Raleigh 2668
Acoustic energy effects on sleep and human performance
Period *Obligations*
04/11/69-08/31/75 FY74: \$34,890 TOTAL: \$285,890
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Levere, T. E. LARC/Gunn, W. J. 69-Psych, NEC
Hart, F. D. LARC/Edge, P. M., Jr.
(23-704 504-09-02) (23-704 501-09-02)

**NASA'S UNIVERSITY PROGRAM
NORTH CAROLINA (Continued)**

NGR 34-002-108	North Carolina State Univ. - Raleigh	2669	Development of high-temperature materials for solid propellant rocket nozzle applications	
<i>Period</i>	<i>Obligations</i>			
06/09/69-09/01/74	FY74: \$25,525	TOTAL: \$101,290		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Manning, C. R., Jr.	LARC/Hagginbotham, W. K., Jr.	47-Materials Engr		
(23-830 180-32-51)	LARC/Buckley, J. D.	(23-830 180-00-00)		
NGR 34-002-172	North Carolina State Univ. - Raleigh	2670	Ion implanted infrared sensor arrays	
<i>Period</i>	<i>Obligations</i>			
08/18/71-03/31/74	FY74:	TOTAL: \$73,411		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Monteith, L. K.	LARC/Hendricks, H. D.	45-Elec Engr		
(23-704 502-03-53)	LARC/Hutchby, J. A.			
NGR 34-002-175	North Carolina State Univ. - Raleigh	2671	Effect of hydrogen on mechanical properties of alloys containing a martensite phase	
<i>Period</i>	<i>Obligations</i>			
12/01/71-01/01/75	FY74: \$25,000	TOTAL: \$72,653		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Benson, R. B., Jr.	ARC/Williams, D. P.	47-Materials Engr		
(21-704 501-21-21)				
NGR 34-002-177	North Carolina State Univ. - Raleigh	2672	Analysis of nuclear induced plasmas by means of kinetic theory	
<i>Period</i>	<i>Obligations</i>			
03/06/72-12/31/74	FY74: \$30,000	TOTAL: \$60,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Hassan, H. A.	HQ-RR/Thom, K.	13-Physics		
(10-704 503-10-03)				
NGR 34-002-179	North Carolina State Univ. - Raleigh	2673	Review and analysis of lift & drag estimation for use in light aircraft performance prediction	
<i>Period</i>	<i>Obligations</i>			
08/03/72-10/31/74	FY74: \$34,990	TOTAL: \$68,836		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Smetana, F. O.	LARC/Crane, H. L.	41-Aero Engr		
(23-702 760-60-01)				
NGR 34-002-180	North Carolina State Univ. - Raleigh	2674	Thermal fatigue in fiber composite materials	
<i>Period</i>	<i>Obligations</i>			
08/01/72-07/31/74	FY74:	TOTAL: \$16,621		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Fahmy, A. A.	LARC/Imig, L. A.	41-Aero Engr		
(23-704 501-22-02)	LARC/Roderick, G. L.			
NGR 34-002-184	North Carolina State Univ. - Raleigh	2675	Modification and generalization of earth energy	
<i>Period</i>	<i>Obligations</i>			
05/25/72-05/31/73	FY74:	TOTAL: \$14,652		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Moore, C. J.	LARC/Turner, R. E.	21-Mathematics		
(23-680 160-44-63)	LARC/Sullivan, E. M.			
NGR 34-002-188	North Carolina State Univ. - Raleigh	2676	Multiple-shaped beam antenna study	
<i>Period</i>	<i>Obligations</i>			
09/01/72-12/31/74	FY74: \$17,515	TOTAL: \$35,360		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Kauffman, J. F.	LARC/Crowell, W. F.	45-Elec Engr		
(23-680 175-31-31)	LARC/Bailey, M. C.	(23-620 636-18-71)		
	(23-680 160-20-54)			
NGR 34-002-189	North Carolina State Univ. - Raleigh	2677	Differential vibration of feet and trunk of humans in transport environments	
<i>Period</i>	<i>Obligations</i>			
04/10/73-09/30/74	FY74: \$20,000	TOTAL: \$20,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Suggs, C. W.	LARC/Leatherwood, J. D.	59-Life Sci, NEC		
(23-704 501-29-12)				
NGR 34-002-193	North Carolina State Univ. - Raleigh	2678	Surface fitting three-dimensional bodies	
<i>Period</i>	<i>Obligations</i>			
05/07/73-07/31/74	FY74:	TOTAL: \$11,980		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Dejaunette, F. R.	LARC/Hamilton, H. H., II	41-Aero Engr		
(23-704 502-37-01)				
NGR 34-002-195	North Carolina State Univ. - Raleigh	2679	Theoretical analysis of current voltage characteristics of solar cells	
<i>Period</i>	<i>Obligations</i>			
06/01/73-06/30/75	FY74: \$26,500	TOTAL: \$53,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Hauser, J. R.	LERC/Godlewski, M. P.	45-Elec Engr		
(22-704 502-05-50)	LERC/Brandhorst, H. W., Jr.			
NGR 34-002-196	North Carolina State Univ. - Raleigh	2680	Photometry of vapor clouds released above the earth	
<i>Period</i>	<i>Obligations</i>			
05/01/73-04/30/74	FY74: \$20,446	TOTAL: \$20,446		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Manring, E. R.	HQ-SG/Dubin, M.	11-Astronomy		
(10-850 385-45-00)	HQ-SG/Kavanagh, L. D., Jr.			
NGT 34-002-097	North Carolina State Univ. - Raleigh	2681	Training of graduate students in acoustics as related to aeronautical and space technology	
<i>Period</i>	<i>Obligations</i>			
04/11/69-08/01/73	FY74:	TOTAL: \$251,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Hart, F. D.	HQ-PY/Carter, C. H.	49-Engr, NEC		
(10-370 181-00-00)				
NSG 1013	North Carolina State Univ. - Raleigh	2682	Modeling of slow flow electric discharge CO laser systems	
<i>Period</i>	<i>Obligations</i>			
04/01/74-03/31/75	FY74: \$21,000	TOTAL: \$21,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Hassan, H. A.	LARC/Sidney, B. D.	31-Atmos Sci		
(23-704 502-04-36)	LARC/Allario, F.			

**NASA'S UNIVERSITY PROGRAM
NORTH CAROLINA (Continued)**

NSG 1058 North Carolina State Univ. - Raleigh 2683
Analyses of nuclear induced plasmas by means of kinetic theory
Period Obligations
07/01/74-06/30/75 FY74: \$30,000 TOTAL: \$30,000
Prin. Invest. NASA Tech. Officer CASE Category
Hassan, H. A. LARC/Hohl, F. 19-Phys Sci, NEC
(23-704 502-10-01)

NSG 1033 Shaw University 2684
Polyimides systems research
Period Obligations
04/08/74-04/07/75 FY74: \$33,000 TOTAL: \$33,000
Prin. Invest. NASA Tech. Officer CASE Category
Chatterji, A. K. LARC/Bell, V. L. 12-Chemistry
Jenkins, R. N. LARC/Price, H. L.
(23-371 340-00-00)

NAS 8-26601 University of North Carolina - Chapel Hill 2685
Passive particle dosimetry
Period Obligations
11/17/70-10/31/74 FY74: TOTAL: \$29,792
Prin. Invest. NASA Tech. Officer CASE Category
Childs, C. B. MSFC/Parnell, T. A. 13-Physics
(62-742 124-00-00)

NGT 34-003-001 University of North Carolina - Chapel Hill 2686
Training of graduate students in space-related science and technology
Period Obligations
03/20/63-08/01/72 FY74: TOTAL: \$812,804
Prin. Invest. NASA Tech. Officer CASE Category
Ingram, J. C. HQ-PY/Carter, C. H. 99-Multi-Discip
(10-370 181-00-00)

NORTH DAKOTA

NGR 35-001-012 North Dakota State University 2687
Quantitation of buried contamination by the use of solvents
Period Obligations
06/01/73-11/30/74 FY74: TOTAL: \$61,418
Prin. Invest. NASA Tech. Officer CASE Category
Hill, T. W. HQ-SL/Hall, L. B. 12-Chemistry
(10-840 193-58-62) (10-870 189-00-00) (10-870 191-00-00)

OHIO

NGR 36-017-004 Bowling Green State University 2688
Genetic effect of space on cells
Period Obligations
09/01/73-08/31/74 FY74: \$35,000 TOTAL: \$35,000
Prin. Invest. NASA Tech. Officer CASE Category
Oster, I. I. ARC/Miquel, J. 51-Biology
ARC/Philpott, D. E.
(21-970 970-21-62)

NSG 7022 Bowling Green State University 2689
Radially streaming particle model for Seyfert galaxy nuclei and quasistellar objects
Period Obligations
07/01/74-06/30/75 FY74: \$15,000 TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
Ptak, R. L. HQ-SG/Bogges, N. W. 11-Astronomy
Stoner, R. E. HQ-SG/Roman, N. G.
(10-850 188-41-51)

NAS 8-29707 Case Western Reserve University 2690
Study of high energy extragalactic sources
Period Obligations
04/13/73-10/12/73 FY74: TOTAL: \$3,500
Prin. Invest. NASA Tech. Officer CASE Category
Bidelman, W. MSFC/Wdowiak, T. J. 11-Astronomy
MSFC/Miller, E. R.
(62-850 188-41-51)

NGL 36-003-002 Case Western Reserve University 2691
Research on methods of systematic structural synthesis for digital computing equipment
Period Obligations
12/01/61-06/01/74 FY74: TOTAL: \$657,136
Prin. Invest. NASA Tech. Officer CASE Category
Kicher, T. P. LARC/Stroud, W. J. 41-Aero Engr
Fox, R. L. (10-742 124-00-00) (23-742 124-00-00) (23-760 126-00-00)

NGL 36-003-064 Case Western Reserve University 2692
Basic scientific research in fluid physics
Period Obligations
06/14/65-05/31/76 FY74: \$77,091 TOTAL: \$1,038,842
Prin. Invest. NASA Tech. Officer CASE Category
Reshotko, E. LERC/Rayle, W. D. 19-Phys Sci, NEC
(22-704 501-00-00) (22-704 501-04-03)

NGL 36-003-094 Case Western Reserve University 2693
The effects of deformation on dispersion
Period Obligations
10/18/66-07/01/75 FY74: \$29,705 TOTAL: \$188,720
Prin. Invest. NASA Tech. Officer CASE Category
Ebert, L. J. LERC/Quatintetz, M. 47-Materials Engr
(22-704 501-01-06)

NGL 36-027-032 Case Western Reserve University 2694
Study of the effects of boundary layer control on shock wave turbulent boundary layer interactions in supersonic inlets
Period Obligations
05/07/71-04/01/74 FY74: TOTAL: \$45,070
Prin. Invest. NASA Tech. Officer CASE Category
Reshotko, E. LERC/Anderson, B. H. 41-Aero Engr
(22-760 720-00-00)

NGL 36-027-057 Case Western Reserve University 2695
Lunar sample analysis
Period Obligations
06/30/72-01/31/75 FY74: \$33,330 TOTAL: \$150,000
Prin. Invest. NASA Tech. Officer CASE Category
Radcliffe, S. V. JSC/Harris, J. W. 12-Chemistry
(72-810 388-10-01)

NASA'S UNIVERSITY PROGRAM
OHIO (Continued)

NGR 36-027-035	Case Western Reserve University	2696			
Unidirectional solidification of superalloy eutectics to produce composite cast structures					
	<i>Period</i>	<i>Obligations</i>			
05/21/71-06/30/74	FY74: \$1	TOTAL: \$46,591			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wallace, J. F.	LERC/Ashbrook, R. L.	47-Materials Engr			
(22-760 126-00-00)					
NGR 36-027-038	Case Western Reserve University	2697			
Boundary layer control applied to shock wave boundary layer interactions					
	<i>Period</i>	<i>Obligations</i>			
06/18/71-12/31/74	FY74:	TOTAL: \$40,919			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Reshotko, E.	LERC/Anderson, B. H.	41-Acro Engr			
(22-760 126-00-00)					
NGR 36-027-040	Case Western Reserve University	2698			
Evaluation of candidate materials for aerospace					
	<i>Period</i>	<i>Obligations</i>			
07/22/71-03/01/74	FY74:	TOTAL: \$33,175			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Troiano, A. R.	LERC/Gray, H. R.	47-Materials Engr			
	LERC/Ashbrook, R. L.				
(22-740 134-00-00)					
NGR 36-027-047	Case Western Reserve University	2699			
Industry instructional television network					
	<i>Period</i>	<i>Obligations</i>			
05/19/72-05/31/73	FY74:	TOTAL: \$13,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Boltz, R. E.	LERC/Usher, R. J.	49-Engr, NEC			
(22-030 039-00-00)					
NGR 36-027-050	Case Western Reserve University	2700			
Catalysis for electrochemical generation of oxygen					
	<i>Period</i>	<i>Obligations</i>			
02/22/72-04/01/75	FY74: \$44,000	TOTAL: \$120,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Yeager, E.	ARC/Quattrone, P. D.	12-Chemistry			
Cahan, B.					
O'Grady, W.					
(21-970 970-22-21) (21-970 970-22-20)					
NGR 36-027-051	Case Western Reserve University	2701			
Stress corrosion cracking & hydrogen embrittlement					
	<i>Period</i>	<i>Obligations</i>			
06/02/72-04/01/76	FY74:	TOTAL: \$45,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hehemann, R. H.	LERC/Gray, H. R.	47-Materials Engr			
	LERC/Andrews, C. W.				
(22-704 501-21-23)					
NGR 36-027-052	Case Western Reserve University	2702			
Electrical generation of oxygen					
	<i>Period</i>	<i>Obligations</i>			
04/17/72-08/31/75	FY74:	TOTAL: \$45,328			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Yeager, E.	ARC/Quattrone, P. D.	12-Chemistry			
(21-970 970-22-20)					
NGR 36-027-053	Case Western Reserve University	2703			
Microelectronic bioinstrumentation systems					
	<i>Period</i>	<i>Obligations</i>			
04/27/72-08/31/74	FY74: \$50,000	TOTAL: \$133,300			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ko, W. H.	ARC/Sandler, H.	53-Other Medical			
Yon, E. T.	ARC/Fryer, T.				
(21-970 970-23-30) (21-970 970-21-14) (21-970 970-21-16)					
NGR 36-027-064	Case Western Reserve University	2704			
Study of effects of layer control on shock wave turbulent boundary layer interactions in supersonics inlets					
	<i>Period</i>	<i>Obligations</i>			
08/01/73-08/01/74	FY74: \$31,800	TOTAL: \$31,800			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Reshotko, E.	LERC/Anderson, B. H.	41-Acro Engr			
(22-704 501-24-05)					
NGR 36-027-068	Case Western Reserve University	2705			
Far infrared maser communications technology					
	<i>Period</i>	<i>Obligations</i>			
05/13/74-10/31/74	FY74: \$25,000	TOTAL: \$25,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Pao, Y. H.	GSFC/McAvoy, N.	13-Physics			
Claspy, P. C.					
(51-620 643-60-00)					
NGT 36-003-007	Case Western Reserve University	2706			
Training of graduate students in space-related science and technology					
	<i>Period</i>	<i>Obligations</i>			
03/22/63-08/01/72	FY74:	TOTAL: \$1,053,983			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Thomas, R. H.	HQ-PY/Carter, C. H.	99-Multi-Discip			
(10-370 181-00-00)					
NGT 36-027-011	Case Western Reserve University	2707			
Summer program of NASA-ASEE summer faculty fellowships					
	<i>Period</i>	<i>Obligations</i>			
12/16/69-03/31/75	FY74: \$110,500	TOTAL: \$527,995			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Prahl, J. M.	HQ-PY/Carter, C. H.	49-Engr, NEC			
(10-371 340-00-00) (10-740 134-03-20) (10-762 764-74-05)					
NSG 1069	Case Western Reserve University	2708			
Application of interactive computer graphics to aircraft structural analysis and aircraft simulation					
	<i>Period</i>	<i>Obligations</i>			
07/01/74-06/30/75	FY74: \$55,024	TOTAL: \$55,024			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lynch, W. C.	LARC/Smith, R. E.	99-Multi-Discip			
	LARC/Shoosmith, J. N.				
(23-704 504-39-11)					
NSG 3009	Case Western Reserve University	2709			
X-ray photoelectric spectroscopy study of nickel and nickel-base alloy surface alteration in simulated hot corrosion conditions					
	<i>Period</i>	<i>Obligations</i>			
06/01/74-05/31/75	FY74: \$25,000	TOTAL: \$25,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Mateescu, G. D.	LERC/Kohl, F. J.	19-Phys Sci, NEC			
	LERC/Stearns, C. A.				
(22-704 502-01-02)					

NASA'S UNIVERSITY PROGRAM

OHIO (Continued)

NSG 3027 Case Western Reserve University 2710
 Processing studies on non-oxide ceramics
Period *Obligations*
 09/01/74-08/31/77 FY74: \$46,700 TOTAL: \$46,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mitchell, T. E. LERC/Probst, H. B. 47-Materials Engr
 Ever, H. H. LERC/Ashbrook, R. L.
 (22-704 501-15-83)

NSG 7035 Case Western Reserve University 2711
 Development of a generalized technology for life prediction in high-temperature creep and fatigue range
Period *Obligations*
 05/01/74-04/30/75 FY74: \$34,859 TOTAL: \$34,859
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Manson, S. S. HQ-RW/Maltz, J. 47-Materials Engr
 HQ-RW/Deutsch, G. C.
 (22-704 502-22-03)

NGR 36-033-001 Central State University - Ohio 2712
 Temperature dependence of ultrasonic echo attenuation in tungsten
Period *Obligations*
 12/04/72-12/31/73 FY74: TOTAL: \$13,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hartzler, E. A. HQ-PY/Pohly, J. G. 13-Physics
 LERC/Grimes, H. H.
 (10-371 340-00-00)

NGR 36-033-002 Central State University - Ohio 2713
 Determination of water quality in lake Erie via satellite scanning spectroscopy
Period *Obligations*
 02/28/73-09/30/75 FY74: \$24,365 TOTAL: \$24,365
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rubin, D. LERC/Raquet, C. A. 51-Biology
 (22-371 340-00-00)

NGR 36-033-003 Central State University - Ohio 2714
 Effects of some selected atmospheric pollutants on animal population surrounding the Cleveland area
Period *Obligations*
 04/25/73-07/31/74 FY74: TOTAL: \$19,956
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Craft, T. J. HQ-PY/Pohly, J. G. 51-Biology
 (10-371 340-00-00)

NGL 36-025-001 Cleveland State University 2715
 Detection characteristics of germanium and silicon
Period *Obligations*
 03/26/69-04/01/74 FY74: TOTAL: \$70,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Casper, K. LERC/Barile, S. 13-Physics
 (22-710 120-00-00)

NSG 1030 Cleveland State University 2716
 Global pollution model for CO, CH4 and H2CO
Period *Obligations*
 05/01/74-08/14/74 FY74: \$8,834 TOTAL: \$8,834
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Peters, L. K. LARC/Richle, H. G., Jr. 31-Atmos Sci
 LARC/Orr, H. D.
 (23-680 176-21-31)

NAS 3-17353 Hiram College 2717
 Friction experiments and X-ray texture analysis of rubbing surfaces
Period *Obligations*
 03/13/73-07/12/73 FY74: TOTAL: \$7,980
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wheeler, D. R. LERC/Buckley, D. H. 13-Physics
 (22-701 598-85-00)

NSG 3026 Hiram College 2718
 Residual stress and crystallite size change as a result of rubbing in polycrystalline metals
Period *Obligations*
 07/01/74-06/31/75 FY74: \$18,500 TOTAL: \$18,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wheeler, D. R. LERC/Buckley, D. H. 47-Materials Engr
 LERC/Spalvins, T.
 (22-704 502-01-07)

NGR 36-007-027 Kent State University 2719
 Low temperature specific heats of certain rare earth trihydrides: crystal field and magnetic ordering effects
Period *Obligations*
 07/22/71-09/30/74 FY74: TOTAL: \$25,761
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Johnson, D. L. LERC/Brown, G. V. 13-Physics
 (22-704 503-10-03)

NSG 2013 Kent State University 2720
 Transport of trace contaminants through porous media
Period *Obligations*
 03/15/74-09/14/75 FY74: \$27,500 TOTAL: \$27,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Madex, R. ARC/Quattrone, P. D. 12-Chemistry
 (21-970 970-22-21)

NAS 1-12688 Ohio State University 2721
 Recovery temperature investigation for Viking entry probe
Period *Obligations*
 09/28/73-03/28/74 FY74: \$32,036 TOTAL: \$32,036
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Petri, S. L. LARC/Siemers, P. M. 41-Aero Engr
 (23-840 815-20-00)

NAS 2-6634 Ohio State University 2722
 Study of weightlessness on development of vestibular apparatus and ocular nystagmus in the rat
Period *Obligations*
 09/30/71-09/30/73 FY74: \$10,000 TOTAL: \$54,969
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Clarke, D. L. ARC/Oyama, J. 53-Other Medical
 ARC/Mehler, W. R.
 (21-970 970-21-61)

NAS 2-6779 Ohio State University 2723
 Helicopter rotor blade boundary layers
Period *Obligations*
 02/00/32-08/31/74 FY74: TOTAL: \$54,391
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Velkoff, H. R. ARC/McCroskey, W. J. 41-Aero Engr
 ARC/Morse, H. A.
 (21-760 136-13-01)

NASA'S UNIVERSITY PROGRAM
OHIO (Continued)

NAS 5-20521	Ohio State University	2724	NGL 36-008-109	Ohio State University	2731
Space shuttle experiment			Flutter of thermally stressed plates subject to large deflections		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/23/74-05/23/75	FY74: \$40,000	TOTAL: \$40,000	03/24/69-06/01/74	FY74:	TOTAL: \$109,347
<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>
Fouty, R. A.	GSFC/Hirschmann, E.	39-Env Sci, NEC	Bailey, C. D.	LARC/Naumann, E. C.	41-Aero Engr
(51-601 645-25-08)			(23-760 720-00-00)	(23-742 124-00-00)	
NAS 5-21983	Ohio State University	2725	NGL 36-008-138	Ohio State University	2732
ATS-F millimeter wave experiment			A study of high performance antenna systems for space communication		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/31/74-09/01/75	FY74: \$249,595	TOTAL: \$249,595	08/14/69-11/14/74	FY74: \$49,760	TOTAL: \$185,760
<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>
Ksienski, A. A.	GSFC/Hirschmann, E.	31-Atmos Sci	Richmond, J. H.	LARC/Cockrell, C. R.	45-Elec Engr
Hodge, D. B.			Burnside, W. D.	LARC/Gilreath, M. C.	
(51-620 643-10-00)			(23-704 502-33-83)	(23-702 768-81-02)	(23-750 125-00-00)
NAS 6-2484	Ohio State University	2726	NGR 36-008-080	Ohio State University	2733
Investigation to improve existing gravity models, using GEOS altimeter data			Millimeter-wavelength propagation studies		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/15/74-04/14/77	FY74: \$20,100	TOTAL: \$20,100	03/03/67-06/16/74	FY74: \$63,993	TOTAL: \$582,530
<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.	WFC/Stanley, H. R.	32-Geological Sci	Ksienski, A. A.	GSFC/Hirschmann, E.	45-Elec Engr
	WFC/Rossi, L. C.		Hodge, D. B.		
(53-630 369-07-01)			(51-620 636-18-00)	(51-620 164-21-73)	(51-680 604-00-00)
NAS 9-13093	Ohio State University	2727	NGR 36-008-144	Ohio State University	2734
Investigations related to selenodetic control			Flush-mounted antennas radiating through dielectric covered curved surfaces		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/29/72-08/31/74	FY74:	TOTAL: \$59,800	02/26/70-02/28/74	FY74:	TOTAL: \$151,991
<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>
Mueller, I. I.	JSC/Nance, R. L.	19-Phys Sci, NEC	Peters, L., Jr.	LARC/Croswell, W. F.	45-Elec Engr
(72-910 914-00-00)				LARC/Cockrell, C. R.	
			(23-704 502-33-83)	(23-750 125-00-00)	
NASW 2435	Ohio State University	2728	NGR 36-008-161	Ohio State University	2735
Geop-geodesy-solid-earth and ocean physics research conferences			The direct combination of satellite and gravity data		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/26/72-12/31/74	FY74: \$15,000	TOTAL: \$28,500	05/01/71-08/31/74	FY74: \$19,474	TOTAL: \$79,474
<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-ES/Murphy, J. P.	32-Geological Sci	Rapp, R. H.	GSFC/Smith, D. E.	32-Geological Sci
(10-630 161-02-07)			(51-630 161-04-01)	(51-680 160-79-69)	
NGL 36-008-051	Ohio State University	2729	NGR 36-008-169	Ohio State University	2736
Stress corrosion cracking of titanium alloys			Radar return and radiometric emission from sea		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/23/66-06/01/79	FY74:	TOTAL: \$208,696	06/15/71-04/30/74	FY74:	TOTAL: \$70,000
<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	Peake, W. H.	LARC/Painter, J. H.	45-Elec Engr
(22-740 134-03-21)			(23-620 636-18-71)		
NGL 36-008-093	Ohio State University	2730	NGR 36-008-197	Ohio State University	2737
Data analysis for the national geodetic satellite program			Application of the general energy equation - A unified approach to mechanics		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/23/67-06/01/74	FY74:	TOTAL: \$555,518	04/23/73-06/30/75	FY74: \$30,000	TOTAL: \$30,000
<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>
Mueller, I. I.	HQ-ES/Murphy, J. P.	19-Phys Sci, NEC	Bailey, C. D.	LARC/Runyan, H. L., Jr.	41-Aero Engr
(10-630 855-12-00)	(10-630 855-22-00)		(23-704 502-22-11)		

NASA'S UNIVERSITY PROGRAM

OHIO (Continued)

<p>NGR 36-008-204 Ohio State University 2738 Activity related to earth and ocean physics application program <i>Period</i> <i>Obligations</i> 10/01/73-12/30/75 FY74: \$38,506 TOTAL: \$38,506 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Mueller, I. HQ-ES/Murphy, J. P. 32-Geological Sci (10-630 369-04-06)</p>	<p>NAS 1-11105 University of Cincinnati 2745 Asteroid orbit calculations <i>Period</i> <i>Obligations</i> 09/10/71-06/30/73 FY74: TOTAL: \$10,000 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Herget, P. LARC/Brooks, D. R. 11-Astronomy LARC/Harrison, E. F. (23-705 110-06-05)</p>
<p>NGR 36-008-205 Ohio State University 2739 Studies of heat source-driven natural convection <i>Period</i> <i>Obligations</i> 08/01/73-08/01/75 FY74: \$8,714 TOTAL: \$8,714 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Kulacki, F. A. ARC/Cassen, P. M. 19-Phys Sci, NEC ARC/Reynolds, R. T. (21-840 185-47-67) (21-850 352-02-03)</p>	<p>NAS 2-7850 University of Cincinnati 2746 Theoretical and experimental study of aerodynamics <i>Period</i> <i>Obligations</i> 10/01/73-10/01/76 FY74: \$94,990 TOTAL: \$94,990 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Tabakoff, W. ARC/Burke, J. A. 41-Aero Engr (21-704 501-17-00)</p>
<p>NGR 36-008-211 Ohio State University 2740 Ultrastructures of rats reared under hypergravity compared with those reared under normal gravity <i>Period</i> <i>Obligations</i> 09/01/73-10/31/74 FY74: \$23,437 TOTAL: \$23,437 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Lim, D. ARC/Mehler, W. R. 59-Life Sci, NEC (21-970 970-21-53) (21-970 970-21-11)</p>	<p>NGL 36-004-014 University of Cincinnati 2747 Multidisciplinary space-related research in the physical, engineering, life and social sciences <i>Period</i> <i>Obligations</i> 01/25/66-03/31/74 FY74: TOTAL: \$720,000 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Guston, R. L. HQ-PY/Redding, E. R. 99-Multi-Discip (10-370 183-00-00) (10-371 340-00-00)</p>
<p>NGT 36-008-007 Ohio State University 2741 Training of post-graduate medical students in field of aerospace medicine <i>Period</i> <i>Obligations</i> 04/02/64-08/31/76 FY74: \$118,978 TOTAL: \$118,978 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Ellingson, H. V. HQ-MM/Brownstein, H. S. 52-Clinical Med HQ-MM/Jones, W. L. (10-970 970-14-01)</p>	<p>NGR 36-004-054 University of Cincinnati 2748 Investigations in superconductivity <i>Period</i> <i>Obligations</i> 06/07/71-05/31/74 FY74: TOTAL: \$49,804 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Joiner, W. C. LERC/Brown, G. V. 13-Physics (22-704 503-10-03) (22-740 129-00-00)</p>
<p>NSG 3005 Ohio State University 2742 Remote sensing of lake ice thickness <i>Period</i> <i>Obligations</i> 04/01/74-04/01/75 FY74: \$40,000 TOTAL: \$40,000 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Peake, W. H. LERC/Gedney, R. T. 45-Elec Engr LERC/Heighway, J. (22-680 177-54-21) (22-680 683-74-22)</p>	<p>NGR 36-004-055 University of Cincinnati 2749 Erosion phenomena within radial turbines and methods for its reduction <i>Period</i> <i>Obligations</i> 05/04/71-12/31/74 FY74: \$516 TOTAL: \$45,515 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Tabakoff, W. LERC/Haas, J. E. 46-Mech Engr (22-704 501-15-83)</p>
<p>NSR 36-008-108 Ohio State University 2743 Critical analysis and review of state-of-the-art in space medicine <i>Period</i> <i>Obligations</i> 06/27/68-06/30/73 FY74: TOTAL: \$225,359 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Ellingson, H. V. HQ-MM/Brownstein, H. S. 59-Life Sci, NEC HQ-MM/Link, M. M. (10-980 904-00-00) (10-980 908-90-00)</p>	<p>NGR 36-004-056 University of Cincinnati 2750 Effects of group I impurities in II-VI compounds: sodium doped cadmium sulfide and zinc oxide <i>Period</i> <i>Obligations</i> 09/01/71-05/31/74 FY74: \$1,328 TOTAL: \$71,387 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Harness, D. LERC/Olson, W. T. 47-Materials Engr Weisman, J. (22-704 502-10-02)</p>
<p>NGR 36-009-017 Ohio University 2744 Air transportation problems with emphasis on general aviation avionics <i>Period</i> <i>Obligations</i> 03/04/71-08/31/76 FY74: \$50,000 TOTAL: \$232,125 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> McFarland, R. H. LARC/Mace, W. D. 41-Aero Engr Burhans, R. W. (23-704 501-03-02) (23-750 135-06-02)</p>	<p>NGR 36-004-060 University of Cincinnati 2751 Effects of group I impurities in II-VI compounds sodium doped cds and zno <i>Period</i> <i>Obligations</i> 11/22/72-03/01/74 FY74: TOTAL: \$10,000 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Fedder, R. C. LERC/Liu, D. C. 19-Phys Sci, NEC LERC/Bluc, J. W. (22-704 503-10-04)</p>

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

NGR 36-004-061	University of Cincinnati	2752			
NASA traineeship program in aeronautics					
<i>Period</i>	<i>Obligations</i>				
04/21/72-08/31/75	FY74: \$21,773	TOTAL: \$58,473			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wells, W. R. (23-704 501-15-82)	LARC/Queijo, M. J. (23-704 501-26-05)	41-Aero Engr (23-760 136-13-01)			
NGR 36-004-063	University of Cincinnati	2753			
Processing and properties of polyimide and pyrrone composites					
<i>Period</i>	<i>Obligations</i>				
08/03/72-03/31/74	FY74:	TOTAL: \$23,070			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Chartoff, R. P. (23-704 501-21-23)	LARC/Price, H. L.	43-Chem Engr			
NGR 36-004-064	University of Cincinnati	2754			
Two-dimensional flow losses of a turbine with boundary layer injection					
<i>Period</i>	<i>Obligations</i>				
06/13/72-09/30/75	FY74: \$31,263	TOTAL: \$31,263			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tabakoff, W. (22-704 501-24-03)	LERC/Prust, H. W., Jr.	41-Aero Engr			
NGR 36-004-065	University of Cincinnati	2755			
NASA traineeship program in aeronautics					
<i>Period</i>	<i>Obligations</i>				
07/26/72-07/31/75	FY74: \$29,995	TOTAL: \$29,995			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sobel, L. H. (23-704 502-22-10)	LARC/Williams, J. G. LARC/Mikulas, M. M. (23-704 501-00-00)	49-Engr, NEC			
NGR 36-004-068	University of Cincinnati	2756			
Analytical earth satellite theory to be used for definitive orbit determination and geophysical studies					
<i>Period</i>	<i>Obligations</i>				
08/15/73-03/31/75	FY74: \$19,180	TOTAL: \$19,180			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Danielli, J. F. (51-500 310-10-22)	GSFC/Lancaster, E. R.	11-Astronomy			
NGR 36-004-069	University of Cincinnati	2757			
Three-dimensional boundary layer problems related to space shuttle configurations					
<i>Period</i>	<i>Obligations</i>				
01/01/72-10/14/74	FY74:	TOTAL: \$12,120			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Davis, R. T. (23-704 502-37-01)	LARC/Harris, J. E. LARC/Beckwith, I. E.	41-Aero Engr			
NGR 36-004-075	University of Cincinnati	2758			
Jupiter space missions support, orbit computation programs and new astrophysical plate constants					
<i>Period</i>	<i>Obligations</i>				
11/01/73-11/30/74	FY74: \$10,000	TOTAL: \$10,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Herget, P. (10-840 196-41-85)	HQ-SL/Brunk, W. E. HQ-SL/Fellows, R. F.	11-Astronomy			
NSG 3022	University of Cincinnati	2759			
Development of a new family of semiconductor diodes based upon bulk effects of deep impurities					
<i>Period</i>	<i>Obligations</i>				
07/01/74-06/30/76	FY74: \$36,900	TOTAL: \$36,900			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Henderson, H. T. (22-704 502-25-71)	LERC/Sundberg, G. R. LERC/Myers, I. T.	45-Elec Engr			
NSG 3024	University of Cincinnati	2760			
Research into the use of silane pyrolytic deposition methods for SiO ₂ growth in the construction of stable high energy density capacitors					
<i>Period</i>	<i>Obligations</i>				
07/01/74-06/30/76	FY74: \$23,100	TOTAL: \$23,100			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Nevin, J. H. Henderson, H. T. (22-704 502-25-71)	LERC/Grier, N. T. LERC/Myers, I. T.	45-Elec Engr			
NAS 6-2456	University of Dayton	2761			
Atmospheric phenomena associated with falling spheres					
<i>Period</i>	<i>Obligations</i>				
03/25/74-11/24/74	FY74: \$16,630	TOTAL: \$16,630			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Luers, J. K. (53-680 607-07-00)	WFC/Duke, J. R. WFC/Schmidlin, F. J.	31-Atmos Sci			
NAS 3-17826	University of Toledo	2762			
Benefit-cost methodology study with example application					
<i>Period</i>	<i>Obligations</i>				
05/31/74-01/30/75	FY74: \$64,850	TOTAL: \$64,850			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
(22-620 643-60-00)	LERC/Unavailable	49-Engr, NEC			
NGR 36-010-022	University of Toledo	2763			
Scattering properties of interstellar dust particles					
<i>Period</i>	<i>Obligations</i>				
04/17/72-06/15/74	FY74:	TOTAL: \$20,612			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Witt, A. D. (10-850 385-45-00)	HQ-SG/Dubin, M.	11-Astronomy			
NGR 36-010-024	University of Toledo	2764			
Adaptive system optimization for integrated air-breathing engine systems					
<i>Period</i>	<i>Obligations</i>				
09/01/71-09/01/75	FY74: \$15,000	TOTAL: \$54,400			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Leininger, G. G. (22-704 501-15-83)	LERC/Willoh, R. G.	49-Engr, NEC			
NGR 36-010-031	University of Toledo	2765			
Study of magnetic ap variable stars; the a persei cluster					
<i>Period</i>	<i>Obligations</i>				
05/01/74-04/30/75	FY74: \$15,888	TOTAL: \$15,888			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Molnar, M. R. (51-850 831-43-00)	GSFC/Kupperian, J. E.	11-Astronomy			

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OHIO (Continued)

NSG 5006 University of Toledo 2766
 Investigation of an ap variable star
Period Obligations
 05/01/74-04/30/75 FY74: \$2,050 TOTAL: \$2,050
Prin. Invest. NASA Tech. Officer CASE Category
 Molnar, M. R. GSFC/Kupperian, J. E. 11-Astronomy
 (51-850 831-43-00)

NSG 7041 University of Toledo 2767
 Measurement of the ultraviolet surface brightness of reflection
 nebulae with the Dutch national satellite ANS
Period Obligations
 12/15/74-06/14/76 FY74: \$9,126 TOTAL: \$9,126
Prin. Invest. NASA Tech. Officer CASE Category
 Witt, A. N. HQ-SG/Roman, N. G. 11-Astronomy
 HQ-SG/Calahan, H. D.
 (10-850 385-41-00)

NGR 36-028-006 Youngstown State University 2768
 Application of ultrasonic signature analysis for fatigue detection
 in complex structures
Period Obligations
 08/03/72-11/30/73 FY74: TOTAL: \$12,269
Prin. Invest. NASA Tech. Officer CASE Category
 Zuckerwar, A. J. LARC/Gray, D. L. 49-Engr, NEC
 (23-704 501-22-02)

OKLAHOMA

NAS 2-7273 Oklahoma State University 2769
 Operation of arc tour & visitor program for FY 73
Period Obligations
 10/26/72-07/31/74 FY74: \$31,245 TOTAL: \$36,425
Prin. Invest. NASA Tech. Officer CASE Category
 Wiggins, K. E. ARC/Miller, S. A. 99-Multi-Discip
 ARC/King, L. D.
 (21-030 021-01-98)

NASW 1964 Oklahoma State University 2770
 Space science education project
Period Obligations
 09/30/69-06/30/74 FY74: \$827,363 TOTAL: \$3,874,953
Prin. Invest. NASA Tech. Officer CASE Category
 Wiggins, K. E. HQ-FE/Collin, E. E. 99-Multi-Discip
 HQ-FE/Rich, W. B.
 (10-030 010-00-00) (10-950 953-00-00)

NGR 37-002-096 Oklahoma State University 2771
 Optimal controller design for high-performance aircraft undergo-
 ing large-disturbance angles
Period Obligations
 02/01/73-12/31/73 FY74: TOTAL: \$14,360
Prin. Invest. NASA Tech. Officer CASE Category
 Dhotan, R. P. LARC/Moul, M. T. 45-Elec Engr

NASW 2512 Southeastern State College 2772
 Continuation of the technology use studies special dissemination
 experiment
Period Obligations
 06/04/73-05/31/74 FY74: TOTAL: \$55,000
Prin. Invest. NASA Tech. Officer CASE Category
 Gold, H. HQ-KT/Holley, H. L. 99-Multi-Discip
 (10-250 141-93-01)

NASW 2629 Southeastern State College 2773
 Operation of the Technology use Studies Center
Period Obligations
 05/29/74-05/31/75 FY74: \$60,000 TOTAL: \$60,000
Prin. Invest. NASA Tech. Officer CASE Category
 Unavailable HQ-KT/Holley, H. L. 99-Multi-Discip
 (10-250 141-93-01)

NGT 37-004-010 Southeastern State College 2774
 National aerospace fellowship program
Period Obligations
 06/01/74-05/31/75 FY74: \$14,000 TOTAL: \$14,000
Prin. Invest. NASA Tech. Officer CASE Category
 Robinson, J. L. HQ-PY/Pohly, J. G. 99-Multi-Discip
 HQ-U/Jenkins, H. G.
 (10-030 010-00-00)

NAS 8-28659 University of Oklahoma - Norman 2775
 Study and development of an acoustical radar system
Period Obligations
 04/03/72-02/28/74 FY74: \$2,000 TOTAL: \$56,983
Prin. Invest. NASA Tech. Officer CASE Category
 Inman, R. L. MSFC/Turner, R. E. 31-Atmos Sci
 (62-704 501-08-10)

NAS 8-30175 University of Oklahoma - Norman 2776
 Crossed beam spectrometer development; crossed beam spectro-
 copy in multicomponent gas flows
Period Obligations
 02/25/69-12/31/73 FY74: TOTAL: \$144,801
Prin. Invest. NASA Tech. Officer CASE Category
 Canfield, J. M. MSFC/Stephens, J. B. 41-Aero Engr
 (62-680 160-75-61) (62-750 125-00-00)

NAS 9-13360 University of Oklahoma - Norman 2777
 Analysis of severe storm environments - Skylab investigation
Period Obligations
 04/23/73-02/28/75 FY74: \$21,420 TOTAL: \$70,420
Prin. Invest. NASA Tech. Officer CASE Category
 Sasaki, Y. JSC/Pitts, D. E. 31-Atmos Sci
 (72-680 177-91-00)

NGR 37-008-003 University of Tulsa 2778
 Energy transfer in volume reflecting heat shields
Period Obligations
 11/05/71-08/31/74 FY74: TOTAL: \$53,222
Prin. Invest. NASA Tech. Officer CASE Category
 Weston, K. C. ARC/Nachtsheim, P. R. 47-Materials Engr
 (21-704 502-27-01)

**NASA'S UNIVERSITY PROGRAM
OREGON**

OREGON

NAS 5-21831 Oregon State University 2779
Two ERTS-A data user investigations
Period Obligations
09/07/72-03/01/74 FY74: TOTAL: \$353,000
Prin. Invest. NASA Tech. Officer CASE Category
Smionson, G. H. GSFC/Crump, E. W. 39-Env Sci, NEC
Schrumpf, B. J. GSFC/Ragland, T. M.
(51-680 641-14-07)

NGL 38-002-020 Oregon State University 2780
Study of elemental abundances in meteorite and terrestrial matter
Period Obligations
08/26/66-08/31/76 FY74: TOTAL: \$352,122
Prin. Invest. NASA Tech. Officer CASE Category
Schmitt, R. A. HQ-SM/Bryson, R. P. 32-Geological Sci
HQ-SM/Pomeroy, J. H.
(10-810 383-09-57) (10-860 849-00-00)

NGL 38-002-039 Oregon State University 2781
Lunar sample analysis
Period Obligations
01/19/71-01/31/77 FY74: \$95,850 TOTAL: \$277,750
Prin. Invest. NASA Tech. Officer CASE Category
Schmitt, R. A. JSC/Harris, J. W. 13-Physics
(72-810 388-10-02)

NGL 38-002-053 Oregon State University 2782
Development and operation of an environmental remote sensing applications laboratory
Period Obligations
03/16/72-03/31/77 FY74: \$100,000 TOTAL: \$375,000
Prin. Invest. NASA Tech. Officer CASE Category
Schrumpf, B. J. HQ-PY/Vitale, J. A. 39-Env Sci, NEC
(10-371 340-00-00)

NGR 38-002-013 Oregon State University 2783
Physiological ecology of cryophilic algae
Period Obligations
11/17/65-06/30/73 FY74: TOTAL: \$121,350
Prin. Invest. NASA Tech. Officer CASE Category
Curl, C. H. HQ-SL/Geib, D. S. 51-Biology
(10-870 189-00-00) (10-840 192-55-64)

NGR 38-002-018 Oregon State University 2784
Development of a lexicon of space science terms for use by elementary school grades 4 through 6
Period Obligations
06/16/66-12/31/73 FY74: TOTAL: \$16,050
Prin. Invest. NASA Tech. Officer CASE Category
Williamson, S. E. HQ-FE/Tuttle, F. B. 12-Chemistry
(10-030 039-00-00)

NAS 8-29256 Portland State University 2785
Low light level television observation of Apollo
Period Obligations
10/05/72-07/01/73 FY74: TOTAL: \$3,432
Prin. Invest. NASA Tech. Officer CASE Category
Gurevitch, M. MSFC/Gary, A. 13-Physics
MSFC/Craven, P.
(62-910 914-49-00)

NAS 9-9690 University of Oregon - Eugene 2786
Operation and maintenance of NASA/MSC geophysical branch mobile laboratory
Period Obligations
06/24/69-06/30/76 FY74: TOTAL: \$60,763
Prin. Invest. NASA Tech. Officer CASE Category
Blank, H. R. JSC/Teegarden, D. L., Jr.
(72-910 914-50-00) (72-910 914-40-00) 32-Geological Sci

NGL 38-003-010 University of Oregon - Eugene 2787
Geochemistry of trace elements in meteorites and related materials
Period Obligations
06/13/67-08/01/74 FY74: TOTAL: \$163,581
Prin. Invest. NASA Tech. Officer CASE Category
Goles, G. G. HQ-SM/Bryson, R. P. 32-Geological Sci
HQ-SM/Pomeroy, J. H.
(10-810 383-09-37)

NGL 38-003-022 University of Oregon - Eugene 2788
Lunar sample analysis
Period Obligations
02/09/71-01/31/77 FY74: \$61,410 TOTAL: \$282,400
Prin. Invest. NASA Tech. Officer CASE Category
Weill, D. F. JSC/Harris, J. W. 13-Physics
(72-810 388-10-01)

NGL 38-003-024 University of Oregon - Eugene 2789
Lunar sample analysis
Period Obligations
12/29/70-02/01/75 FY74: \$19,400 TOTAL: \$257,500
Prin. Invest. NASA Tech. Officer CASE Category
Goles, G. G. JSC/Harris, J. W. 12-Chemistry
(72-810 388-10-02)

NGR 38-003-020 University of Oregon - Eugene 2790
Inspection of petrologically significant physical and chemical properties of the silicate melts
Period Obligations
06/01/70-05/31/77 FY74: \$31,315 TOTAL: \$258,375
Prin. Invest. NASA Tech. Officer CASE Category
Weill, D. F. HQ-SM/Bryson, R. P. 32-Geological Sci
HQ-SM/Roberson, F. I.
(10-810 195-42-68)

NGR 38-003-034 University of Oregon - Eugene 2791
Measurements of far infrared upper atmosphere emission spectrum
Period Obligations
02/27/73-08/31/74 FY74: \$40,000 TOTAL: \$49,738
Prin. Invest. NASA Tech. Officer CASE Category
Donnelly, R. J. ARC/Cameron, R. M. 31-Atmos Sci
(21-850 352-02-03)

NGR 38-003-035 University of Oregon - Eugene 2792
Submillimeter spectroscopy of planets and gaseous nebulae
Period Obligations
02/28/73-08/31/74 FY74: TOTAL: \$5,271
Prin. Invest. NASA Tech. Officer CASE Category
Donnelly, R. J. ARC/Cameron, R. M. 11-Astronomy
(21-850 352-02-03)

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

NGR 38-003-036 University of Oregon - Eugene 2793
Transition probability in multiply ionized atoms
Period *Obligations*
07/03/72-08/31/74 FY74: \$17,000 TOTAL: \$33,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Crasemann, B. ARC/Whiting, E. E. 13-Physics
(21-704 502-01-02)

NGR 39-087-021 Carnegie - Mellon University 2799
Studies of heterodyne solar cell performance
Period *Obligations*
04/01/70-04/30/75 FY74: \$38,497 TOTAL: \$178,726
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Milnes, A. G. LARC/Walker, G. H. 13-Physics
Feucht, D. L. LARC/Conway, E. J.
(23-704 502-01-03) (23-740 114-00-00) (10-740 129-00-00)

PENNSYLVANIA

NSG 9005 Bryn Mawr College 2794
Petrologic investigation of feldspathic rocks from the lunar highland
Period *Obligations*
06/15/74-03/15/75 FY74: \$3,000 TOTAL: \$3,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Crawford, M. L. JSC/Harris, J. W. 13-Physics
(72-810 388-10-01)

NGR 39-087-026 Carnegie - Mellon University 2800
Attitude dynamics of spin-stabilized satellites with flexible appendages
Period *Obligations*
12/29/70-06/30/73 FY74: TOTAL: \$21,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Renard, M. L. GSFC/Paddack, S. J. 42-Astro Engr
(51-850 861-00-00)

NGR 39-027-002 Bucknell University 2795
Theoretical analysis of gas particle flow in blade passages of turbomachinery
Period *Obligations*
01/29/73-05/25/73 FY74: TOTAL: \$4,424
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Maxwell, B. R. LERC/Seasholtz, R. G. 49-Engr, NEC
LERC/Katsanis, T.
(22-704 501-24-07)

NGR 39-087-036 Carnegie - Mellon University 2801
Automatic detection of blurred images by a simple coherent optical processor
Period *Obligations*
12/01/71-11/30/73 FY74: TOTAL: \$49,586
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lee, S. H. GSFC/Schaefer, D. H. 45-Elec Engr
GSFC/Strong, J. P., III
(51-704 502-23-32)

NGR 39-027-003 Bucknell University 2796
Theoretical analysis of gas particle flow in rotating blade rows of turbomachines with application to laser-Doppler velocimetry
Period *Obligations*
09/04/73-08/03/74 FY74: \$14,448 TOTAL: \$14,448
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Maxwell, B. R. LERC/Seasholtz, R. G. 49-Engr, NEC
LERC/Katsanis, T.
(22-704 501-24-07)

NGR 39-087-037 Carnegie - Mellon University 2802
Studies in optical image processing
Period *Obligations*
11/15/71-12/31/73 FY74: TOTAL: \$6,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lee, S. R. GSFC/Shulman, A. R. 13-Physics
(51-500 310-40-39)

NGR 39-087-001 Carnegie - Mellon University 2797
Launch window analysis of highly eccentric orbits
Period *Obligations*
05/01/68-08/31/73 FY74: TOTAL: \$82,981
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Renard, M. L. GSFC/Paddack, S. J. 42-Astro Engr
(51-850 861-00-00) (51-850 861-41-00)

NGR 39-087-047 Carnegie - Mellon University 2803
Investigation of the effects of microstructure on the fracture toughness of high strength titanium alloys
Period *Obligations*
10/09/72-11/30/74 FY74: \$24,988 TOTAL: \$52,687
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Low, J. R., Jr. LERC/Klopp, W. D. 47-Materials Engr
(22-704 502-22-03)

NGR 39-087-003 Carnegie - Mellon University 2798
Investigation of the effects of microstructure on fracture toughness of high-strength alloys
Period *Obligations*
05/01/68-08/01/74 FY74: \$24,979 TOTAL: \$174,378
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Low, J. R., Jr. LERC/Misencik, J. A. 47-Materials Engr
LERC/Smith, G. T.
(22-704 502-22-03)

NGR 39-087-053 Carnegie - Mellon University 2804
Special finite elements for cracks in elasto-plastic media
Period *Obligations*
09/01/73-08/31/74 FY74: \$27,652 TOTAL: \$27,652
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Swedlow, J. L. LERC/Srawley, J. E. 49-Engr, NEC
Ossias, J. R. LERC/Gross, B.
(22-704 502-22-03)

NSG 3023 Carnegie - Mellon University 2805
Steady and dynamic performance of liquid face seals
Period *Obligations*
07/01/74-06/28/77 FY74: \$45,800 TOTAL: \$45,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hughes, W. F. LERC/Ludwig, L. P. 46-Mech Engr
LERC/Zuk, J.
(22-704 501-15-83)

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

NAS 1-11871	Drexel University	2806			
Investigation of ESSA VII radiation data for use in long term earth balance experiment					
<i>Period</i>	<i>Obligations</i>				
07/25/72-12/31/74	FY74: \$42,865	TOTAL: \$74,865.			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
House, F. B.	LARC/Sweet, G. E.	31-Atmos Sci			
Kohri, W. J.					
(23-680 638-10-00)	(23-680 160-44-71)				
NGR 39-004-051.	Drexel University	2807			
Assessment of steady and transient hydraulics phenomena and their characterization					
<i>Period</i>	<i>Obligations</i>				
04/03/73-12/31/73	FY74: \$11,000	TOTAL: \$14,200			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Mortimer, R. C.	LARC/Howlett, J. T.	46-Mech Engr			
(23-740 134-14-06)	(23-740 117-07-03)	(23-740 114-08-05)			
NAS 8-28654	Lehigh University	2808			
Electrophoresis flight experiment					
<i>Period</i>	<i>Obligations</i>				
04/27/72-09/15/74	FY74: \$24,975	TOTAL: \$100,286			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Vanderhoff, J. W.	MSFC/Bond, J. B.	19-Phys Sci, NEC			
Micale, F. J.	MSFC/Snyder, R. S.				
(62-630 179-13-11)					
NGL 39-007-007	Lehigh University	2809			
Investigation of solidification structure & eutectic alloys including consideration of properties control					
<i>Period</i>	<i>Obligations</i>				
02/17/65-07/01/78	FY74: \$46,000	TOTAL: \$417,267			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kraft, R. W.	LERC/Ashbrook, R. L.	47-Materials Engr			
Hertzberg, R. W.					
Notis, M. R.					
(22-704 501-01-06)	(10-740 129-00-00)				
NGL 39-007-040	Lehigh University	2810			
Investigation of temperature influence on fatigue-crack growth					
<i>Period</i>	<i>Obligations</i>				
10/04/68-08/01/73	FY74:	TOTAL: \$120,855			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wei, R. P.	LARC/Newman, J. C., Jr.	47-Materials Engr			
(23-740 129-00-00)	(23-760 126-00-00)				
NGR 39-007-011	Lehigh University	2811			
Investigation of fatigue-crack propagation in thin plates and shells					
<i>Period</i>	<i>Obligations</i>				
12/01/64-06/30/75	FY74: \$44,500	TOTAL: \$312,445			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Erdogan, F.	LARC/Ilig, W.	47-Materials Engr			
(23-704 501-22-02)	(10-760 126-00-00)				
NGR 39-007-043	Lehigh University	2812			
Shock and thermal history of unusual iron meteorites					
<i>Period</i>	<i>Obligations</i>				
05/24/71-05/31/77	FY74: \$15,500	TOTAL: \$88,365			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Goldstein, J. I.	HQ-SM/Kosofsky, L. J.	32-Geological Sci			
	HQ-SM/Roberson, F. I.				
(10-810 195-42-67)					
NGR 39-007-056	Lehigh University	2813			
Lunar sample analysis					
<i>Period</i>	<i>Obligations</i>				
01/12/71-01/31/75	FY74: \$42,000	TOTAL: \$144,920			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Goldstein, J. I.	JSC/Harris, J. W.	12-Chemistry			
(72-810 388-10-01)					
NGR 39-007-061	Lehigh University	2814			
Investigation of generation of X-rays in close binary stars					
<i>Period</i>	<i>Obligations</i>				
03/10/73-06/30/75	FY74: \$10,000	TOTAL: \$27,965			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
McCluskey, G. E., Jr.	JSC/Kondo, Y.	11-Astronomy			
(72-850 188-41-64)	(72-850 188-41-51)	(72-950 951-16-00)			
NGR 39-007-064	Lehigh University	2815			
Lunar sample analysis					
<i>Period</i>	<i>Obligations</i>				
06/07/71-01/31/75	FY74: \$28,370	TOTAL: \$208,530			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sclar, C. B.	JSC/Harris, J. W.	13-Physics			
(72-810 388-10-01)					
NGR 39-007-066	Lehigh University	2816			
Stress analysis of through & surface cracks					
<i>Period</i>	<i>Obligations</i>				
04/21/71-05/31/73	FY74:	TOTAL: \$53,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sih, G. C.	LARC/Fichter, W. B.	46-Mech Engr			
	LARC/Poe, C. C., Jr.				
(23-740 134-03-21)					
NGR 39-007-067	Lehigh University	2817			
Hydrogen absorption and diffusion & subcritical crack growth in high-strength steels & nickel base alloys					
<i>Period</i>	<i>Obligations</i>				
11/01/71-06/30/74	FY74:	TOTAL: \$99,640			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wei, R. P.	LERC/Misencik, J. A.	47-Materials Engr			
Klier, K.					
(22-704 502-22-03)					
NGT 39-007-003	Lehigh University	2818			
Training of graduate students in space-related science & technology					
<i>Period</i>	<i>Obligations</i>				
03/21/63-08/01/72	FY74:	TOTAL: \$765,842			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Stout, R. D.	HQ-PY/Carter, C. H.	99-Multi-Discip			
(10-370 181-00-00)					

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

NAS 3-17855 **Pennsylvania State University** **2819**
Compressor or fan rotor wake characteristic
Period *Obligations*
06/28/73-06/27/74 FY74: \$1 TOTAL: \$54,268
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lakshminarayana, B. LERC/Heidmann, M. F. 41-Aero Engr
LERC/Gelder, T. F.
(22-704 501-04-01)

NAS 5-23133 **Pennsylvania State University** **2820**
Interpretation of ERTS data
Period *Obligations*
06/29/72-01/23/75 FY74: \$94,631 TOTAL: \$228,631
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McMurtry, G. J. GSFC/Szajna, E. F. 39-Env Sci, NEC
(51-680 641-14-07) (51-680 641-14-00)

NAS 8-21140 **Pennsylvania State University** **2821**
Investigation of turbulent wind field below 500 feet altitude at the Easter Test Range, Florida
Period *Obligations*
06/02/67-04/09/74 FY74: TOTAL: \$145,839
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Blackadar, A. K. MSFC/Fichtl, G. 31-Atmos Sci
(62-742 124-00-00) (62-760 126-00-00)

NAS 8-27334 **Pennsylvania State University** **2822**
Structure of turbulence in severe atmospheric conditions
Period *Obligations*
05/01/71-06/30/74 FY74: TOTAL: \$49,768
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Duiton, J. A. MSFC/Fichtl, G. H. 31-Atmos Sci
MSFC/Nelson, J.
(62-760 126-00-00)

NAS 9-13406 **Pennsylvania State University** **2823**
Interdisciplinary application of EREP data within the Susquehanna River basin - Skylab EREP investigation no. 475
Period *Obligations*
05/01/73-12/31/74 FY74: TOTAL: \$32,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McMurtry, G. J. JSC/Miller, M. L. 32-Geological Sci
(72-960 948-63-83)

NGL 39-009-001 **Pennsylvania State University** **2824**
Static and dynamic tension and cavitation inception in liquids
Period *Obligations*
02/00/32-06/30/75 FY74: TOTAL: \$417,170
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Holl, J. W. LERC/Britsch, W. R. 41-Aero Engr
(22-710 128-00-00) (22-710 113-31-09) (10-710 128-00-00)

NGL 39-009-002 **Pennsylvania State University** **2825**
Study of ionospheric electron content & upper ionosphere ionic processes by means of satellite radio transmissions
Period *Obligations*
11/01/60-09/30/75 FY74: TOTAL: \$668,245
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ross, W. J. HQ-SG/Schmerling, E. R. 13-Physics
HQ-SG/Kavanagh, L. D., Jr.
(10-850 188-36-56) (10-850 188-00-00)

NGL 39-009-003 **Pennsylvania State University** **2826**
Research on electron densities in upper ionosphere, including studies of rocket & separating capsule experimental techniques
Period *Obligations*
03/01/61-10/31/76 FY74: \$100,000 TOTAL: \$1,676,661
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nisbet, J. S. HQ-SG/Schmerling, E. R. 13-Physics
HQ-SG/Kavanagh, L. D., Jr.
(10-850 188-36-56) (10-850 188-00-00)

NGL 39-009-007 **Pennsylvania State University** **2827**
Investigation & analysis of flow phenomena of secondary motions in axial flow inducers
Period *Obligations*
12/15/63-02/28/75 FY74: TOTAL: \$279,750
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lakshminarayana, B. LERC/Britsch, W. R. 41-Aero Engr
(10-710 128-00-00) (22-710 128-00-00) (22-710 113-31-09)

NGL 39-009-010 **Pennsylvania State University** **2828**
Research to establish criteria for recognition of ancient meteorite impact craters whose characteristic surface forms have been obliterated by erosion
Period *Obligations*
08/08/63-12/31/75 FY74: \$18,000 TOTAL: \$169,563
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gold, D. P. HQ-SM/Bryson, R. P. 32-Geological Sci
HQ-SM/Allenby, R. J.
(10-810 195-42-68) (10-810 383-09-01)

NGL 39-009-023 **Pennsylvania State University** **2829**
Research and development of on-board control systems and elements for aerospace vehicles
Period *Obligations*
10/22/64-09/30/74 FY74: TOTAL: \$403,296
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shearer, J. L. HQ-RE/Janow, C. 49-Engr, NEC
(10-750 125-00-00)

NGL 39-009-032 **Pennsylvania State University** **2830**
Study and evaluation of the constant-momentum mass spectrometer for ion analysis in the D and E regions of the ionosphere
Period *Obligations*
05/28/65-11/30/76 FY74: \$80,000 TOTAL: \$597,932
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kendall, B. R. HQ-SG/Schmerling, E. R. 19-Phys Sci, NEC
HQ-SG/Ott, E. J.
(10-850 879-11-00) (10-850 188-00-00)

NGL 39-009-121 **Pennsylvania State University** **2831**
Research in aircraft propulsion noise and its reduction
Period *Obligations*
12/20/68-02/28/75 FY74: \$25,000 TOTAL: \$335,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Reethof, G. LARC/Maestrello, L. 41-Aero Engr
(23-704 501-04-01) (23-704 501-24-01)

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<p>NGL 39-009-172 Pennsylvania State University 2832 Investigation of characteristics of a propeller operating at static conditions <i>Period</i> <i>Obligations</i> 05/05/70-03/31/77 FY74: \$28,000 TOTAL: \$165,000 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Eisenhuth, J. J. LARC/Heyson, H. H. 41-Aero Engr (23-702 760-63-02) (23-702 760-76-01)</p>	<p>NGR 39-009-218 Pennsylvania State University 2839 Study of mesospheric ionization in winter <i>Period</i> <i>Obligations</i> 10/11/71-12/30/74 FY74: \$40,000 TOTAL: \$119,740 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Hale, L. C. HQ-SG/Kavanagh, L. D., Jr. 13-Physics HQ-SG/Schmerling, E. R. (10-850 879-11-00)</p>
<p>NGR 39-009-034 Pennsylvania State University 2833 A study of low-cycle fatigue under multiaxial in-phase and out-of-phase strain cycling <i>Period</i> <i>Obligations</i> 06/26/68-09/01/74 FY74: \$13,347 TOTAL: \$122,696 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Zamrik, S. Y. LERC/Hirschberg, M. H. 47-Materials Engr (22-704 501-21-21) (22-760 720-00-00)</p>	<p>NGR 39-009-256 Pennsylvania State University 2840 Objective ride quality evaluation <i>Period</i> <i>Obligations</i> 01/01/73-12/31/73 FY74: TOTAL: \$23,967 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Park, W. H. LARC/Schoonover, W. E., Jr. 46-Mech Engr Wambold, J. C. LARC/Conner, D. W. (23-701 791-91-51) (23-704 501-29-12)</p>
<p>NGR 39-009-077 Pennsylvania State University 2834 Investigation of near critical and supercritical burning of fuel droplets <i>Period</i> <i>Obligations</i> 08/17/66-01/01/76 FY74: \$54,000 TOTAL: \$258,410 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Faeth, G. M. LERC/Priem, R. J. 42-Astro Engr (22-704 502-28-04) (22-710 113-31-02)</p>	<p>NGR 39-009-270 Pennsylvania State University 2841 Study in jet noise <i>Period</i> <i>Obligations</i> 06/25/73-06/29/76 FY74: TOTAL: \$45,000 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Arndt, R. E. LERC/Stone, J. R. 41-Aero Engr (22-704 501-15-83)</p>
<p>NGR 39-009-180 Pennsylvania State University 2835 Detection of microorganisms in their natural habitat <i>Period</i> <i>Obligations</i> 06/12/70-08/31/74 FY74: \$38,989 TOTAL: \$128,961 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Casida, L. E., Jr. HQ-SL/Young, R. S. 51-Biology (10-840 192-55-63)</p>	<p>NGR 39-009-275 Pennsylvania State University 2842 Investigation of unsteady pressure distribution on blades of an axial flow fan <i>Period</i> <i>Obligations</i> 09/01/73-08/31/76 FY74: \$45,082 TOTAL: \$45,082 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Henderson, R. E. LERC/Dittmar, J. H. 46-Mech Engr LERC/Feiler, C. E. (22-704 501-15-83)</p>
<p>NGR 39-009-184 Pennsylvania State University 2836 Lunar sample analysis <i>Period</i> <i>Obligations</i> 02/03/71-01/31/75 FY74: \$19,980 TOTAL: \$79,950 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Muan, A. JSC/Harris, J. W. 13-Physics (72-810 388-10-02)</p>	<p>NGT 39-009-141 Pennsylvania State University 2843 Training of graduate students in acoustics related to aeronautical & space technology <i>Period</i> <i>Obligations</i> 05/31/69-08/31/74 FY74: TOTAL: \$133,200 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Reethof, G. HQ-PY/Carter, C. H. 99-Multi-Discip (10-370 181-00-00)</p>
<p>NGR 39-009-204 Pennsylvania State University 2837 Effects of hypnotic drugs <i>Period</i> <i>Obligations</i> 05/22/71-09/30/74 FY74: \$39,700 TOTAL: \$125,300 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Kales, A. JSC/Homick, J. L. 59-Life Sci, NEC Bixler, E. O. Kales, J. D. (72-970 970-51-11) (72-970 970-00-00)</p>	<p>NSG 3012 Pennsylvania State University 2844 Compressor or fan rotor wake characteristics <i>Period</i> <i>Obligations</i> 06/28/74-06/27/75 FY74: \$52,005 TOTAL: \$52,005 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Lakshminarayana, B. LERC/Heidmann, M. F. 41-Aero Engr LERC/Feiler, C. E. (22-704 501-04-01)</p>
<p>NGR 39-009-210 Pennsylvania State University 2838 Dynamics and control of escape and rescue from tumbling spacecraft <i>Period</i> <i>Obligations</i> 06/18/71-07/31/73 FY74: TOTAL: \$41,127 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Kaplan, M. H. HQ-MT/Wild, J. W. 41-Aero Engr (10-980 981-60-00)</p>	<p>NSG 3016 Pennsylvania State University 2845 Microstructural parameters and the impact resistance of ceramic turbine materials <i>Period</i> <i>Obligations</i> 07/01/74-06/30/75 FY74: \$35,000 TOTAL: \$35,000 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Bradt, R. C. LERC/Sanders, W. A. 47-Materials Engr LERC/Probst, H. B. (22-704 501-01-06)</p>

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NGR 39-012-001 Temple University 2846
Development of experimental and statistical methods for obtaining and interpreting micrometeorite data from space vehicles
Period Obligations
05/01/60-03/31/74 FY74: TOTAL: \$303,391
Prin. Invest. NASA Tech. Officer CASE Category
Bohn, J. L. HQ-SG/Dubin, M. 11-Astronomy
(10-850 385-45-00) (10-850 385-00-00)

NGR 39-012-024 Temple University 2847
Mechanisms for the effects of electric and magnetic fields on biological systems
Period Obligations
02/17/70-09/01/73 FY74: TOTAL: \$68,000
Prin. Invest. NASA Tech. Officer CASE Category
Labes, M. M. LERC/Lad, R. A. 12-Chemistry
LERC/Fryburg, G. C.
(22-740 114-03-36) (22-704 502-01-02)

NAS 2-7730 University of Pennsylvania 2848
Biosatellite II experiments P-1017 & 1096
Period Obligations
07/24/73-08/01/75 FY74: \$6,039 TOTAL: \$6,039
Prin. Invest. NASA Tech. Officer CASE Category
Brown, A. H. ARC/Zill, L. P. 51-Biology
Dahl, O.
(21-970 970-21-61)

NGL 39-010-097 University of Pennsylvania 2849
Acute acclimatization study
Period Obligations
08/10/71-07/31/74 FY74: TOTAL: \$261,299
Prin. Invest. NASA Tech. Officer CASE Category
Lambertsen, C. J. JSC/Michel, E. L. 53-Other Medical
(72-970 970-51-35) (72-910 914-51-00) (21-770 127-00-00)

NGR 39-010-104 University of Pennsylvania 2850
Effects of altered gravity on growth of higher plants
Period Obligations
09/01/73-06/30/74 FY74: TOTAL: \$137,394
Prin. Invest. NASA Tech. Officer CASE Category
Brown, A. H. ARC/Zill, L. P. 51-Biology
(10-870 189-00-00)

NGR 39-010-114 University of Pennsylvania 2851
Nuclear reactions induced by high energy alpha particles
Period Obligations
10/06/70-02/01/76 FY74: \$6,831 TOTAL: \$153,831
Prin. Invest. NASA Tech. Officer CASE Category
Shen, B. S. LARC/Wilson, J. W. 13-Physics
Merker, M.
(23-704 501-08-10)

NGR 39-010-149 University of Pennsylvania 2852
Plant morphogenesis under conditions of hypo and hypergravia
Period Obligations
09/01/73-09/08/74 FY74: \$71,443 TOTAL: \$71,443
Prin. Invest. NASA Tech. Officer CASE Category
Brown, A. H. ARC/Zill, L. P. 51-Biology
Dahl, A. O. ARC/Talavico, K. S.
(21-970 970-21-62)

NSG 7031 University of Pennsylvania 2853
Equilibria study of pseudo-brookite type minerals
Period Obligations
01/29/74-07/31/74 FY74: \$2,725 TOTAL: \$2,725
Prin. Invest. NASA Tech. Officer CASE Category
Friel, J. J. HQ-SM/Kosofsky, L. J. 32-Geological Sci
HQ-SM/Roberson, F. I.
(10-810 195-42-65)

NAS 3-17658 University of Pittsburgh 2854
Two prototype units for measurement of chemical characteristics and temperature in natural water
Period Obligations
12/13/73-09/10/74 FY74: \$6,000 TOTAL: \$6,000
Prin. Invest. NASA Tech. Officer CASE Category
Liu, C. C. LERC/Fordyce, J. S. 12-Chemistry
(22-704 759-00-00)

NAS 9-13803 University of Pittsburgh 2855
Ultraviolet absorption experiment
Period Obligations
12/21/73-01/31/76 FY74: \$150,000 TOTAL: \$150,000
Prin. Invest. NASA Tech. Officer CASE Category
Donahue, T. M. JSC/Eichelman, W. F. 13-Physics
(72-930 966-30-00)

NASW 2425 University of Pittsburgh 2856
Operation of Regional Dissemination Center at Pittsburgh University
Period Obligations
04/12/73-08/31/74 FY74: \$370,000 TOTAL: \$370,000
Prin. Invest. NASA Tech. Officer CASE Category
Holley, E. HQ-KT/Holley, H. L. 99-Multi-Discip
(10-250 141-93-01)

NGL 39-011-013 University of Pittsburgh 2857
Investigation of airglow excitation mechanisms using atomic beam techniques
Period Obligations
04/26/65-01/31/77 FY74: \$47,606 TOTAL: \$474,773
Prin. Invest. NASA Tech. Officer CASE Category
Fite, W. L. HQ-SL/Brunk, W. E. 31-Atmos Sci
HQ-SL/Fellows, R. F.
(10-840 185-47-85) (10-840 185-47-82)

NGL 39-011-030 University of Pittsburgh 2858
Studies of excitation and collision deactivation of measurable A3 state of nitrogen in the aurora and day airglow
Period Obligations
05/07/65-04/30/77 FY74: \$66,000 TOTAL: \$660,352
Prin. Invest. NASA Tech. Officer CASE Category
Zipf, E. C. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.
(10-840 185-47-85) (10-840 185-47-82)

NGL 39-011-035 University of Pittsburgh 2859
New formulas for collision amplitudes and related quantities
Period Obligations
02/15/69-09/30/76 FY74: \$10,000 TOTAL: \$88,000
Prin. Invest. NASA Tech. Officer CASE Category
Gerjuoy, E. GSFC/Temkin, A. 13-Physics
(51-850 188-48-52)

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NGL 39-011-085	University of Pittsburgh	2860	NGR 39-011-155	University of Pittsburgh	2867
Studies relating to surfaces of moon & planets			Data analysis of OGO-6 (F-26) airglow photometer results		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/17/69-03/31/76	FY74: TOTAL: \$269,650		03/01/73-08/31/74	FY74: \$50,677 TOTAL: \$50,677	
<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>
Hapke, B. W.	HQ-SM/Bryson, R. P.	32-Geological Sci	Donahue, T. M.	HQ-SL/Fellows, R. F.	31-Atmos Sci
(10-810 686-10-00)	(10-810 195-42-65)		(10-840 384-47-81)	HQ-SG/Dubin, M.	
NGL 39-011-160	University of Pittsburgh	2861	NGR 39-011-156	University of Pittsburgh	2868
Lunar sample analysis			Remanent magnetism of tektites		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/01/73-01/31/77	FY74: \$158,150 TOTAL: \$158,150		06/25/73-04/30/75	FY74: TOTAL: \$67,619	
<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>
Fuller, M.	JSC/Harris, J. W.	13-Physics	Fuller, M.	HQ-SM/Bryson, R. P.	32-Geological Sci
(72-810 388-10-03)			(10-810 195-42-67)	HQ-SM/Pomeroy, J. H.	
NGR 39-011-113	University of Pittsburgh	2862	NGR 39-011-161	University of Pittsburgh	2869
Helium geocorona rocket experiment			Laboratory studies of kinetics of tropospheric and stratospheric aircraft pollutant reactions using atomic and molecular resonance fluorescence detection		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/14/70-12/30/74	FY74: \$150,000 TOTAL: \$735,000		06/03/73-12/31/74	FY74: \$40,000 TOTAL: \$80,000	
<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>
Donahue, T. M.	HQ-SG/Dubin, M.	31-Atmos Sci	Kaufman, F.	LERC/Baker, C. E.	12-Chemistry
Zipf, E. C., Jr.	HQ-SG/Out, E. J.		Anderson, J. G.		
(10-850 879-11-00)			(22-702 743-34-22)		
NGR 39-011-134	University of Pittsburgh	2863	NGR 39-011-164	University of Pittsburgh	2870
Ultraviolet spectroscopy investigations for outer planet missions			Chemically vapor-deposited tantalum tungsten alloys		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/12/71-09/30/72	FY74: TOTAL: \$75,090		06/15/73-12/16/74	FY74: TOTAL: \$36,649	
<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>
Donahue, T. M.	HQ-SL/Mitz, M. A.	12-Chemistry	Meier, G. H.	LERC/Stephens, J. R.	47-Materials Engr
(10-840 186-68-68)	HQ-SL/Keller, J. W.		(22-704 502-21-20)		
NGR 39-011-137	University of Pittsburgh	2864	NGT 39-011-003	University of Pittsburgh	2871
Dissociative recombination coefficients for planetary ionospheric ions			Training of graduate students in space-related science and technology		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/28/71-05/31/74	FY74: TOTAL: \$62,636		03/28/63-08/01/72	FY74: TOTAL: \$1,023,474	
<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>
Biondi, M. A.	HQ-SL/Fellows, R. F.	31-Atmos Sci	Bonn, R.	HQ-PY/Carter, C. H.	99-Multi-Discip
(10-840 185-47-84)	HQ-SL/Hipsher, H. F.		(10-370 181-00-00)		
NGR 39-011-146	University of Pittsburgh	2865	NSG 3002	University of Pittsburgh	2872
Measurement of the near ultraviolet spectrum of Venus			Dissolved chloride and ammonium ions miniature electrodes for in situ water quality monitoring		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/18/72-12/31/74	FY74: TOTAL: \$1,000		02/15/74-02/14/75	FY74: \$10,000 TOTAL: \$10,000	
<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>
Hapke, B.	HQ-SL/Dwornik, S. E.	32-Geological Sci	Liu, C. C.	LERC/Fordyce, J. S.	12-Chemistry
(10-840 384-50-80)			(22-702 770-18-01)	LERC/King, R. B.	
NGR 39-011-150	University of Pittsburgh	2866	NSG 3010	University of Pittsburgh	2873
Cross section calculations of astrophysical interest			Soluble reactants and products secondary battery system		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/11/72-08/01/73	FY74: TOTAL: \$25,000		05/01/74-04/30/75	FY74: \$20,000 TOTAL: \$20,000	
<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>
Gerjuoy, E.	HQ-SG/Sobieski, S.	11-Astronomy	Liv, C. C.	LERC/O'Donnell, P. M.	12-Chemistry
(10-850 188-41-51)	HQ-SG/Roman, N. G.		(22-704 502-05-51)	LERC/Gahn, R.	

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RHODE ISLAND

RHODE ISLAND

NAS 1-9680 **Brown University** **2874**
 Participation in the science planning for the Viking 1975 missions in the area of imaging
Period *Obligations*
 03/25/70-03/31/77 **FY74: \$54,500** **TOTAL: \$265,856**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mutch, T. A. LARC/Soffen, G. A. 31-Atmos Sci
 (23-840 815-20-00)

NGL 40-002-042 **Brown University** **2875**
 Properties & application of solid state materials at submillimeter frequencies
Period *Obligations*
 11/08/66-10/01/72 **FY74:** **TOTAL: \$157,892**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Heller, G. S. GSFC/Coates, R. J. 13-Physics
 (25-750 125-00-00) (51-750 125-00-00)

NGL 40-002-059 **Brown University** **2876**
 Study of short-range intermolecular forces and high temperature gas properties
Period *Obligations*
 06/15/67-08/01/78 **FY74: \$6,000** **TOTAL: \$180,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mason, E. A. ARC/Howe, J. T. 12-Chemistry
 ARC/Nachtsheim, P. R.
 (21-704 502-27-01) (21-704 502-07-01) (21-740 129-00-00)

NGL 40-002-080 **Brown University** **2877**
 Studies of plasticity aspects of fracture mechanics analysis and testing
Period *Obligations*
 03/21/69-02/28/75 **FY74:** **TOTAL: \$179,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mylonas, C. LERC/Misencik, J. A. 46-Mech Engr
 Rice, J. R. LERC/Smith, G. T.
 (22-704 502-22-03) (22-742 124-00-00)

NGR 40-002-088 **Brown University** **2878**
 Analysis of Martian geologic features of earth analogs
Period *Obligations*
 10/20/69-08/31/74 **FY74: \$29,972** **TOTAL: \$129,788**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mutch, T. A. HQ-SL/Dwornik, S. E. 32-Geological Sci
 HQ-SL/Holt, H. E.
 (10-840 384-50-80)

NGR 40-002-093 **Brown University** **2879**
 Investigation of methods for improvement of efficiency of photovoltaic cells
Period *Obligations*
 02/20/70-02/28/75 **FY74: \$23,400** **TOTAL: \$107,300**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Loferski, J. J. LARC/Walker, G. H. 13-Physics
 Roessler, B. LARC/Conway, E. J.
 (23-704 502-01-03) (10-740 129-00-00)

NGR 40-002-116 **Brown University** **2880**
 Lunar basins processes and structure
Period *Obligations*
 02/20/73-06/30/75 **FY74: \$65,050** **TOTAL: \$124,450**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Head, J. W. HQ-SM/Kosofsky, L. J. 32-Geological Sci
 Mutch, T. A. HQ-SM/Roberson, F. I.
 (10-810 383-20-02) (10-810 383-09-50)

NGR 40-002-123 **Brown University** **2881**
 Lunar sample analysis
Period *Obligations*
 05/01/73-01/31/75 **FY74: \$23,930** **TOTAL: \$43,330**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rutherford, M. J. JSC/Harris, J. W. 32-Geological Sci
 (72-810 388-10-02)

NSG 1008 **University of Rhode Island** **2882**
 Three-dimensional numerical water quality model for continental shelf applications
Period *Obligations*
 03/01/74-05/31/75 **FY74: \$19,228** **TOTAL: \$19,228**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Spaulding, M. L. LARC/Suttles, J. T. 49-Engr, NEC
 LARC/Young, G. R.
 (23-680 177-55-35)

SOUTH CAROLINA

NSG 8004 **Benedict College** **2883**
 Applicability of a precise, accurate method for rapid evaluation of engine and lubricant performance
Period *Obligations*
 01/21/74-01/21/75 **FY74: \$21,970** **TOTAL: \$21,970**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kinard, J. T. MSFC/Kent, M. I. 39-Env Sci, NEC
 (62-371 340-00-00)

NAS 9-13669 **Clemson University - Clemson** **2884**
 High temperature hyperfiltration water reclamation unit
Period *Obligations*
 08/14/73-11/15/74 **FY74: \$40,000** **TOTAL: \$40,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Gaddis, J. L. JSC/Reveley, W. F. 39-Env Sci, NEC
 Brandon, C. A.
 (72-970 970-52-23)

NAS 9-14006 **Clemson University - Clemson** **2885**
 Crop status evaluations and yield predictions
Period *Obligations*
 04/01/74-03/31/75 **FY74: \$61,000** **TOTAL: \$61,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Haun, J. R. JSC/Pitts, D. E. 39-Env Sci, NEC
 JSC/Whitehead, V. S.
 (72-680 177-51-82)

**NASA'S UNIVERSITY PROGRAM
SOUTH CAROLINA (Continued)**

NGR 41-001-027 **Clemson University - Clemson** **2886**
Optimization of structures to satisfy aeroelastic requirements

<i>Period</i>	<i>Obligations</i>	
04/02/70-06/30/74	FY74:	TOTAL: \$74,325
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rudisill, C. S.	LARC/Doggett, R. V., Jr.	41-Aero Engr
(23-704 501-22-04)	(23-760 136-14-02)	(23-760 136-00-00)

NGR 41-001-036 **Clemson University - Clemson** **2887**
Performance evaluation for error correction codes

<i>Period</i>	<i>Obligations</i>	
12/11/72-05/31/74	FY74:	TOTAL: \$19,841
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Snelsire, R.	GSFC/Lynch, T. J.	19-Phys Sci, NEC
(51-500 311-90-53)		

NGR 41-006-001 **South Carolina State College** **2888**
Critical currents in superconducting thin films

<i>Period</i>	<i>Obligations</i>	
06/21/73-09/30/74	FY74:	TOTAL: \$21,175
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Payne, J. E.	HQ-PY/Pohly, J. G.	13-Physics
(10-371 340-00-00)		

NAS 8-28660 **University of South Carolina** **2889**
Study of microwave down-converters operating in KU band

<i>Period</i>	<i>Obligations</i>	
04/19/72-06/30/74	FY74:	TOTAL: \$20,498
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fellers, R. G.	MSFC/Lowrey, D. O.	45-Elec Engr
(62-500 150-00-00)		

NAS10-8354 **University of South Carolina** **2890**
In-line dynamic contamination monitoring of fluids for space system

<i>Period</i>	<i>Obligations</i>	
06/18/73-12/31/74	FY74:	TOTAL: \$60,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bonnell, R. D.	KSC/Jorolan, A. E.	43-Chem Engr
Neuman, L.	HQ-DD/Boggs, W. H.	
(76-980 909-64-13)		

NGL 41-002-003 **University of South Carolina** **2891**
Infrared spectra of molecules & materials of astrophysical interest

<i>Period</i>	<i>Obligations</i>	
05/10/65-05/31/74	FY74: \$25,920	TOTAL: \$196,601
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Durig, J. R.	HQ-SL/Fellows, R. F.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	
(10-840 185-47-85)	(10-840 185-47-84)	

NGR 41-002-034 **University of South Carolina** **2892**
Synthesis and characterization of polyamino acids prepared under prebiotic atmospheres from prebiotic proportions of amino acids

<i>Period</i>	<i>Obligations</i>	
05/15/72-08/31/74	FY74: \$19,622	TOTAL: \$50,770
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rohlfing, D. L.	HQ-SL/Young, R. S.	12-Chemistry
(10-840 192-55-61)		

SOUTH DAKOTA

NGR 42-001-006 **South Dakota School of Mines & Tech** **2893**
Comparison of terrestrial and lunar mass-wasting processes

<i>Period</i>	<i>Obligations</i>	
05/05/70-08/31/73	FY74:	TOTAL: \$49,119
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rahn, P. H.	HQ-SM/Bryson, R. P.	32-Geological Sci
	HQ-SM/Allenby, R. J.	
(10-810 195-00-00)		

NAS 5-21774 **South Dakota State University** **2894**
Effective use of ERTS multisensor data in the Great Plains

<i>Period</i>	<i>Obligations</i>	
06/12/72-09/30/74	FY74: \$39,333	TOTAL: \$114,333
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Meyers, V. I.	GSFC/Stonesifer, G. R.	39-Env Sci, NEC
(51-680 641-14-01)	(51-680 641-14-00)	

NAS 9-13337 **South Dakota State University** **2895**
Evapotranspiration & thermal properties of soils related to temperature

<i>Period</i>	<i>Obligations</i>	
03/08/73-10/31/74	FY74:	TOTAL: \$65,421
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Myers, V. I.	JSC/Forbes, C. D.	19-Phys Sci, NEC
(72-960 948-63-82)		

NGL 42-003-007 **South Dakota State University** **2896**
Remote sensing of soils, land forms, and land use in the northern Great Plains in preparation for ERTS applications

<i>Period</i>	<i>Obligations</i>	
07/27/70-06/30/77	FY74: \$100,000	TOTAL: \$750,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Myers, V. I.	HQ-PY/Vitale, J. A.	39-Env Sci, NEC
(10-371 340-00-00)		

TENNESSEE

NGR 43-021-002 **Fisk University** **2897**
Optical effect of contamination of infrared windows by materials in outer space

<i>Period</i>	<i>Obligations</i>	
11/01/73-01/01/76	FY74: \$22,754	TOTAL: \$22,754
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Silberman, E.	MSFC/Moore, W. W.	13-Physics
	MSFC/Kent, M. I.	
(62-371 340-00-00)		

NSG 8007 **Fisk University** **2898**
Properties and scattering amplitudes at very high frequencies

<i>Period</i>	<i>Obligations</i>	
06/03/74-06/02/75	FY74: \$24,516	TOTAL: \$24,516
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mickens, R. E.	MSFC/Parnell, T. A.	13-Physics
	MSFC/Kent, M. I.	
(62-371 340-00-00)		

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

NAS 9-13878 **Memphis State University** **2899**
 Digital voice processor
Period *Obligations*
 06/01/74-05/31/75 **FY74: \$64,700** **TOTAL: \$64,700**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Morris, C. F. JSC/Shack, P. E. 45-Elec Engr
 (72-920 986-15-00)

NGR 43-008-007 **Memphis State University** **2900**
 Disturbing effects of aircraft noise
Period *Obligations*
 09/10/73-03/09/74 **FY74: \$14,282** **TOTAL: \$14,282**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Fletcher, J. L. LARC/Gunn, W. J. 69-Psych, NEC
 (23-704 501-09-02)

NGR 43-008-008 **Memphis State University** **2901**
 Annoyance factors in aircraft sound
Period *Obligations*
 09/10/73-09/10/74 **FY74: \$26,941** **TOTAL: \$26,941**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Fletcher, J. L. LARC/Gunn, W. J. 69-Psych, NEC
 LARC/Edge, P. M., Jr.
 (23-704 501-09-02)

NGR 43-014-002 **Tennessee State University** **2902**
 Research program in sorption dynamics
Period *Obligations*
 10/01/73-10/01/74 **FY74: \$25,000** **TOTAL: \$25,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Busby, M. R. LERC/Cassidy, J. F. 13-Physics
 (22-371 340-00-00)

NGR 43-014-003 **Tennessee State University** **2903**
 Effect of friction variables on the strain hardening of nickel, iron and zinc during sliding contact
Period *Obligations*
 12/17/73-12/16/74 **FY74: \$33,501** **TOTAL: \$33,501**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Sutherland, C. W. LERC/Buckley, D.H. 47-Materials Engr
 Wert, J. J.
 (22-371 340-00-00)

NSG 8012 **Tennessee State University** **2904**
 Applications of acoustic emission to space flight hardware
Period *Obligations*
 06/03/74-06/02/75 **FY74: \$31,994** **TOTAL: \$31,994**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Houghton, J. R. MSFC/Holder, R. C. 46-Mech Engr
 MSFC/Kent, M. I.
 (62-371 340-00-00)

NGR 43-003-012 **Tennessee Technological University** **2905**
 Investigation of difficulties associated with the use of lead telluride & other II-VI compounds for thin film thermistors
Period *Obligations*
 02/02/70-12/31/74 **FY74: \$55,000** **TOTAL: \$230,012**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McLennan, W. D. LARC/Hardesty, C. A. 13-Physics
 LARC/Crouch, R. K.
 (23-680 607-06-00) (23-680 607-00-00)

NGR 43-003-015 **Tennessee Technological University** **2906**
 Investigation of open-loop amplification of Reynolds number dependent processes
Period *Obligations*
 09/16/71-01/01/75 **FY74: \$18,000** **TOTAL: \$62,750**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Purdy, K. R. LERC/Priem, R. J. 42-Astro Engr
 (22-710 113-31-16) (22-710 113-31-08) (22-704 502-04-25)

NAS 5-21726 **University of Tennessee - Knoxville** **2907**
 ERTS-A multidisciplinary applications
Period *Obligations*
 04/20/72-02/23/74 **FY74: \$3,312** **TOTAL: \$52,312**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rehder, J. B. GSFC/Broderick, J. C. 31-Atmos Sci
 (51-680 641-14-02)

NAS 5-21873 **University of Tennessee - Knoxville** **2908**
 Use of ERTS-A imagery to detect plant disease, nutrient deficiencies, soil types and moisture
Period *Obligations*
 09/29/72-01/01/74 **FY74:** **TOTAL: \$87,700**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Parks, W. L. GSFC/Ensor, G. J. 59-Life Sci, NEC
 (51-680 641-14-01)

NAS 5-21875 **University of Tennessee - Knoxville** **2909**
 ERTS-A study of imagery interpretation techniques in the Tennessee Valley
Period *Obligations*
 09/25/72-07/02/74 **FY74:** **TOTAL: \$39,620**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bodenheimer, R. E. GSFC/Broderick, J.C. 39-Env Sci, NEC
 Green, W. L.
 (51-680 641-14-08)

NAS 5-21882 **University of Tennessee - Knoxville** **2910**
 Study of ecological applications of ERTS-A imagery
Period *Obligations*
 09/29/72-03/01/74 **FY74:** **TOTAL: \$37,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 De Selm, H. R. GSFC/Ensor, G. J. 39-Env Sci, NEC
 (51-680 641-14-07)

NAS 8-27296 **University of Tennessee - Knoxville** **2911**
 Vibration effects on strapdown navigation accuracy
Period *Obligations*
 04/16/71-08/31/74 **FY74: \$48,581** **TOTAL: \$154,308**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hung, J. C. MSFC/Parker, J. R. 42-Astro Engr
 Blalock, T. V. MSFC/Berry, E. H.
 Kennedy, E. J.
 (62-830 180-17-53) (62-980 909-55-10) (62-980 975-90-95)

NAS 8-29271 **University of Tennessee - Knoxville** **2912**
 Application of image enhancement techniques to remote manipulator operations
Period *Obligations*
 01/08/73-10/01/75 **FY74:** **TOTAL: \$27,320**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Gonzalez, R. C. MSFC/Borelli, M. T. 45-Elec Engr
 Thompson, D. D. MSFC/Thornton, W. G.
 (62-970 970-63-20)

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

NAS 8-29584	University of Tennessee - Knoxville	2913			
Study of wind profiles over nonuniform surface relative to ground design of aircraft & space vehicles					
<i>Period</i>	<i>Obligations</i>				
02/02/73-06/30/75	FY74: \$74,382	TOTAL: \$144,385			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Frost, W.	MSFC/Fichtl, G. H.	46-Mech Engr			
	MSFC/Alexander, M.				
(62-704 501-08-10)					
NAS 8-29632	University of Tennessee - Knoxville	2914			
Teleoperator equations of motion					
<i>Period</i>	<i>Obligations</i>				
05/07/73-09/31/74	FY74:	TOTAL: \$29,861			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hung, J. C.	MSFC/Ellsworth, D. J.	46-Mech Engr			
(62-970 970-63-20)					
NAS 8-30256	University of Tennessee - Knoxville	2915			
Optimization of propellant usage for space tug vehicle					
<i>Period</i>	<i>Obligations</i>				
08/15/73-08/15/74	FY74: \$49,742	TOTAL: \$49,742			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Liu, T. C.	MSFC/Thompson, Z.	45-Elec Engr			
	MSFC/Brown, H.				
(62-980 909-55-05)					
NAS 8-30878	University of Tennessee - Knoxville	2916			
Adaptive statistical pattern classifiers for remotely sensed data					
<i>Period</i>	<i>Obligations</i>				
06/26/74-06/26/75	FY74: \$22,961	TOTAL: \$22,961			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
	MSFC/Unavailable	39-Env Sci, NEC			
(62-680 177-52-73)					
NAS 8-30879	University of Tennessee - Knoxville	2917			
Study of current and proposed input preparation methods and hardware for third generation computers					
<i>Period</i>	<i>Obligations</i>				
06/28/74-12/28/74	FY74: \$19,982	TOTAL: \$19,982			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sherman, G. R.	MSFC/Fortenberry, W. H.	21-Mathematics			
	MSFC/Kearney, J. D.				
(62-950 951-00-00)					
NGL 43-001-006	University of Tennessee - Knoxville	2918			
Spectroscopic studies of life shape of atmospheric gases & of absorption bands of inorganic solids					
<i>Period</i>	<i>Obligations</i>				
01/07/64-09/30/76	FY74: \$75,000	TOTAL: \$1,093,628			
<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.				
(10-840 185-47-83)					
NGL 43-001-140	University of Tennessee - Knoxville	2919			
Experimental investigations of opaque minerals and cooling history of lunar rocks					
<i>Period</i>	<i>Obligations</i>				
09/01/73-01/31/77	FY74: \$129,280	TOTAL: \$129,280			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Taylor, L. A.	JSC/Harris, J. W.	11-Astronomy			
(72-810 388-10-02) (72-910 914-40-00)					
NGR 43-001-102	University of Tennessee - Knoxville	2920			
Study of unsteady transonic flow analysis for low aspect ratio, pointed wings					
<i>Period</i>	<i>Obligations</i>				
03/16/71-12/15/73	FY74:	TOTAL: \$49,255			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wu, J. M.	LARC/Bland, S. R.	41-Aero Engr			
(23-704 501-22-04)					
NGR 43-001-115	University of Tennessee - Knoxville	2921			
Development of remote sensing techniques for management of earth resources					
<i>Period</i>	<i>Obligations</i>				
12/20/71-01/01/73	FY74:	TOTAL: \$25,087			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Shahrokh, F.	MSFC/Messer, C. W.	39-Env Sci, NEC			
(62-910 933-00-00)					
NGR 43-001-116	University of Tennessee - Knoxville	2922			
Analysis of NASA management techniques					
<i>Period</i>	<i>Obligations</i>				
02/14/72-07/31/74	FY74: \$25,685	TOTAL: \$55,325			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
James, L. B.	HQ-PY/Morris, J. D.	99-Multi-Discip			
(10-371 340-00-00)					
NGR 43-001-117	University of Tennessee - Knoxville	2923			
Cybernetic integration of the man-machine interface in concept-verification-testing					
<i>Period</i>	<i>Obligations</i>				
02/16/72-07/20/72	FY74:	TOTAL: \$10,091			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Helvey, T. C.	MSFC/Allen, R. E.	99-Multi-Discip			
	MSFC/Dannenberg, K. K.				
(62-920 982-52-00) (62-920 976-30-00)					
NGR 43-001-124	University of Tennessee - Knoxville	2924			
Studies of sonic booms generated by high supersonic and hypersonic transports					
<i>Period</i>	<i>Obligations</i>				
12/01/72-11/01/73	FY74:	TOTAL: \$20,738			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Chaudhuri, S. N.	LARC/Fetterman, D. E.	41-Aero Engr			
(23-702 760-66-01)					
NGR 43-001-127	University of Tennessee - Knoxville	2925			
Molecular seals for space flight application					
<i>Period</i>	<i>Obligations</i>				
03/07/73-08/31/74	FY74:	TOTAL: \$10,623			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Milligan, M. W.	LERC/Hady, W. F.	42-Astro Engr			
(22-704 502-31-51)					
NGR 43-001-134	University of Tennessee - Knoxville	2926			
Research on fan noise caused by fluctuating lift, inlet turbulence, and distortion					
<i>Period</i>	<i>Obligations</i>				
06/27/73-08/31/76	FY74:	TOTAL: \$47,060			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lunsdaime, E.	LERC/Dittmar, J. H.	41-Aero Engr			
	LERC/Saule, A. V.				
(22-704 501-15-83)					

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

NGR 43-001-135 **University of Tennessee - Knoxville** **2927**
 Research in aerocoustics field of aerocoustics
Period *Obligations*
 06/08/73-08/31/76 FY74: TOTAL: \$48,840
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Maus, J. R. LERC/Dorsch, R. G. 41-Aero Engr
 (22-704 501-15-83)

NGR 43-001-144 **University of Tennessee - Knoxville** **2928**
 Iterative solution of the problem of orbit estimation using Chebyshev series
Period *Obligations*
 01/01/74-12/31/74 FY74: \$24,028 TOTAL: \$24,028
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Feagin, T. GSFC/Velez, C. E. 21-Mathematics
 GSFC/Fuchs, A. J.
 (51-500 311-80-63)

NSG 1054 **University of Tennessee - Knoxville** **2929**
 Investigation of Kline-Fogelman airfoil section for rotor blade applications (aerodynamic characteristics, blade-stall and flutter)
Period *Obligations*
 05/01/74-06/30/75 FY74: \$31,510 TOTAL: \$31,510
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lumsdaine, E. LARC/Hammond, C. E. 41-Aero Engr
 Johnson, W. S.
 (23-704 502-32-02)

NSG 1062 **University of Tennessee - Knoxville** **2930**
 Heat transfer involving gaps exposed to turbulent boundary layers
Period *Obligations*
 06/15/74-09/14/74 FY74: \$3,302 TOTAL: \$3,302
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hodgson, J. W. LARC/Hunt, L. R. 41-Aero Engr
 LARC/Sawyer, J. W.
 (23-742 117-07-03)

NSG 5002 **University of Tennessee - Knoxville** **2931**
 Architecture and data processing alternatives for the TSE computer
Period *Obligations*
 05/01/74-04/30/75 FY74: \$55,884 TOTAL: \$55,884
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bodenheimer, R. E. GSFC/Schaefer, D. H. 21-Mathematics
 (51-704 502-23-32)

NSG 7049 **University of Tennessee - Knoxville** **2932**
 Line identification and lifetime measurements in the XUV and soft X-ray regions
Period *Obligations*
 05/01/74-04/30/75 FY74: \$37,251 TOTAL: \$37,251
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Sellin, I. A. HQ-SG/Weldon, J. M. 11-Astronomy
 HQ-SG/Jordan, S. D.
 (10-850 188-38-53)

NAS 9-13617 **University of Tennessee - Memphis** **2933**
 Toxicity of pyrolysis products of spacecraft materials
Period *Obligations*
 08/01/73-11/30/74 FY74: \$69,970 TOTAL: \$69,970
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Autian, J. JSC/Kaplan, H. 53-Other Medical
 (72-970 970-51-25)

NAS 8-29460 **Vanderbilt University** **2934**
 Study of the relationship between thermal expansion of microcircuit components and reliability
Period *Obligations*
 05/21/73-07/30/74 FY74: \$238 TOTAL: \$11,058
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kinser, D. L. MSFC/Allen, R. V. 47-Materials Engr
 MSFC/Caruso, S. V.
 (62-704 502-23-51)

NAS 8-30656 **Vanderbilt University** **2935**
 Study of diffusion coefficients of glasses under zero-g
Period *Obligations*
 06/01/74-11/30/74 FY74: \$11,025 TOTAL: \$11,025
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kinser, D. L. MSFC/Nichols, R. L. 19-Phys Sci, NEC
 MSFC/Schuerer, P. H.
 (62-630 179-14-20)

NAS 8-30883 **Vanderbilt University** **2936**
 Discrete component bonding and thick-film materials study
Period *Obligations*
 06/26/74-06/26/75 FY74: \$14,954 TOTAL: \$14,954
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Unavailable MSFC/Unavailable 47-Materials Engr
 (62-750 115-25-02)

NAS 9-12889 **Vanderbilt University** **2937**
 Skylab experiment MO93
Period *Obligations*
 06/09/72-01/31/75 FY74: \$49,800 TOTAL: \$124,745
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Smith, R. F. JSC/Hoffler, G. W. 59-Life Sci, NEC
 (72-960 948-60-90) (72-960 961-50-00)

NGR 43-002-031 **Vanderbilt University** **2938**
 Investigation of high energy radiation from a plasma focus
Period *Obligations*
 01/23/69-08/31/74 FY74: \$51,290 TOTAL: \$284,120
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lee, J. H. LARC/Hohl, F. 13-Physics
 (23-704 502-10-01) (23-720 112-00-00)

TEXAS

NAS 9-13089 **Austin State University** **2939**
 Produce and evaluate a 1971 land inventory in the Houston area test site
Period *Obligations*
 06/29/72-12/31/74 FY74: TOTAL: \$90,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Baker, R. D. JSC/Dornbach, J. E. 72-Economics
 (72-680 160-75-13)

NAS 9-7280 **Baylor University - Medical College** **2940**
 Cell life span
Period *Obligations*
 06/26/67-12/31/74 FY74: \$45,022 TOTAL: \$316,569
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Johnson, P. C. JSC/Alexander, W. C. 52-Clinical Med
 (72-960 948-60-91)

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

NAS 9-8109	Baylor University - Medical College	2941			
Evaluation of materials for space flight apparel					
<i>Period</i>		<i>Obligations</i>			
06/10/68-12/31/74	FY74:	TOTAL: \$72,271			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Duncan, W. C. (72-910 914-50-00)	JSC/Kaplan, H.	59-Life Sci, NEC			
NAS 9-10537	Baylor University - Medical College	2942			
Study of human adrenal control mechanisms					
<i>Period</i>		<i>Obligations</i>			
04/23/70-07/31/75	FY74: \$22,000	TOTAL: \$144,590			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Campbell, B. O. (72-970 970-51-16)	JSC/Leach, C. S.	52-Clinical Med			
NAS 9-11201	Baylor University - Medical College	2943			
Radioisotopic study					
<i>Period</i>		<i>Obligations</i>			
06/30/70-12/31/74	FY74:	TOTAL: \$85,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Johnson, P. C. (72-960 948-60-90)	JSC/Leach, C. S. (72-960 948-60-00)	59-Life Sci, NEC (72-910 914-50-00)			
NAS 9-12728	Baylor University - Medical College	2944			
Skylab gastrointestinal analysis					
<i>Period</i>		<i>Obligations</i>			
05/22/72-06/30/75	FY74: \$55,000	TOTAL: \$118,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Nichols, B. L. (72-970 970-51-14)	JSC/Smith, M. C., Jr. (72-960 948-60-90)	53-Other Medical			
NAS 9-13139	Baylor University - Medical College	2945			
Cellular response					
<i>Period</i>		<i>Obligations</i>			
08/25/72-07/31/74	FY74: \$120,000	TOTAL: \$224,500			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Criswell, B. S. (72-960 948-60-91)	JSC/Kimzey, S. L. (72-970 970-51-15)	53-Other Medical			
NAS 9-13452	Baylor University - Medical College	2946			
Neurophysiological research relating performance to stress					
<i>Period</i>		<i>Obligations</i>			
05/24/73-05/31/75	FY74: \$40,000	TOTAL: \$105,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Roessler, R. (72-970 970-51-11)	JSC/Shumate, W. H.	53-Other Medical			
NAS 9-13737	Baylor University - Medical College	2947			
Analysis of body calcium					
<i>Period</i>		<i>Obligations</i>			
02/01/74-02/01/75	FY74: \$95,000	TOTAL: \$95,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Johnson, P. C. (72-970 970-51-14)	JSC/Smith, M. C., Jr.	53-Other Medical			
NGR 44-003-053	Baylor University - Medical College	2948			
Ion distribution in muscle and electron probe microanalysis					
<i>Period</i>		<i>Obligations</i>			
03/07/72-09/01/74	FY74:	TOTAL: \$75,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Nichols, B. L. Hazlewood, C. F. (72-970 970-51-15)	JSC/Kimzey, S. L.	52-Clinical Med			
NGR 44-003-057	Baylor University - Medical College	2949			
New vision techniques for use in space					
<i>Period</i>		<i>Obligations</i>			
01/19/72-12/31/74	FY74: \$41,730	TOTAL: \$196,730			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Decker, T. A. (21-970 970-24-04)	ARC/Haines, R. F. ARC/Huff, E. M. (21-970 970-21-11)	53-Other Medical			
NGR 44-032-013	Bishop College	2950			
Relationship of tissue growth stimulant to stress reactions in space					
<i>Period</i>		<i>Obligations</i>			
09/01/73-08/30/75	FY74: \$29,850	TOTAL: \$29,850			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kutsky, R. J. (10-371 340-00-00)	ARC/Danellis, J. V. ARC/Holton, E. M.	51-Biology			
NGR 44-095-001	Hardin - Simmons University	2951			
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>			
08/21/72-12/31/74	FY74: \$60,000	TOTAL: \$83,600			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Foster, T. L. (10-840 193-58-62)	HQ-SL/Hall, L. B. HQ-SL/Gallagher, S. G.	51-Biology			
NGR 44-081-001	Houston Baptist College	2952			
Research in stellar ultraviolet spectroscopy					
<i>Period</i>		<i>Obligations</i>			
05/20/70-12/31/75	FY74: \$18,535	TOTAL: \$117,335			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Modisette, J. L. (72-850 188-41-64)	JSC/White, D. R. (72-850 188-41-51)	11-Astronomy			
NGR 44-081-005	Houston Baptist College	2953			
Analysis of Copernicus OAO data					
<i>Period</i>		<i>Obligations</i>			
01/21/74-01/21/75	FY74: \$1,400	TOTAL: \$1,400			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Modisette, J. L. (72-850 831-43-00)	JSC/Kondo, Y.	11-Astronomy			
NSG 9007	Houston Baptist College	2954			
Feasibility study for measurement of trace atmospheric constituents by high resolution infrared spectroscopy					
<i>Period</i>		<i>Obligations</i>			
09/01/74-12/31/75	FY74: \$15,000	TOTAL: \$15,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Modisette, J. L. (72-920 989-10-00)	JSC/Potter, A. E.	13-Physics			
NGR 44-087-001	Pan American University	2955			
Experimental test of plant canopy reflectance models on cotton					
<i>Period</i>		<i>Obligations</i>			
09/01/73-08/31/74	FY74: \$27,393	TOTAL: \$27,393			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Le Master, E. W. (10-371 340-00-00)	HQ-PY/Pohly, J. G. JSC/Potter, A. E.	39-Env Sci, NEC			

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TEXAS (Continued)**

NGR 44-087-002 Pan American University 2956
Diffuse reflectance spectra of frosts occurring on astronomical objects
Period *Obligations*
01/01/74-12/31/74 FY74: \$24,918 TOTAL: \$24,918
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Glaser, F. M. JPL/Huntress, W. T. 32-Geological Sci
(56-371 340-00-00)

NGL 44-033-017 Prairie View A&M University 2957
Analytical expressions of radar cross-section of targets and modeling of space shuttle candidate targets
Period *Obligations*
09/01/73-11/30/74 FY74: \$19,500 TOTAL: \$19,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sohel, M. S. JSC/Rozas, P. 49-Engr, NEC
(72-371 340-00-00)

NGR 44-033-014 Prairie View A&M University 2958
Hydrothermal crystal growths
Period *Obligations*
05/01/72-08/31/74 FY74: \$21,053 TOTAL: \$41,053
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stubblefield, C. T. HQ-PY/Pohly, J. G. 43-Chem Engr
(10-371 340-00-00)

NGR 44-033-016 Prairie View A&M University 2959
Reliability analysis of redundant structural systems
Period *Obligations*
05/01/72-08/31/73 FY74: TOTAL: \$16,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yeh, H. Y. HQ-PY/Pohly, J. G. 46-Mech Engr
JSC/Lewallen, J. M.
(10-371 340-00-00)

NSG 9006 Prairie View A&M University 2960
Measurement of growth morphological and bi-directional scattering parameters of wheat
Period *Obligations*
06/01/74-05/31/75 FY74: \$33,019 TOTAL: \$33,019
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sohel, M. S. JSC/Potter, A. E. 39-Env Sci, NEC
Brams, E.
(72-371 340-00-00)

NAS 2-6614 Rice University 2961
Study metabolism and energetics of plants in hypogravity
Period *Obligations*
09/02/71-08/31/74 FY74: \$33,000 TOTAL: \$76,359
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ward, C. H. ARC/Taketa, S. T. 39-Env Sci, NEC
(21-970 970-24-04) (21-970 970-21-61)

NAS 5-9317 Rice University 2962
Reduction and analysis of data from OGO-C&D ion chamber experiment
Period *Obligations*
03/23/66-12/01/78 FY74: TOTAL: \$201,552
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, H. R. GSFC/Meese, K. J. 32-Geological Sci
(51-850 841-00-00)

NAS 5-23338 Rice University 2963
Theoretical predictions and data analysis
Period *Obligations*
02/04/74-11/30/74 FY74: \$4,200 TOTAL: \$4,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cloutier, P. A. GSFC/Taylor, H. A., Jr. 13-Physics
Michel, F. C.
(51-840 186-68-63)

NAS 6-1667 Rice University 2964
Studies of the Apollo 15 and 16 orbital X-ray aligned currents and auroral particle fluxes
Period *Obligations*
07/23/69-06/30/75 FY74: \$211,940 TOTAL: \$1,309,809
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Freeman, J. W. WFC/Gray, J. W. 11-Astronomy
Anderson, H. R. WFC/West, W. W.
(53-850 879-10-00)

NAS 9-5911 Rice University 2965
Suprathermal ion detector experiment for ALSEP
Period *Obligations*
04/28/66-01/31/75 FY74: \$232,953 TOTAL: \$5,206,953
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Freeman, J. W. JSC/Eichelman, W. F. 13-Physics
(72-810 383-25-03) (72-910 914-40-00)

NAS 9-10428 Rice University 2966
Scientific support of Apollo infrared scanning radiometer
Period *Obligations*
02/26/70-12/31/74 FY74: \$87,691 TOTAL: \$302,691
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Low, F. J. JSC/Eichelman, W. F. 39-Env Sci, NEC
(72-910 914-49-00)

NAS 9-11827 Rice University 2967
Adsorption bed models used in simulation of atmospheric control systems
Period *Obligations*
05/10/71-06/30/75 FY74: \$12,902 TOTAL: \$50,767
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Davis, S. H. JSC/Kissinger, L. D. 43-Chem Engr
(72-970 970-52-21)

NAS 9-12776 Rice University 2968
Applied mathematics in classification analysis
Period *Obligations*
05/26/72-05/31/75 FY74: \$49,000 TOTAL: \$228,420
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lynn, M. S. JSC/Baker, K. 21-Mathematics
(72-680 177-42-81) (72-680 160-75-98)

NAS 9-12912 Rice University 2969
Germ free plant study
Period *Obligations*
06/19/72-05/31/75 FY74: TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ward, C. H. JSC/Scheld, H. W. 51-Biology
JSC/Wooley, B. C.
(72-910 914-50-00)

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

NGL 44-006-001	Rice University	2970			
Research on physics of solid materials including study of basic laws governing behavior of solids at high temperatures					
<i>Period</i>	<i>Obligations</i>				
05/01/72-06/30/77	FY74: \$200,000	TOTAL: \$4,350,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Rorschach, H. E.	LERC/Lad, R. A.	13-Physics			
(22-704 502-01-04)	(22-740 114-03-02)	(22-740 129-00-00)			
NGL 44-006-012	Rice University	2971			
Laboratory development of solar wind heavy-ion mass spectrometer					
<i>Period</i>	<i>Obligations</i>				
06/27/64-06/30/76	FY74: \$43,000	TOTAL: \$1,142,736			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Stebbing, R. F.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics			
	HQ-SG/Schmerling, E. R.				
(10-850 188-36-55)					
NGL 44-006-127	Rice University	2972			
Lunar fines, their origin, evolution, and interaction with solar wind and cosmic rays					
<i>Period</i>	<i>Obligations</i>				
02/16/71-01/31/77	FY74: \$54,280	TOTAL: \$350,920			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Heymann, D.	JSC/Harris, J. W.	32-Geological Sci			
(72-810 388-10-02)					
NGR 44-006-137	Rice University	2973			
Analysis of data on the magnetotail and solar wind					
<i>Period</i>	<i>Obligations</i>				
12/29/70-07/31/74	FY74:	TOTAL: \$120,084			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Dessler, A. J.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics			
(10-850 385-36-00)					
NGR 44-006-142	Rice University	2974			
Lunar sample analysis					
<i>Period</i>	<i>Obligations</i>				
05/26/71-01/31/75	FY74: \$35,330	TOTAL: \$118,068			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Powell, B. N.	JSC/Harris, J. W.	32-Geological Sci			
(72-810 388-10-01)					
NGR 44-006-156	Rice University	2975			
Photoionization of atoms in metastable states					
<i>Period</i>	<i>Obligations</i>				
06/21/72-06/30/75	FY74: \$50,000	TOTAL: \$106,749			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Stebbing, R. F.	JSC/Hudson, R. D.	13-Physics			
(72-840 185-47-32)					
NGR 44-006-169	Rice University	2976			
Development of ultraviolet lasers					
<i>Period</i>	<i>Obligations</i>				
00/00/00-01/31/74	FY74:	TOTAL: \$25,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Walters, G. K.	JSC/Hudson, R. D.	13-Physics			
(72-840 185-47-32)					
NSG 1017	Rice University	2977			
Molecular beam experiments for space shuttle					
<i>Period</i>	<i>Obligations</i>				
03/18/74-12/17/74	FY74: \$22,706	TOTAL: \$22,706			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Stebbing, R. F.	LARC/Outlaw, R. A.	13-Physics			
	LARC/Melfi, L. T., Jr.				
(23-980 975-72-48)					
NSG 7015	Rice University	2978			
Nuclear gamma-ray astronomy prospects for HEAO-B					
<i>Period</i>	<i>Obligations</i>				
04/01/74-03/31/75	FY74: \$20,000	TOTAL: \$20,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Clayton, D. D.	HQ-SG/Opp, A. G.	11-Astronomy			
	HQ-SG/Roman, N. G.				
(10-850 188-46-57)					
NSG 7025	Rice University	2979			
Investigation of lunar, terminator and nightside particle fluxes and surface interactions					
<i>Period</i>	<i>Obligations</i>				
03/01/74-02/28/75	FY74: \$53,926	TOTAL: \$53,926			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Reasoner, D. L.	HQ-SM/Hanley, J. B.	31-Atmos Sci			
	HQ-SM/Roberson, F. I.				
(10-810 383-20-03)					
NSG 7032	Rice University	2980			
Apollo data synthesis: Lunar atmosphere and ionosphere					
<i>Period</i>	<i>Obligations</i>				
04/01/74-03/31/75	FY74: \$19,861	TOTAL: \$19,861			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Michel, F. C.	HQ-SM/Hanley, J. B.	31-Atmos Sci			
	HQ-SM/Roberson, F. I.				
(10-810 383-20-03)					
NSG 7043	Rice University	2981			
Research on planetary atmospheres					
<i>Period</i>	<i>Obligations</i>				
03/01/74-02/28/77	FY74: \$81,071	TOTAL: \$81,071			
<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.				
(10-840 185-47-81)					
NGL 44-007-006	Southern Methodist University	2982			
Multidisciplinary research in space-related science and technology					
<i>Period</i>	<i>Obligations</i>				
03/26/65-12/31/73	FY74:	TOTAL: \$600,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Denton, J. C.	HQ-PY/Redding, E. R.	99-Multi-Discip			
(10-370 183-00-00)					
NGL 44-007-042	Southern Methodist University	2983			
Boron arsenide and boron phosphide for high temperature and luminescent devices					
<i>Period</i>	<i>Obligations</i>				
04/10/69-08/31/75	FY74:	TOTAL: \$118,805			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Chu, T. L.	LARC/Breckenridge, R. A.	47-Materials Engr			
	LARC/Robertson, J. B.				
(23-750 125-00-00)	(25-750 125-00-00)	(23-750 115-25-01)			

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TEXAS (Continued)**

NGR 44-007-028 Southern Methodist University 2984
Efficient estimation of distribution for extreme observations in sample and non-sample cases

<i>Period</i>	<i>Obligations</i>	
03/12/68-12/31/73	FY74: TOTAL: \$28,500	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Walsh, J. E.	HQ-RW/Wilson, R. H., Jr.	21-Mathematics

(10-740 129-00-00)

NGR 44-007-049 Southern Methodist University 2985
Digital communications for aircraft

<i>Period</i>	<i>Obligations</i>	
11/24/70-08/31/75	FY74: \$30,000 TOTAL: \$88,893	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gupta, S. C.	LARC/Painter, J. H.	45-Elec Engr

(23-702 768-81-02)

NSG 2006 Southern Methodist University 2986
Monitoring of the Dallas/Fort Worth regional airport as a model

<i>Period</i>	<i>Obligations</i>	
02/01/74-02/28/75	FY74: \$12,900 TOTAL: \$12,900	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Starling, J. D.	ARC/Tanner, T. A.	41-Aero Engr

(21-704 504-29-01) (21-704 504-29-02)

NAS 1-12840 Texas A&M University 2987
Participation in science planning for Viking 1975 missions in the area of imaging

<i>Period</i>	<i>Obligations</i>	
01/03/74-03/31/77	FY74: \$23,596 TOTAL: \$23,596	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, A. T.	LARC/Williams, T. S.	31-Atmos Sci

(23-840 815-20-00)

NAS 1-13342 Texas A&M University 2988
Stress relaxation characteristics and mechanical properties of silicone resin sponge materials for thermal protection system

<i>Period</i>	<i>Obligations</i>	
06/07/74-01/21/75	FY74: \$14,263 TOTAL: \$14,263	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Beckwith, S. W.	LARC/Chapman, A. J.	44-Civil Engr

Saylak, D.
(23-704 502-31-50)

NAS 2-7917 Texas A&M University 2989
Experimental study of dynamic stall and the effects of tunnel wall proximity

<i>Period</i>	<i>Obligations</i>	
11/01/73-10/31/74	FY74: \$31,252 TOTAL: \$31,252	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Parker, A. G.	ARC/McAlister, K. W.	41-Aero Engr

ARC/McCroskey, W. J.
(21-702 760-17-00)

NAS 3-17508 Texas A&M University 2990
Multielement analysis of air filter samples

<i>Period</i>	<i>Obligations</i>	
07/23/73-09/15/75	FY74: \$52,500 TOTAL: \$52,500	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kuykendahl, W.	LERC/King, R.	39-Env Sci, NEC

(22-702 770-00-00) (22-702 770-18-01)

NAS 5-11988 Texas A&M University 2991
Implementation of design phase of an automatic system for computer program documentation

<i>Period</i>	<i>Obligations</i>	
06/06/73-06/05/74	FY74: TOTAL: \$160,537	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simmons, D. B.	GSFC/Damon, E. P.	21-Mathematics

(51-500 310-40-25)

NAS 5-21857 Texas A&M University 2992
ERTS-A data user investigation of monitor vernal advancement and retrogradation (green wave effect) of national vegetation in Great Plains corridor

<i>Period</i>	<i>Obligations</i>	
09/27/72-03/19/75	FY74: \$38,575 TOTAL: \$98,791	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rouse, J. W., Jr.	GSFC/Stonesifer, G. R.	39-Env Sci, NEC

(51-680 641-14-01)

NAS 8-26379 Texas A&M University 2993
Development of techniques to control dislocations created during the fabrication of LSI alloys

<i>Period</i>	<i>Obligations</i>	
08/27/70-08/31/74	FY74: \$38,000 TOTAL: \$136,265	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Porter, W. A.	MSFC/Holladay, A. M.	47-Materials Engr

(62-704 502-23-51) (62-950 953-00-00)

NAS 8-26751 Texas A&M University 2994
Atmospheric variability and vertical motions

<i>Period</i>	<i>Obligations</i>	
01/15/71-11/15/74	FY74: \$39,997 TOTAL: \$82,401	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Scoggins, J. R.	MSFC/Turner, R. E.	32-Geological Sci

(62-680 175-61-71) (62-680 160-44-69) (62-763 133-00-00)

NAS 8-29582 Texas A&M University 2995
Feasibility of aircraft platforms to measure building wakes for aeronautical safety applications

<i>Period</i>	<i>Obligations</i>	
02/21/73-08/20/74	FY74: TOTAL: \$19,988	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Brundidge, K. C.	MSFC/Fichtl, G. H.	31-Atmos Sci

(62-704 501-08-10)

NAS 8-29764 Texas A&M University 2996
Assessment of atmospheric relationships in support of space shuttle operations

<i>Period</i>	<i>Obligations</i>	
04/17/73-04/17/75	FY74: \$34,991 TOTAL: \$34,991	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Scoggins, J. R.	MSFC/Fichtl, G. H.	31-Atmos Sci

MSFC/Camp, D. W.
(62-920 986-25-00)

NAS 8-29851 Texas A&M University 2997
Gravitational effects on process-induced dislocations in silicon

<i>Period</i>	<i>Obligations</i>	
07/02/73-09/02/74	FY74: \$35,798 TOTAL: \$35,798	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Porter, W. A.	MSFC/Nowakowski, M. F.	13-Physics

MSFC/Ruff, R.
(62-980 975-90-95)

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

NAS 9-9053	Texas A&M University	2998	NAS 9-13782	Texas A&M University	3005
Radiation effects on controls, eyes and skin			Active microwave technology working group		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/30/68-12/31/74	FY74: \$49,656	TOTAL: \$489,261	12/01/73-08/31/74	FY74: \$99,511	TOTAL: \$99,511
<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>
Hightower, D. (72-970 970-51-63)	JSC/Hoffman, R. A. (72-910 914-51-00)	51-Biology	Rouse, J. W., Jr. Bradley, J. R. (72-680 177-23-81)	JSC/Matthews, R. E.	19-Phys Sci, NEC
NAS 9-9285	Texas A&M University	2999	NAS 9-13894	Texas A&M University	3006
Study of noise suppression system			Classification techniques evaluation and yield modeling for a large crop inventory project		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/17/69-07/31/74	FY74:	TOTAL: \$75,296	01/15/74-05/31/75	FY74: \$63,200	TOTAL: \$63,200
<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>
Haden, C. R. (72-910 914-50-00)	JSC/Arndt, G. D. (72-910 921-30-00)	45-Elec Engr	Guseman, L. D. Hartley, H. O. (72-680 177-42-81)	JSC/Pitts, D. E. JSC/Baker, K. (72-680 177-51-82)	21-Mathematics
NAS 9-9766	Texas A&M University	3000	NAS 9-13904	Texas A&M University	3007
Wind tunnel testing and analysis of advanced shuttle vehicle configuration			Microwave soil moisture measurement and analysis		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/30/69-06/30/74	FY74: \$75,358	TOTAL: \$473,036	02/11/74-02/01/75	FY74: \$42,830	TOTAL: \$42,830
<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>
Lowy, S. H. (72-920 986-15-00)	JSC/Moseley, W. C., Jr. (72-920 982-42-00)	41-Aero Engr (72-980 908-00-00)	Rouse, J. W., Jr. (72-680 177-51-84)	JSC/Potter, A. E.	39-Env Sci, NEC
NAS 9-12434	Texas A&M University	3001	NAS 9-13905	Texas A&M University	3008
Compression of rehydratable vegetables & cereals			Experimental wheat fields		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/19/72-10/31/74	FY74: \$25,000	TOTAL: \$90,000	02/01/74-01/01/75	FY74: \$3,366	TOTAL: \$3,366
<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>
Burns, E. E. (72-970 970-52-24)	JSC/Smith, M. C., Jr. (72-970 970-51-14)	59-Life Sci, NEC (72-910 914-51-00)	Toler, R. W. (72-680 160-75-55)	JSC/McPherson, T. M. JSC/Potter, A. E.	39-Env Sci, NEC
NAS 9-13374	Texas A&M University	3002	NAS 9-14197	Texas A&M University	3009
Analysis of lunar-treated plants by activation analysis technique			Remote sensing of wheat identification and yield		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/09/73-10/31/74	FY74:	TOTAL: \$10,000	06/01/74-05/31/75	FY74: \$30,000	TOTAL: \$30,000
<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>
Kuykendall, W.E., Jr. (72-960 961-51-00)	JSC/Walkinshaw, C. H. (72-970 970-51-14)	51-Biology	Rouse, J. L. Toler, R. W. (72-680 177-51-83)	JSC/Potter, A. E. JSC/McPherson, T. M.	39-Env Sci, NEC
NAS 9-13545	Texas A&M University	3003	NGL 44-001-001	Texas A&M University	3010
Operation of agricultural test fields for study of stressed crops by remote sensing			Interdisciplinary space oriented research in physical, life and engineering sciences		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/73-10/31/74	FY74:	TOTAL: \$17,000	02/01/62-01/31/77	FY74: \$125,000	TOTAL: \$1,390,564
<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>
Toler, R. W. (72-680 641-14-07)	JSC/Potter, A. E. (72-970 970-51-14)	32-Geological Sci	Rouse, J. W., Jr. (10-371 340-00-00)	HQ-PY/Vitale, J. A. (10-370 183-00-00)	39-Env Sci, NEC
NAS 9-13647	Texas A&M University	3004	NGR 44-001-081	Texas A&M University	3011
Life sciences flight experiments			Relationships between stratospheric clear air turbulence and synoptic meteorological parameters		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/10/73-09/30/74	FY74: \$29,312	TOTAL: \$29,312	02/14/69-06/30/73	FY74:	TOTAL: \$190,842
<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>
Dehon, R. A. (72-970 970-51-62)	JSC/Simmonds, R. C. (72-970 970-51-62)	51-Biology	Scoggins, J. R. (24-760 126-00-00)	FRC/Ehernberger, L. J.	31-Atmos Sci

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

NGR 44-001-117 **Texas A&M University** **3012**
Radiative transfer in realistic planetary atmospheres
Period *Obligations*
07/19/71-09/30/74 FY74: \$35,000 TOTAL: \$101,420
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Plass, G. N. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.
(10-840 185-47-81)

NAS 5-21720 **Texas Technical University** **3019**
Study of dynamics of Playa lakes in the Texas high plains
Period *Obligations*
04/21/72-10/29/74 FY74: TOTAL: \$49,871
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Miller, W. D. GSFC/Gordon, F., Jr. 39-Env Sci, NEC
(51-680 641-14-04) (51-680 641-14-00)

NGR 44-001-149 **Texas A&M University** **3013**
Fatigue strength of multilayered advance fiber composites
Period *Obligations*
06/18/73-06/17/74 FY74: TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Thornton, H. R. LERC/Chamis, C. C. 41-Aero Engr
Kozik, T. J. LERC/Sullivan, T. L.
(22-704 501-22-03)

NAS 9-11162 **Texas Technical University** **3020**
Insulated ECG electrodes
Period *Obligations*
06/29/70-12/02/74 FY74: \$34,959 TOTAL: \$74,952
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Portnoy, W. M. JSC/Day, J. L. 45-Elec Engr
(72-970 970-53-30) (72-970 970-00-00)

NGR 44-001-152 **Texas A&M University** **3014**
Magnetic studies of meteorites
Period *Obligations*
06/20/73-06/30/75 FY74: \$20 TOTAL: \$43,330
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rowe, M. W. HQ-SM/Bryson, R. P. 32-Geological Sci
HQ-SM/Allenby, R. J.
(10-810 195-42-67)

NAS 1-9685 **University of Houston** **3021**
Participation in the science planning for the Viking 1975 missions in the area of molecular analysis
Period *Obligations*
03/17/70-03/31/77 FY74: \$33,000 TOTAL: \$263,588
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Oro, J. LARC/Soffen, G. A. 13-Physics
(23-840 815-20-00)

NGR 44-001-157 **Texas A&M University** **3015**
Development of inviscid inverse transonic solution methods
Period *Obligations*
11/13/73-12/14/74 FY74: \$12,826 TOTAL: \$12,826
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carlson, L. A. LARC/South, J. C., Jr. 41-Aero Engr
LARC/Keller, J. D.
(23-704 501-06-05)

NAS 2-7435 **University of Houston** **3022**
Biochemical research & services
Period *Obligations*
01/29/73-02/28/74 FY74: TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Oro, J. ARC/Miquel, J. 51-Biology
(21-970 970-21-63)

NSG 7037 **Texas A&M University** **3016**
The origin of the genetic code - A physical chemical model of codon assignment
Period *Obligations*
05/07/74-05/31/75 FY74: \$39,975 TOTAL: \$39,975
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nagyvary, J. HQ-SL/Geib, D. S. 51-Biology
(10-840 192-55-61)

NAS 9-11676 **University of Houston** **3023**
Characterization of heat transfer in nutrient materials
Period *Obligations*
04/28/71-04/01/75 FY74: \$15,000 TOTAL: \$64,960
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cox, J. E. JSC/Smith, M. C., Jr. 59-Life Sci, NEC
(72-970 970-52-24)

NGR 44-016-016 **Texas Southern University** **3017**
Legal constraints and cost-benefit considerations for a modular-sized integrated utility system facility
Period *Obligations*
12/01/73-08/31/74 FY74: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dixon, H. W. JSC/Gardner, S. 99-Multi-Discip
(72-371 340-00-00)

NAS 9-11845 **University of Houston** **3024**
Data encoding study for space communication system
Period *Obligations*
06/14/71-09/01/74 FY74: TOTAL: \$47,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Simpson, R. S. JSC/Arndt, G. D. 45-Elec Engr
(72-910 914-50-00)

NSG 9009 **Texas Southern University** **3018**
Collection and concentration of solar energy using Fresnel-type lenses
Period *Obligations*
07/01/74-12/31/74 FY74: \$8,880 TOTAL: \$8,880
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilson, R. F. JSC/Shields, V. E. 31-Atmos Sci
(72-371 340-00-00)

NAS 9-11885 **University of Houston** **3025**
Full pressure suit capability
Period *Obligations*
06/15/71-10/31/74 FY74: TOTAL: \$28,991
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sheer, D. H. JSC/Jackson, J. T. 53-Other Medical
(72-910 914-50-00) (72-910 914-51-00) (72-980 975-60-00)

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

NAS 9-12650	University of Houston	3026	Analysis of management of lunar science investigations at JSC
<i>Period</i>	<i>Obligations</i>		
03/30/72-05/31/75	FY74: \$51,583	TOTAL: \$148,105	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Holland, W. E.	JSC/Teegarden, D. L., Jr.	79-Soc Sci, NEC	
Flannery, W.	JSC/Horton, E. E.		
(72-810 383-25-03)			
NAS 9-12692	University of Houston	3027	Seminars at Lunar Science Institute
<i>Period</i>	<i>Obligations</i>		
04/11/72-06/30/74	FY74: \$10,000	TOTAL: \$83,476	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Eisner, M. E.	JSC/Allen, J. P.	59-Life Sci, NEC	
(72-980 975-50-01)	(72-950 951-16-00)		
NAS 9-12777	University of Houston	3028	Applied mathematics in classification analysis
<i>Period</i>	<i>Obligations</i>		
05/24/72-04/30/75	FY74: \$66,000	TOTAL: \$184,350	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Decell, H. P., Jr.	JSC/MacDonald, R. B.	21-Mathematics	
(72-680 177-42-81)	(72-680 160-75-98)		
NAS 9-13262	University of Houston	3029	Development of pine seedling/tissue culture system
<i>Period</i>	<i>Obligations</i>		
01/15/73-01/14/76	FY74: \$25,000	TOTAL: \$75,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Venkateswaran, S.	JSC/Scheld, H. W.	51-Biology	
Cowles, J. R.			
(72-970 970-51-62)			
NAS 9-13457	University of Houston	3030	Application of gas chromatography for detection of diseases
<i>Period</i>	<i>Obligations</i>		
05/17/73-05/26/75	FY74: \$55,000	TOTAL: \$95,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Zlatkis, A.	JSC/Schneider, H. J.	52-Clinical Med	
(72-970 970-51-25)			
NAS 9-13462	University of Houston	3031	Cross correlation study of surface roughness effects on impulse response using S-193 altimeter data - Skylab EREP investigation 413M
<i>Period</i>	<i>Obligations</i>		
06/04/73-12/31/74	FY74: \$25,000	TOTAL: \$30,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Hayre, H. S.	JSC/York, L. B.	19-Phys Sci, NEC	
(72-960 948-63-86)			
NAS 9-14209	University of Houston	3032	Study of astrophysical problems
<i>Period</i>	<i>Obligations</i>		
06/01/74-06/01/75	FY74: \$33,216	TOTAL: \$33,216	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Sheldon, W. R.	JSC/Golden, R. L.	11-Astronomy	
(72-850 188-46-64)			
NASW 2691	University of Houston	3033	Revised narrative history of the Apollo/Saturn program
<i>Period</i>	<i>Obligations</i>		
06/28/74-08/27/76	FY74: \$50,451	TOTAL: \$50,451	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Unavailable	HQ-AA/Emme, E. M.	73-History	
(10-030 010-00-00)			
NGL 44-005-021	University of Houston	3034	Multidisciplinary space-related research
<i>Period</i>	<i>Obligations</i>		
02/16/66-06/30/74	FY74:	TOTAL: \$275,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Allred, J. C.	HQ-PY/Redding, E. R.	99-Multi-Discip	
(10-370 183-00-00)			
NGL 44-005-041	University of Houston	3035	Study of solar flare particle events and related solar physics
<i>Period</i>	<i>Obligations</i>		
05/20/66-09/30/75	FY74: \$75,000	TOTAL: \$568,346	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Goodman, C.	JSC/Golden, R. L.	13-Physics	
(72-970 970-51-63)	(72-980 975-84-10)		
NGL 44-005-084	University of Houston	3036	Hybrid computation research program
<i>Period</i>	<i>Obligations</i>		
06/27/68-07/31/74	FY74:	TOTAL: \$250,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Huang, C. J.	HQ-PY/Redding, E. R.	21-Mathematics	
(10-370 183-00-00)			
NGL 44-005-090	University of Houston	3037	General research program assistantships
<i>Period</i>	<i>Obligations</i>		
06/04/69-06/30/75	FY74:	TOTAL: \$88,023	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Huang, C. J.	JSC/Eandi, B. K.	49-Engr, NEC	
(72-910 914-50-00)	(72-910 914-40-00)		
NGL 44-005-184	University of Houston	3038	Lunar sample analysis
<i>Period</i>	<i>Obligations</i>		
02/01/73-01/31/76	FY74: \$29,130	TOTAL: \$98,530	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
King, E. A., Jr.	JSC/Harris, J. W.	32-Geological Sci	
(72-810 388-10-01)			
NGR 44-005-002	University of Houston	3039	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>		
06/18/62-02/28/75	FY74: \$62,000	TOTAL: \$606,705	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Oro, J.	HQ-SL/Young, R. S.	32-Geological Sci	
(10-840 192-55-62)			

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

NGR 44-005-091 **University of Houston** **3040**
Spectroscopic and photochemical study of photochromic compounds
Period *Obligations*
03/07/69-01/31/75 FY74: \$45,000 TOTAL: \$285,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Becker, R. S. HQ-SL/Young, R. S. 12-Chemistry
(10-840 192-55-61) (10-870 189-00-00)

NGR 44-005-131 **University of Houston** **3041**
Geologic interpretation of Mars surface photography from Mariners 6 and 7
Period *Obligations*
10/26/70-12/31/75 FY74: \$27,940 TOTAL: \$73,057
Prin. Invest. *NASA Tech. Officer* *CASE Category*
King, E. A., Jr. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Holt, H. E. (10-840 384-50-80)

NGR 44-005-133 **University of Houston** **3042**
Investigation of auroral disturbances
Period *Obligations*
03/15/71-11/30/74 FY74: \$65,000 TOTAL: \$254,036
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sheldon, W. R. HQ-SG/Schmerling, E. R. 39-Env Sci, NEC
HQ-SG/Ott, E. J. (10-850 879-11-00)

NGR 44-005-137 **University of Houston** **3043**
Thermomagnetic torques in gases
Period *Obligations*
02/17/71-08/31/75 FY74: TOTAL: \$129,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hildebrandt, A. F. JSC/White, D. 13-Physics
(72-950 951-16-00) (72-910 914-50-00)

NGR 44-005-162 **University of Houston** **3044**
Studies of low level magnetic noise
Period *Obligations*
05/06/72-09/01/74 FY74: \$26,300 TOTAL: \$45,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vant-Hull, L. L. JSC/Teegarden, D. L., Jr. 32-Geological Sci
(72-810 195-42-60) (72-910 914-40-00)

NGR 44-005-188 **University of Houston** **3045**
Investigation of origin of chondritic meteorites
Period *Obligations*
06/29/73-06/30/74 FY74: TOTAL: \$9,151
Prin. Invest. *NASA Tech. Officer* *CASE Category*
King, E. A., Jr. HQ-SM/Bryson, R. P. 32-Geological Sci
HQ-SM/Pomeroy, J. H. (10-810 195-42-67)

NGT 44-005-114 **University of Houston** **3046**
Program of Faculty Space Systems Engineering Institute
Period *Obligations*
04/06/70-03/31/75 FY74: \$11,850 TOTAL: \$136,372
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Huang, C. J. HQ-PY/Carter, C. H. 49-Engr, NEC
JSC/Eandi, B. K. (72-950 951-00-00)

NGT 44-005-115 **University of Houston** **3047**
Summer faculty fellowship program in research
Period *Obligations*
05/06/74-03/31/75 FY74: \$131,821 TOTAL: \$626,838
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Huang, C. J. HQ-PY/Carter, C. H. 49-Engr, NEC
JSC/Eandi, B. K. (10-371 340-00-00) (72-950 951-16-00)

NAS 1-12762 **University of Texas - Austin** **3048**
Ballistic data reduction of thirty pairs of two station direct-camera meters
Period *Obligations*
09/28/73-05/31/74 FY74: \$6,632 TOTAL: \$6,632
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wray, J. D. LARC/Harvey, G. A. 21-Mathematics
(23-850 188-45-52)

NAS 5-21982 **University of Texas - Austin** **3049**
ATS-F millimeter wave experiment
Period *Obligations*
02/13/74-09/12/75 FY74: \$95,000 TOTAL: \$95,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Straiton, A. W. GSFC/Hirschman, H. 45-Elec Engr
(51-620 643-10-00)

NAS 6-2454 **University of Texas - Austin** **3050**
GEOS-C research into solid earth dynamics
Period *Obligations*
03/15/74-03/14/77 FY74: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tapley, B. D. WFC/Stanley, H. R. 32-Geological Sci
Schutz, B. E. WFC/Rossi, L. C. (53-630 369-07-01)

NAS 8-30245 **University of Texas - Austin** **3051**
Equations of conditions for coefficients of Runge-Kutta-Nyström formulas
Period *Obligations*
09/01/73-04/30/74 FY74: \$9,321 TOTAL: \$9,321
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bettis, D. G. MSFC/Fehlberg, E. 21-Mathematics
(62-950 951-15-00)

NAS 8-30622 **University of Texas - Austin** **3052**
Acquisition and verification of TEXGAP computer program
Period *Obligations*
04/01/74-05/01/75 FY74: \$10,000 TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Becker, E. B. MSFC/Key, J. E. 41-Aero Engr
Dunham, R. S. (62-920 984-15-00)

NAS 9-12568 **University of Texas - Austin** **3053**
Operation, maintenance, & analysis of a data storage unit
Period *Obligations*
05/24/72-05/31/75 FY74: \$57,000 TOTAL: \$87,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Barnes, T. G., III JSC/Potter, A. E. 11-Astronomy
(72-840 185-47-32) (72-850 188-41-55)

**NASA'S UNIVERSITY PROGRAM
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NAS 9-13176	University of Texas - Austin	3054
Ultraviolet stellar astronomy Skylab experiment		
<i>Period</i>	<i>Obligations</i>	
10/02/72-12/31/74	FY74: \$240,837	TOTAL: \$416,037
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Henize, K. G. (72-960 948-80-80)	JSC/Mansur, S. R.	11-Astronomy
NAS 9-13312	University of Texas - Austin	3055
Stream network analysis from orbital and suborbital imagery		
<i>Period</i>	<i>Obligations</i>	
03/14/73-09/30/74	FY74:	TOTAL: \$27,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Baker, V. R. Holz, R. K. (72-960 948-63-83)	JSC/Miller, M. L.	32-Geological Sci
NAS 9-13680	University of Texas - Austin	3056
Assessment of real gas effects on the extrapolation of shuttle flow field phenomena to flight conditions		
<i>Period</i>	<i>Obligations</i>	
09/27/73-09/27/74	FY74: \$24,976	TOTAL: \$24,976
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bertin, J. J. (72-980 909-41-02)	JSC/Goodrich, W. D.	41-Aero Engr
NAS 9-13865	University of Texas - Austin	3057
Non-conventional injector orifice study		
<i>Period</i>	<i>Obligations</i>	
03/21/74-03/30/75	FY74: \$17,472	TOTAL: \$17,472
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hickox, C. E. (72-920 986-15-00)	JSC/Boyd, W. C. JSC/Kahl, R. C.	46-Mech Engr
NAS 9-13946	University of Texas - Austin	3058
Global structural geology		
<i>Period</i>	<i>Obligations</i>	
03/04/74-12/31/74	FY74: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Muchlberger, W. R. (72-960 948-80-80)	JSC/Wilmarth, V. R.	32-Geological Sci
NAS 9-13957	University of Texas - Austin	3059
Land use patterns investigations		
<i>Period</i>	<i>Obligations</i>	
03/04/74-07/31/74	FY74: \$10,369	TOTAL: \$10,369
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Holz, R. K. (72-960 948-80-80)	JSC/Wilmarth, V. R. JSC/Kaltenbach, J. L.	39-Env Sci, NEC
NGL 44-012-006	University of Texas - Austin	3060
Research on millimeter wavelength radiation from solar bodies		
<i>Period</i>	<i>Obligations</i>	
04/29/63-03/31/77	FY74: \$89,822	TOTAL: \$1,275,154
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cogdell, J. R. (10-840 196-41-82)	HQ-SL/Brunk, W. E. HQ-SL/Fellows, R. F. (10-840 185-00-00)	11-Astronomy
NGL 44-012-008	University of Texas - Austin	3061
Study of theory and analysis of low thrust guidance problems in deterministic linear control		
<i>Period</i>	<i>Obligations</i>	
11/01/63-01/01/74	FY74:	TOTAL: \$217,657
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tapley, B. D. (10-750 125-00-00)	HQ-RE/Michaels, T. S. JPL/Jordan, J. F.	42-Astro Engr
NGL 44-012-045	University of Texas - Austin	3062
A study of ignimbrites in the cordilleran region as a basis for interpretation of lunar plains		
<i>Period</i>	<i>Obligations</i>	
05/31/66-05/01/75	FY74:	TOTAL: \$147,886
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clabaugh, S. E. (10-810 195-42-64)	HQ-SM/Bryson, R. P. HQ-SM/Allenby, R. J. (10-840 185-00-00)	32-Geological Sci (10-810 195-00-00)
NGL 44-012-055	University of Texas - Austin	3063
Polarization and time structure of Jovian decametric radiation and the structure of interplanetary plasma		
<i>Period</i>	<i>Obligations</i>	
05/25/66-04/30/76	FY74:	TOTAL: \$786,927
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Douglas, J. N. (10-840 196-41-82)	HQ-SL/Brunk, W. E. HQ-SL/Fellows, R. F. (10-840 185-00-00)	11-Astronomy
NGL 44-012-133	University of Texas - Austin	3064
General research program at NASA JSC		
<i>Period</i>	<i>Obligations</i>	
09/17/69-09/15/75	FY74:	TOTAL: \$66,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McKetta, J. J. (72-910 914-50-00)	JSC/Eandi, B. K.	49-Engr, NEC
NGR 44-012-152	University of Texas - Austin	3065
A program of planetary studies		
<i>Period</i>	<i>Obligations</i>	
06/25/69-08/31/73	FY74: \$300,000	TOTAL: \$1,654,941
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, H. J. (10-840 196-41-80)	HQ-SL/Brunk, W. E. HQ-SG/Roman, N. G. (10-850 188-41-51)	11-Astronomy
NGR 44-012-165	University of Texas - Austin	3066
Continuation of lunar laser ranging experiments at McDonald Observatory		
<i>Period</i>	<i>Obligations</i>	
10/11/69-08/31/75	FY74: \$318,094	TOTAL: \$1,532,246
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Silverberg, E. C. (10-810 387-30-01)	HQ-SM/Strickland, A. T. (10-810 195-43-50)	32-Geological Sci
NGR 44-012-194	University of Texas - Austin	3067
Morphologic and tectonic studies of Mars from Mariner 6 and 7 photographs		
<i>Period</i>	<i>Obligations</i>	
10/01/70-06/30/74	FY74:	TOTAL: \$33,082
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ingerson, F. E. (10-840 384-50-80)	HQ-SL/Dwornik, S. E.	11-Astronomy

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NGR 44-012-209	University of Texas - Austin	3068	NGR 44-012-255	University of Texas - Austin	3075
Study of optical properties of X-ray source			Investigation of highly efficient satellite solution methods		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/26/71-11/30/74	FY74: \$12,000	TOTAL: \$36,951	03/01/73-09/30/73	FY74: TOTAL: \$15,219	
<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>
Vanden Bout, P. A.	HQ-SG/Bogges, N. W.	11-Astronomy	Nacozy, P. E.	GSFC/Velez, C. E.	21-Mathematics
(10-850 385-41-00)	(10-850 878-00-00)		Scheifele, G. S.		(51-500 311-80-41)
NGR 44-012-215	University of Texas - Austin	3069	NGR 44-012-258	University of Texas - Austin	3076
Low noise spectroscopy of solar photosphere and sunspots			Stark broadening of heavy neutral atoms and ions		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/27/72-07/31/73	FY74: TOTAL: \$9,624		02/00/72-09/01/74	FY74: TOTAL: \$11,000	
<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>
Lambert, D. L.	HQ-SG/Weldon, J. M.	11-Astronomy	Bengston, R. D.	HQ-SG/Weldon, J. M.	13-Physics
	HQ-SG/Oertel, G. K.				(10-850 188-38-53)
(10-850 188-38-53)					
NGR 44-012-219	University of Texas - Austin	3070	NGR 44-012-260	University of Texas - Austin	3077
Lunar motion analysis (lunar laser ranging experiment)			High resolution spectrograph for the large space telescope		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/11/71-08/31/74	FY74: \$89,835	TOTAL: \$257,543	10/01/73-12/31/74	FY74: \$10,049	TOTAL: \$10,049
<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>
Mulholland, J. D.	HQ-SM/Strickland, A. T.	11-Astronomy	Tull, R. G.	GSFC/Sobieski, S.	11-Astronomy
Shelus, P. J.				GSFC/Levin, G. M.	
(10-810 387-30-01)	(10-810 383-09-56)				(51-850 188-78-58)
NGR 44-012-221	University of Texas - Austin	3071	NGR 44-012-261	University of Texas - Austin	3078
Fluctuations under a turbulent boundary layer			Low resolution spectrograph for the large space telescope		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/07/71-06/01/74	FY74: TOTAL: \$119,741		10/01/73-12/31/74	FY74: \$8,857	TOTAL: \$8,857
<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>
Panton, R. L.	ARC/Coe, C. F.	41-Aero Engr	Nather, R. E.	GSFC/Sobieski, S.	11-Astronomy
(21-704 501-22-05)				GSFC/Meece, K. J.	
					(51-850 188-78-58)
NGR 44-012-224	University of Texas - Austin	3072	NGR 44-012-263	University of Texas - Austin	3079
Performance and adjustment of isolated environments			Diffraction limited camera for the large space telescope		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/17/72-11/30/74	FY74: \$21,700	TOTAL: \$81,700	10/22/73-12/31/74	FY74: \$1,470	TOTAL: \$1,470
<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>
Helmreich, A. L.	JSC/Fedderson, W. E.	69-Psych, NEC	Angel, J. R.	GSFC/Sobieski, S.	11-Astronomy
(72-970 970-51-51)	(72-910 914-51-00)	(72-910 914-00-00)		GSFC/Levin, G. M.	
					(51-850 188-78-58)
NGR 44-012-225	University of Texas - Austin	3073	NGR 44-012-269	University of Texas - Austin	3080
Stable carbon isotope ratio variations in blue-green algae as a function of growth conditions			Development of efficient methods for satellite determination and prediction		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/20/72-05/31/75	FY74: \$14,000	TOTAL: \$37,916	09/17/73-09/16/74	FY74: \$46,370	TOTAL: \$46,370
<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>
Parker, P. L.	HQ-SL/Young, R. S.	32-Geological Sci	Tapley, B. D.	GSFC/Velez, C. E.	21-Mathematics
Van Baalen, C.			Nacozy, P. E.	GSFC/Fuchs, A. J.	
(10-840 192-55-62)	(10-840 192-00-00)		Schutz, B. E.		(51-500 310-10-22)
NGR 44-012-240	University of Texas - Austin	3074	NGR 44-012-279	University of Texas - Austin	3081
Josephson junction detector system for studies of the spectra of Jupiter and Venus			Atlas of Mariner 9 albedo charts of Mars		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/15/73-02/14/75	FY74: TOTAL: \$9,991		07/01/73-06/30/74	FY74: \$30,000	TOTAL: \$30,000
<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>
Ulrich, B. T.	ARC/Mason, R. H.	11-Astronomy	Devaucouleurs, G. H.	HQ-SL/Dwormnik, S. E.	32-Geological Sci
(21-850 352-02-01)				HQ-SL/Allingham, J. W.	
					(10-840 384-50-80)

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TEXAS (Continued)**

NGR 44-012-282 **University of Texas - Austin** **3082**
Outer planet satellite studies
Period *Obligations*
09/01/73-11/30/74 FY74: \$38,340 TOTAL: \$38,340
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mulholland, J. D. HQ-SL/Brunk, W. E. 11-Astronomy
HQ-SL/Fellows, R. F.
(10-840 196-41-80)

NGR 44-012-283 **University of Texas - Austin** **3083**
Precision orbit determination for near-earth satellites
Period *Obligations*
01/14/74-01/13/75 FY74: \$14,000 TOTAL: \$14,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tapley, B. D. GSFC/Kolenkiewicz, R. 32-Geological Sci
Schutz, B. E. GSFC/Smith, D. E.
(51-630 161-02-02)

NGT 44-012-009 **University of Texas - Austin** **3084**
Training of graduate students in space-related science and technology
Period *Obligations*
04/04/63-08/01/72 FY74: TOTAL: \$891,899
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ellison, F. P. HQ-PY/Carter, C. H. 99-Multi-Discip
(10-370 181-00-00)

NSG 1001 **University of Texas - Austin** **3085**
Reduction of interface coordinates for substructure coupling
Period *Obligations*
01/02/74-07/15/75 FY74: \$22,599 TOTAL: \$22,599
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Craig, R. R. LARC/Pinson, L. D. 49-Engr, NEC
(23-704 502-32-02)

NSG 5005 **University of Texas - Austin** **3086**
Observations of emission lines in M supergiants
Period *Obligations*
05/01/74-04/30/75 FY74: \$9,243 TOTAL: \$9,243
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lambert, D. L. GSFC/Kupperian, J. E. 11-Astronomy
(51-850 831-43-00)

NAS 9-13042 **University of Texas - Cancer Center** **3087**
Evaluation & documentation of endocrine laboratory
Period *Obligations*
06/29/72-11/30/74 FY74: TOTAL: \$71,281
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mitchell, B. A., Jr. JSC/Moseley, E. C. 61-Biol Aspects
(72-960 948-60-90)

NAS 1-9699 **University of Texas - Dallas** **3088**
Participation in the science planning for the Viking 1975 missions in the area of entry science
Period *Obligations*
04/08/70-03/31/77 FY74: \$28,800 TOTAL: \$151,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hanson, W. B. LARC/Soffen, G. A. 31-Atmos Sci
(23-840 815-20-00)

NAS 2-7865 **University of Texas - Dallas** **3089**
Design and development of a large probe neutral mass spectrometer
Period *Obligations*
08/31/73-06/30/74 FY74: \$170,000 TOTAL: \$170,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoffman, J. H. ARC/Polaski, L. J. 31-Atmos Sci
(21-840 186-68-63)

NAS 2-8302 **University of Texas - Dallas** **3090**
Studies of magnetic sector spectrometer system for Saturn/Uranus atmospheric probe mission
Period *Obligations*
06/07/74-09/07/74 FY74: \$29,729 TOTAL: \$29,729
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoffman, J. ARC/Polaski, L. J. 31-Atmos Sci
(21-840 186-68-65)

NAS 5-11003 **University of Texas - Dallas** **3091**
Magnetic mass spectrometer on ISIS-B
Period *Obligations*
02/01/67-12/30/73 FY74: TOTAL: \$703,015
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoffman, J. H. GSFC/Jackson, J. E. 31-Atmos Sci
Breig, E. L.
(51-850 872-12-00)

NAS 5-11011 **University of Texas - Dallas** **3092**
ISIS-B soft-particle spectrometer
Period *Obligations*
02/01/67-12/30/73 FY74: TOTAL: \$590,627
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Heikkila, W. J. GSFC/Jackson, J. E. 31-Atmos Sci
Wright, W. H.
Smith, J. B.
(51-850 872-12-00)

NAS 5-11406 **University of Texas - Dallas** **3093**
Atmosphere Explorer magnetic ion mass spectrometer
Period *Obligations*
04/06/71-06/30/77 FY74: \$169,000 TOTAL: \$729,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoffman, J. H. GSFC/Findlay, J. A. 31-Atmos Sci
Hanson, W. B.
(51-850 852-22-00)

NAS 5-11407 **University of Texas - Dallas** **3094**
Planar ion trap experiment
Period *Obligations*
04/06/71-06/30/77 FY74: \$255,000 TOTAL: \$790,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hanson, W. B. GSFC/Findlay, J. A. 31-Atmos Sci
Sanatani, S.
(51-850 852-22-00)

NAS 9-12074 **University of Texas - Dallas** **3095**
Scientific support of the lunar atmospheric mass spectrometer
Period *Obligations*
08/26/71-01/31/75 FY74: \$168,848 TOTAL: \$468,848
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoffman, J. H. JSC/Eichelman, W. F. 19-Phys Sci, NEC
(72-810 383-25-03) (72-910 914-40-00)

NASA'S UNIVERSITY PROGRAM

TEXAS (Continued)

<p>NAS 9-13512 University of Texas - Dallas 3096 Development of a mathematical technique for analysis of remote sensing data</p> <p><i>Period</i> 05/31/73-05/31/75</p> <p><i>Prin. Invest.</i> Odell, P. L. (72-680 177-42-81)</p> <p><i>Obligations</i> FY74: \$40,000 TOTAL: \$40,000</p> <p><i>NASA Tech. Officer</i> JSC/Baker, K.</p> <p><i>CASE Category</i> 21-Mathematics</p>	<p>NGR 44-004-120 University of Texas - Dallas 3103 Rocket probes for the upper F-region</p> <p><i>Period</i> 02/09/71-01/31/75</p> <p><i>Prin. Invest.</i> Hanson, W. B. (10-850 385-36-00)</p> <p><i>Obligations</i> FY74: \$160,000 TOTAL: \$555,000</p> <p><i>NASA Tech. Officer</i> HQ-SG/Kavanagh, L. D., Jr. HQ-SG/Ott, E. J. (10-850 879-11-00)</p> <p><i>CASE Category</i> 13-Physics</p>
<p>NAS 9-14190 University of Texas - Dallas 3097 Implementation of cardiovascular physiology and cellular repairs experiments</p> <p><i>Period</i> 03/01/74-06/30/74</p> <p><i>Prin. Invest.</i> Mitchell, J. H. (72-970 970-51-12)</p> <p><i>Obligations</i> FY74: \$13,415 TOTAL: \$13,415</p> <p><i>NASA Tech. Officer</i> JSC/Bergman, S. A.</p> <p><i>CASE Category</i> 53-Other Medical</p>	<p>NGR 44-004-121 University of Texas - Dallas 3104 Specific problems in cosmic ray research soluble through use of the Pioneer 6-9 spacecraft</p> <p><i>Period</i> 12/06/71-09/30/73</p> <p><i>Prin. Invest.</i> McCracken, K. G. (10-850 385-46-00)</p> <p><i>Obligations</i> FY74: TOTAL: \$70,000</p> <p><i>NASA Tech. Officer</i> HQ-SG/Opp, A. G.</p> <p><i>CASE Category</i> 11-Astronomy</p>
<p>NGL 44-004-001 University of Texas - Dallas 3098 Research in earth and planetary sciences, including development of advanced scientific experiments in lunar, planetary and space exploration</p> <p><i>Period</i> 05/28/62-03/01/75</p> <p><i>Prin. Invest.</i> Johnson, F. S. Hanson, W. B. (10-370 183-00-00)</p> <p><i>Obligations</i> FY74: TOTAL: \$6,441,277</p> <p><i>NASA Tech. Officer</i> HQ-SL/Fellows, R. F. HQ-SL/Hipsher, H. F. (10-840 185-00-00)</p> <p><i>CASE Category</i> 31-Atmos Sci</p> <p>(10-840 185-47-81)</p>	<p>NGR 44-004-124 University of Texas - Dallas 3105 Rocket investigation of auroral zone disturbances</p> <p><i>Period</i> 08/10/71-06/30/74</p> <p><i>Prin. Invest.</i> Heikkila, W. J. (10-850 879-11-00)</p> <p><i>Obligations</i> FY74: \$100,000 TOTAL: \$420,000</p> <p><i>NASA Tech. Officer</i> HQ-SG/Schmerling, E. R. HQ-SG/Ott, E. J.</p> <p><i>CASE Category</i> 31-Atmos Sci</p>
<p>NGL 44-004-026 University of Texas - Dallas 3099 Investigations into the mechanism and rates of atmospheric mixing in the lower thermosphere</p> <p><i>Period</i> 05/05/65-03/31/76</p> <p><i>Prin. Invest.</i> Johnson, F. S. (10-840 185-47-81)</p> <p><i>Obligations</i> FY74: TOTAL: \$1,273,751</p> <p><i>NASA Tech. Officer</i> HQ-SL/Fellows, R. F. HQ-SL/Hipsher, H. F. (10-840 384-47-81)</p> <p><i>CASE Category</i> 31-Atmos Sci</p>	<p>NGR 44-004-133 University of Texas - Dallas 3106 Comparison of solar cosmic ray anisotropics and interplanetary magnetic field data</p> <p><i>Period</i> 04/23/73-02/28/74</p> <p><i>Prin. Invest.</i> Allum, F. R. (10-850 385-46-00)</p> <p><i>Obligations</i> FY74: TOTAL: \$30,000</p> <p><i>NASA Tech. Officer</i> HQ-SG/Opp, A. G. HQ-SG/Kavanagh, L. D., Jr.</p> <p><i>CASE Category</i> 11-Astronomy</p>
<p>NGL 44-004-130 University of Texas - Dallas 3100 Selected studies in the space sciences</p> <p><i>Period</i> 03/17/72-03/31/77</p> <p><i>Prin. Invest.</i> Johnson, F. S. (10-371 340-00-00)</p> <p><i>Obligations</i> FY74: \$200,000 TOTAL: \$600,000</p> <p><i>NASA Tech. Officer</i> HQ-PY/Redding, E. R.</p> <p><i>CASE Category</i> 99-Multi-Discip</p>	<p>NGR 44-004-142 University of Texas - Dallas 3107 Comparison of OGO-4 ultraviolet and visible nightglow data with computer models</p> <p><i>Period</i> 07/01/73-12/31/74</p> <p><i>Prin. Invest.</i> Tinsley, B. A. (10-850 385-45-00)</p> <p><i>Obligations</i> FY74: \$38,000 TOTAL: \$38,000</p> <p><i>NASA Tech. Officer</i> HQ-SG/Dubin, M.</p> <p><i>CASE Category</i> 19-Phys Sci, NEC</p>
<p>NGR 44-004-030 University of Texas - Dallas 3101 Study of electron collision frequency under ionospheric conditions</p> <p><i>Period</i> 05/05/65-08/31/74</p> <p><i>Prin. Invest.</i> Heikkila, W. J. (10-850 188-36-56)</p> <p><i>Obligations</i> FY74: \$25,000 TOTAL: \$545,765</p> <p><i>NASA Tech. Officer</i> HQ-SG/Schmerling, E. R. HQ-SG/Hallenbeck, D. R. (10-850 188-00-00)</p> <p><i>CASE Category</i> 31-Atmos Sci</p>	<p>NGR 44-004-150 University of Texas - Dallas 3108 Data analysis for ISIS soft-particle spectrometer</p> <p><i>Period</i> 03/15/73-12/14/74</p> <p><i>Prin. Invest.</i> Heikkila, W. J. (10-850 385-36-00)</p> <p><i>Obligations</i> FY74: \$50,000 TOTAL: \$85,000</p> <p><i>NASA Tech. Officer</i> HQ-SG/Schmerling, E. R. HQ-SG/Calahan, D.</p> <p><i>CASE Category</i> 31-Atmos Sci</p>
<p>NGR 44-004-116 University of Texas - Dallas 3102 Lunar sample analysis</p> <p><i>Period</i> 01/13/71-01/31/75</p> <p><i>Prin. Invest.</i> Carter, J. L. (72-810 388-10-01)</p> <p><i>Obligations</i> FY74: \$75,000 TOTAL: \$184,480</p> <p><i>NASA Tech. Officer</i> JSC/Harris, J. W.</p> <p><i>CASE Category</i> 13-Physics</p>	<p>NSG 7034 University of Texas - Dallas 3109 Investigation of the daytime lunar atmosphere for lunar synthesis program</p> <p><i>Period</i> 04/01/74-03/31/75</p> <p><i>Prin. Invest.</i> Hodges, R. R., Jr. (10-810 383-20-03)</p> <p><i>Obligations</i> FY74: \$48,011 TOTAL: \$48,011</p> <p><i>NASA Tech. Officer</i> HQ-SM/Hanley, J. B. HQ-SM/Roberson, F. I.</p> <p><i>CASE Category</i> 31-Atmos Sci</p>

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

NAS 9-10566	University of Texas - Dental Branch	3110			
Preventive dentistry program					
<i>Period</i>		<i>Obligations</i>			
02/25/70-02/28/75	FY74:	TOTAL:	\$45,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Shannon, I. L. (72-970 970-51-45)	JSC/Buchanan, P. (72-910 914-51-00)	51-Biology			
		(72-910 914-50-00)			
NAS 9-11118	University of Texas - Dental Branch	3111			
Oral hygiene study					
<i>Period</i>		<i>Obligations</i>			
06/27/70-06/30/75	FY74:	TOTAL:	\$124,990		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Brown, L. R. (72-970 970-51-45)	JSC/Buchanan, P.	51-Biology			
NAS 9-11088	Univ of Texas Medical Branch - Galveston	3112			
Study of man's immunity to space flight					
<i>Period</i>		<i>Obligations</i>			
06/30/70-09/30/74	FY74:	TOTAL:	\$336,292		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ritzmann, S. E. (72-960 948-60-91)	JSC/Kimzey, S. L. (72-910 914-50-00)	53-Other Medical			
NAS 9-13102	Univ of Texas Medical Branch - Galveston	3113			
Blood studies					
<i>Period</i>		<i>Obligations</i>			
06/30/72-06/30/75	FY74:	TOTAL:	\$80,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lockhart, L. H. (72-960 948-60-91)	JSC/Kimzey, S. L.	53-Other Medical			
NAS 9-13143	Univ of Texas Medical Branch - Galveston	3114			
Passive seismic experiment					
<i>Period</i>		<i>Obligations</i>			
08/22/72-10/31/74	FY74:	TOTAL:	\$592,149		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Latham, G. V. (72-810 383-25-03)	JSC/Eichelman, W. F. (72-910 914-40-00)	13-Physics			
NAS 9-13605	Univ of Texas Medical Branch - Galveston	3115			
Development of procedures for assay of biological samples					
<i>Period</i>		<i>Obligations</i>			
07/01/73-02/28/75	FY74:	TOTAL:	\$20,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ritzmann, S. E. (72-970 970-51-16)	JSC/Leach, C. S.	52-Clinical Med			
NGR 44-088-002	Univ of Texas Medical Branch - Galveston	3116			
Mechanisms of cerebral blood flow changes during acceleration stress					
<i>Period</i>		<i>Obligations</i>			
10/13/71-10/31/74	FY74:	TOTAL:	\$81,979		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Stone, H. L. (21-970 970-21-12)	ARC/Sandler, H.	52-Clinical Med			
NGR 44-088-008	Univ of Texas Medical Branch - Galveston	3117			
Lunar sample analysis					
<i>Period</i>		<i>Obligations</i>			
02/01/74-01/31/75	FY74:	TOTAL:	\$9,160		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lindsay, J. F. (72-910 914-40-00)	JSC/Harris, J. W.	51-Biology			
NAS 2-3082	University of Texas Health Center - Dallas	3118			
Flight hardware for biosatellite experiment					
<i>Period</i>		<i>Obligations</i>			
06/29/69-06/01/75	FY74:	TOTAL:	\$234,841		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Unavailable (21-870 883-00-00)	ARC/Unavailable	51-Biology			
NGR 44-012-151	University of Texas Health Center - Dallas	3119			
Cardiovascular effect					
<i>Period</i>		<i>Obligations</i>			
09/19/69-02/28/75	FY74:	TOTAL:	\$228,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Mitchell, J. H. (72-970 970-51-12)	JSC/Hoffler, G. W. (72-910 914-51-00)	53-Other Medical			
NGR 44-094-001	Univ of Texas Health Center - San Antonio	3120			
Control of brain amine levels in mice					
<i>Period</i>		<i>Obligations</i>			
06/10/72-06/30/74	FY74:	TOTAL:	\$40,390		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Morgan, W. W. (72-970 970-51-16)	JSC/Leach, C. S.	51-Biology			
NGR 44-094-003	Univ of Texas Health Center - San Antonio	3121			
Role of systemic & renal hemodynamics					
<i>Period</i>		<i>Obligations</i>			
08/01/73-06/30/75	FY74:	TOTAL:	\$85,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Earley, L. E. (72-970 970-51-12)	JSC/Jackson, M. M.	53-Other Medical			
NAS 9-11701	Univ of Texas-School of Public Health	3122			
Food safety standards and criteria					
<i>Period</i>		<i>Obligations</i>			
05/19/71-03/31/74	FY74:	TOTAL:	\$37,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Chambers, L. A. Pier, S. M. (72-960 948-60-90)	JSC/Heidelbaugh, N. D. (72-910 914-50-00)	59-Life Sci, NEC			
NAS 9-12783	Univ of Texas-School of Public Health	3123			
Probability of illness definition					
<i>Period</i>		<i>Obligations</i>			
05/26/72-09/30/74	FY74:	TOTAL:	\$96,622		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Downs, J. D. (72-960 961-50-00)	JSC/Ferguson, J. K. (72-960 961-00-00)	53-Other Medical			
NAS 9-12823	Univ of Texas-School of Public Health	3124			
Public health applications of remote sensing to urban public health					
<i>Period</i>		<i>Obligations</i>			
06/22/72-09/15/74	FY74:	TOTAL:	\$97,901		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Steele, J. H. (72-970 970-54-01)	JSC/Barnes, C. M. (72-680 160-75-75)	59-Life Sci, NEC			

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TEXAS (Continued)

NGL 44-084-003 Univ of Texas-School of Public Health 3125
Remote sensing utility in a disaster-struck area
Period 09/01/73-11/30/76 *Obligations* FY74: \$100,000 TOTAL: \$100,000
Prin. Invest. Rush, M. *NASA Tech. Officer* HQ-PY/Vitale, J. A. *CASE Category* 59-Life Sci, NEC
JSC/Kennedy, E. E.
(10-371 340-00-00)

NGR 44-015-003 West Texas State University 3126
Geology of Marc Acidalium quadrangle MO-4 on Mars
Period 04/25/73-03/31/75 *Obligations* FY74: \$10,500 TOTAL: \$20,500
Prin. Invest. Underwood, J. R. *NASA Tech. Officer* HQ-SL/Dwornik, S. E. *CASE Category* 32-Geological Sci
HQ-SL/Holt, H. E.
(10-840 384-50-80)

UTAH

NAS 2-7358 Brigham Young University 3127
Analysis of Pioneer F & G solar terrestrial relationship data
Period 02/00/32-06/30/74 *Obligations* FY74: \$7,000 TOTAL: \$14,300
Prin. Invest. Jones, D. E. *NASA Tech. Officer* ARC/Hall, C. F. *CASE Category* 13-Physics
ARC/Spahr, J. R.
(21-840 811-22-00)

NGR 45-001-011 Brigham Young University 3128
Analysis and interpretation of magnetic field measurements between earth and Mars received from Mariner IV
Period 05/10/65-09/30/74 *Obligations* FY74: \$20,000 TOTAL: \$206,571
Prin. Invest. Jones, D. E. *NASA Tech. Officer* HQ-SG/Kavanagh, L. D., Jr. *CASE Category* 39-Env Sci, NEC
HQ-SG/Schmerling, E. R.
(10-850 385-36-00)

NGR 45-001-032 Brigham Young University 3129
Microwave studies of planetary atmospheres
Period 06/05/70-08/31/74 *Obligations* FY74: TOTAL: \$16,100
Prin. Invest. Jones, D. E. *NASA Tech. Officer* HQ-SL/Brunk, W. E. *CASE Category* 11-Astronomy
(10-840 196-00-00) (10-840 196-41-82)

NGR 45-001-040 Brigham Young University 3130
Studies of lunar magnetism & interplanetary plasma discontinuities
Period 11/21/73-11/21/75 *Obligations* FY74: \$48,904 TOTAL: \$48,904
Prin. Invest. Jones, D. E. *NASA Tech. Officer* ARC/Dyal, P. *CASE Category* 13-Physics
Daily, W. D. *NASA Tech. Officer* ARC/Witteborn, F. C.
(21-910 914-40-00)

NAS 1-12705 University of Utah 3131
Science planning for the Viking 1975 missions in the area of physical properties
Period 01/14/74-03/31/77 *Obligations* FY74: \$47,295 TOTAL: \$47,295
Prin. Invest. Shorthill, R. W. *NASA Tech. Officer* LARC/Williams, T. S., Jr. *CASE Category* 19-Phys Sci, NEC
LARC/Ward, J. C., Jr.
(23-840 815-20-00)

NAS 2-8244 University of Utah 3132
Study to determine pyrolysis & combustion products of polymers
Period 04/15/74-12/14/74 *Obligations* FY74: \$37,617 TOTAL: \$37,617
Prin. Invest. Einhorn, I. N. *NASA Tech. Officer* ARC/Kourtides, D. A. *CASE Category* 12-Chemistry
Futrell, J. H. *NASA Tech. Officer* ARC/Griffin, R. N.
Chatfield, D.
(21-704 501-21-22)

NAS 5-21883 University of Utah 3133
ERTS data user investigation of the geology and hydrology of Utah and Nevada by ERTS imagery
Period 10/24/72-03/15/74 *Obligations* FY74: TOTAL: \$36,967
Prin. Invest. Jensen, M. L. *NASA Tech. Officer* GSFC/Szajna, E. F. *CASE Category* 32-Geological Sci
Bennett, R. *NASA Tech. Officer* Grey, D. C.
(51-680 641-14-03)

NAS 6-1908 University of Utah 3134
Meteorological rocket instrumentation and data processing experiments satellite data comparison project
Period 10/06/70-11/05/74 *Obligations* FY74: \$50,000 TOTAL: \$153,122
Prin. Invest. Staffanson, F. L. *NASA Tech. Officer* WFC/Schmidlin, F. J. *CASE Category* 31-Atmos Sci
Tal, J.
(53-680 607-07-00)

NAS 6-2498 University of Utah 3135
Upper atmospheric physical and dynamic processes
Period 04/26/74-04/25/76 *Obligations* FY74: \$47,600 TOTAL: \$47,600
Prin. Invest. Kao, S. K. *NASA Tech. Officer* WFC/Duke, J. R. *CASE Category* 31-Atmos Sci
(53-680 607-07-00)

NAS 8-30253 University of Utah 3136
Preparation and investigation of methacrylate hydrogels for zeta potential control
Period 11/15/73-10/14/74 *Obligations* FY74: \$12,179 TOTAL: \$12,179
Prin. Invest. Andrade, J. D. *NASA Tech. Officer* MSFC/Krupnick, A. C. *CASE Category* 12-Chemistry
(62-930 966-30-00)

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UTAH (Continued)

NAS 9-12168	University of Utah	3137	NGR 45-003-090	University of Utah	3144
Apollo lunar sounder experiment			Lunar sample analysis		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/13/71-10/30/74	FY74: \$442,132	TOTAL: \$1,728,580	02/08/72-01/31/75	FY74: \$32,400	TOTAL: \$100,400
<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>
Ward, S. H.	JSC/Eichelman, W. F.	32-Geological Sci	Ward, S. H.	JSC/Harris, J. W.	32-Geological Sci
(72-810 383-30-01)	(72-910 914-49-00)		(72-810 388-10-03)		
NAS 9-13322	University of Utah	3138	NGR 45-003-093	University of Utah	3145
Geology of Utah & Nevada			Study a partial through crack on a plate of finite thickness		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/10/73-09/30/74	FY74:	TOTAL: \$38,900	03/21/72-03/01/75	FY74:	TOTAL: \$37,850
<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>
Jensen, M. L.	JSC/Miller, M. L.	32-Geological Sci	Folias, E. S.	JSC/Foreman, R. G.	21-Mathematics
(72-960 948-63-83)			(72-980 908-44-38)		
NASW 2648	University of Utah	3139	NGR 45-003-095	University of Utah	3146
Studying the earth from space			Analysis of the geologic cycle of Mars		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/21/74-06/05/75	FY74: \$15,054	TOTAL: \$15,054	06/29/72-06/30/74	FY74:	TOTAL: \$28,912
<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>
Ridd, M. K.	HQ-FE/Tuttle, F. B.	39-Env Sci, NEC	Wilson, R. C.	HQ-SL/Dwornik, S. E.	32-Geological Sci
McCoy, R. M.	HQ-FE/Ahrendt, M. H.			HQ-SL/Allingham, J. W.	
(10-030 010-00-00)			(10-840 384-50-80)		
NGL 45-003-019	University of Utah	3140	NGR 45-003-108	University of Utah	3147
Investigation of combustion chemistry in composite rocket propellants			Applications of computer speech recognition in flight management		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/06/65-06/30/74	FY74:	TOTAL: \$236,247	11/01/73-09/30/74	FY74: \$13,949	TOTAL: \$13,949
<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>
Baer, A. D.	HQ-RP/Wasel, R. A.	12-Chemistry	Plummer, R. P.	ARC/Coler, C. R.	69-Psych, NEC
Ryan, N. D.			(21-704 504-29-02)		
(10-710 128-00-00)					
NGL 45-003-025	University of Utah	3141	NAS 2-8108	Utah State University	3148
Investigation of meteorological measurement techniques up to 100 kilometers			Gas for stratospheric sampling program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/22/65-09/30/74	FY74: \$15,000	TOTAL: \$604,727	02/01/74-01/31/75	FY74: \$5,000	TOTAL: \$5,000
<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>
Staffanson, F. L.	LARC/Hardesty, C. A.	31-Atmos Sci	Available, U. N.	ARC/Lowenstein, M.	31-Atmos Sci
(23-680 607-06-00)	(23-680 607-00-00)		(21-790 797-00-00)		
NGL 45-003-029	University of Utah	3142	NGR 45-002-008	Utah State University	3149
The mechanics of fracture in viscoelastic media			Response of higher plants to ultraviolet light and other stress factors		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/18/66-10/01/73	FY74:	TOTAL: \$160,051	11/22/66-08/31/74	FY74:	TOTAL: \$206,806
<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>
Williams, M. L.	HQ-RP/Wasel, R. A.	13-Physics	Salisbury, F. B.	HQ-SL/Geib, D. S.	51-Biology
(10-710 128-00-00)			(10-840 192-55-64)		
NGL 45-003-037	University of Utah	3143	NGR 45-002-016	Utah State University	3150
Paramagnetic resonance effect in viscoelastic materials			Application of the comparison principle to analysis of nonlinear systems		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/20/67-06/08/74	FY74:	TOTAL: \$156,194	06/24/70-02/28/75	FY74: \$3,987	TOTAL: \$49,538
<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>
Devires, K. L.	HQ-RP/Wasel, R. A.	46-Mech Engr	Gunderson, R. W.	ARC/Doolin, B. F.	21-Mathematics
(10-710 128-00-00)			Martin, C.	ARC/Meyer, G.	
			(21-704 501-03-11)	(21-750 135-19-02)	

NASA'S UNIVERSITY PROGRAM

UTAH (Continued)

NSG 2022 **Utah State University** **3151**
 Seminar workshop on large scale dynamic systems
Period *Obligations*
 05/01/74-02/28/75 **FY74: \$8,910** **TOTAL: \$8,910**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Martin, C. **ARC/Doolin, B. F.** **49-Engr, NEC**
 (21-704 501-03-11)

NSG 7038 **Utah State University** **3152**
 The diagenesis of geologically important organic matter and amino acids under simulated natural conditions
Period *Obligations*
 06/01/74-05/31/75 **FY74: \$47,352** **TOTAL: \$47,352**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Smith, G. G. **HQ-SL/Young, R. S.** **32-Geological Sci**
 (10-840 192-55-62)

VERMONT

NAS 5-21753 **University of Vermont** **3153**
 Environmental study of ERTS-A imagery
Period *Obligations*
 06/09/72-09/30/74 **FY74: \$972** **TOTAL: \$5,472**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lind, A. O. **GSFC/Szajna, E. F.** **32-Geological Sci**
 Henson, E. B.
 (51-680 641-14-10)

NGR 46-001-041 **University of Vermont** **3154**
 Processing electrophysiological signals
Period *Obligations*
 10/01/73-10/01/74 **FY74: \$36,973** **TOTAL: \$36,973**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lai, D. C. **ARC/Anliker, J. E.** **21-Mathematics**
 (21-970 970-21-11)

NSG 7021 **University of Vermont** **3155**
 Chemical evolution of aminolevulinic acid
Period *Obligations*
 07/01/74-06/30/75 **FY74: \$18,785** **TOTAL: \$18,785**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Thanassi, J. W. **HQ-SL/Young, R. S.** **12-Chemistry**
 (10-840 192-55-61)

VIRGINIA

NAS 1-12152 **Christopher Newport College** **3156**
 Quality control checks of vgh flight records
Period *Obligations*
 02/23/73-06/30/73 **FY74:** **TOTAL: \$6,177**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McMurrin, R. E. **LARC/Jewel, J. W., Jr.** **41-Aero Engr**
LARC/Morris, G. J.
 (23-704 501-38-11)

NAS 1-12328 **Christopher Newport College** **3157**
 Quality control checks of vgh records
Period *Obligations*
 05/14/73-06/30/74 **FY74: \$18,300** **TOTAL: \$18,300**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Roby, A. B. **LARC/Morris, G. J.** **41-Aero Engr**
 (23-704 501-38-11)

NAS 1-11808 **College of William And Mary** **3158**
 Theoretical studies of nuclear reactions for radiation programs
Period *Obligations*
 06/28/72-05/12/75 **FY74:** **TOTAL: \$25,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Remler, E. A. **LARC/Wilson, J. W.** **13-Physics**
LARC/Beck, S. M.
 (23-720 112-02-23)

NAS 1-11958 **College of William And Mary** **3159**
 Research in the physical and life sciences
Period *Obligations*
 10/12/72-08/31/75 **FY74: \$181,164** **TOTAL: \$181,164**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Aceto, H., Jr. **LARC/Martin, D. J.** **99-Multi-Discip**
 (23-680 638-00-00) (23-701 599-85-00) (23-702 760-00-00)

NGL 47-006-055 **College of William And Mary** **3160**
 Research on applied multidisciplinary sciences program
Period *Obligations*
 03/05/71-01/31/74 **FY74:** **TOTAL: \$250,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Sher, A. **HQ-PY/Redding, E. R.** **99-Multi-Discip**
LARC/Martin, D. J.
 (10-371 340-00-00)

NGL 47-006-058 **College of William And Mary** **3161**
 Applied science program
Period *Obligations*
 09/01/72-08/31/76 **FY74: \$100,000** **TOTAL: \$198,400**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Sher, A. **LARC/Martin, D. J.** **99-Multi-Discip**
 (23-701 790-00-00) (23-701 791-00-00)

NGR 47-006-054 **College of William And Mary** **3162**
 Space-related mammalian radiology studies
Period *Obligations*
 02/01/72-03/01/75 **FY74: \$90,000** **TOTAL: \$343,905**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Aceto, H., Jr. **JSC/Hoffman, R. A.** **51-Biology**
 (72-970 970-51-63) (72-970 970-00-00)

NGR 47-006-064 **College of William And Mary** **3163**
 Correlation of trace element levels with the various diseased states in humans
Period *Obligations*
 03/01/73-07/01/75 **FY74: \$50,834** **TOTAL: \$85,834**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Aceto, H., Jr. **WFC/Oberholtzer, J. D.** **59-Life Sci, NEC**
 Jolly, R. K. **ARC/Holton, E. M.**
 (53-250 141-93-02) (53-680 177-56-61) (53-970 970-71-61)

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

NSG 1034	College of William And Mary	3164	Hampton Institute	3171
Summer research studies at Langley			Mossbauer effect and its application in material research	
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>
06/01/74-08/16/74	FY74: \$12,600	TOTAL: \$12,600	01/01/74-12/31/74	FY74: \$32,746
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>
Von Baeyer, H. C.	LARC/Martin, D. J.	13-Physics	Han, K. S.	LARC/Singh, J. J.
(23-704 502-01-03)	(23-704 502-03-51)	(23-704 502-03-53)	(23-371 340-00-00)	
NSG 1089	College of William And Mary	3165	Hampton Institute	3172
Theory of the properties of materials used in solid state sensors			Physical and psychological factors affecting passenger comfort in airplanes	
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>
09/01/74-08/31/75	FY74: \$20,500	TOTAL: \$20,500	04/01/74-01/31/75	FY74: \$48,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>
Chen, A. B.	LARC/Breckenridge, R. A.	13-Physics	Handy, J. W.	LARC/Catherines, J.J.
Sher, A.	LARC/Crouch, R. K.		Conley, H. W.	39-Env Sci, NEC
(23-704 502-03-51)			Duncan, N. C.	
			(23-371 340-00-00)	
NAS 1-12445	Hampton Institute	3166	Hampton Institute	3173
Conversion of government owned vgh flight records into numerical tabulations for FY 74			Summer research studies at Langley	
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>
05/30/73-06/30/76	FY74: \$58,618	TOTAL: \$58,618	06/10/74-09/09/74	FY74: \$23,691
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>
Williams, G. K.	LARC/Jewel, J. W., Jr.	41-Aero Engr	Trehan, A.	LARC/Cox, J. J.
(23-704 501-38-11)			(23-030 023-02-98)	49-Engr, NEC
NGR 47-020-004	Hampton Institute	3167	Hampton Institute	3174
Physical and psychological factors affecting passenger comfort in airplanes			Standards of rider comfort noise vibration and age of rider as factors	
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>
02/01/73-03/31/74	FY74:	TOTAL: \$72,251	05/14/73-06/30/74	FY74:
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>
Handy, J. W.	HQ-PY/Pohly, J. G.	69-Psych, NEC	Colegate, R. L.	HQ-PY/Pohly, J. G.
(10-371 340-00-00)	(10-701 599-85-00)		(10-371 340-00-00)	62-Social Aspects
				LARC/Stone, R. W., Jr.
NGR 47-020-005	Hampton Institute	3168	Hampton Institute	3175
High temperature kinetics studies of combustion processes by the shock tube technique			Numerical computations research	
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>
03/21/73-07/31/74	FY74: \$4,073	TOTAL: \$4,073	04/01/74-03/31/75	FY74: \$28,510
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>
Hunter, C. E.	HQ-PY/Pohly, J. G.	13-Physics	Boseman, M.	LARC/Shodsmith, J.N.
(10-701 599-85-00)			(23-371 340-00-00)	21-Mathematics
				LARC/Hogge, J. E.
NGR 47-020-006	Hampton Institute	3169	Hampton Institute	3176
Fast optical pulse recording system for laser ranging			Self instructional component on basic materials science for orientation to space age technology	
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>
12/01/73-11/30/74	FY74: \$19,245	TOTAL: \$19,245	07/01/74-12/31/74	FY74: \$27,906
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>
Trehan, A. K.	WFC/Kim, H. H.	19-Phys Sci, NEC	Jacobs, J. A.	LARC/Mehrens, H. E.
(53-371 340-00-00)			(23-371 340-00-00)	47-Materials Engr
				(23-680 176-00-00)
NGR 47-020-007	Hampton Institute	3170	Hampton Institute	3177
Minority college relations study			Comfort judgements as a function of passenger and noise and vibration encountered on urban mass transit vehicles	
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>
09/01/73-01/08/74	FY74: \$4,553	TOTAL: \$4,553	07/01/74-06/30/75	FY74: \$43,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>
Bell, J. A.	LARC/Anderson, A. F.	62-Social Aspects	Colegate, R. L.	LARC/Stone, R. W., Jr.
			(23-371 340-00-00)	59-Life Sci, NEC
Williams, M. R.	LARC/Cox, J. J.		Colson, W. N.	
(23-030 023-02-98)			(23-371 340-00-00)	(23-704 504-29-12)

NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)

NAS 1-9434	Old Dominion University	3178			
Research in physical and engineering sciences					
<i>Period</i>	<i>Obligations</i>				
07/23/69-08/31/74	FY74: \$6,647	TOTAL: \$832,451			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ousterhout, D. S. (23-704 502-03-51)	LARC/Martin, D. J. (23-703 320-00-00)	99-Multi-Discip			
NAS 1-11707	Old Dominion University	3179			
Research in physical and life sciences					
<i>Period</i>	<i>Obligations</i>				
07/24/72-12/31/74	FY74: \$518,546	TOTAL: \$799,260			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ousterhout, D. S. (23-680 160-75-98)	LARC/Martin, D. J. (23-680 175-31-31)	49-Engr, NEC (23-680 176-53-32)			
NAS 5-21816	Old Dominion University	3180			
ERTS data user investigation studies					
<i>Period</i>	<i>Obligations</i>				
08/04/72-08/30/74	FY74:	TOTAL: \$91,026			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Copeland, G. E. (51-680 641-14-07)	GSFC/Gordon, F., Jr. (51-680 641-14-09)	39-Env Sci, NEC			
NAS 9-13410	Old Dominion University	3181			
Investigation of zero gravity boiling and condensing in mechanical refrigeration systems					
<i>Period</i>	<i>Obligations</i>				
05/01/73-02/28/75	FY74:	TOTAL: \$15,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Keshock, E. G. (72-970 970-52-20)	JSC/French, B. O.	46-Mech Engr			
NGL 47-003-007	Old Dominion University	3182			
A theoretical and experimental investigation of vortex-sink rate sensor					
<i>Period</i>	<i>Obligations</i>				
08/31/67-05/31/75	FY74:	TOTAL: \$133,459			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Goglia, G. L. (23-750 125-00-00)	LARC/Helibaum, R. F.	46-Mech Engr			
NGL 47-003-008	Old Dominion University	3183			
Studies in heterocyclic synthesis					
<i>Period</i>	<i>Obligations</i>				
07/05/67-06/02/75	FY74: \$9,754	TOTAL: \$198,333			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Williams, R. L. (23-704 501-21-22)	LARC/Johnston, N. J. (23-740 134-03-22)	12-Chemistry			
NGL 47-003-012	Old Dominion University	3184			
Theoretical description of soil-tire interaction under moving wheel of aircraft					
<i>Period</i>	<i>Obligations</i>				
05/15/68-05/01/73	FY74:	TOTAL: \$139,960			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Cheng, R. (23-760 126-00-00)	LARC/Leland, T. J.	44-Civil Engr			
NGL 47-003-039	Old Dominion University	3185			
Analysis of a cold jet on bodies of revolution in a subsonic free stream					
<i>Period</i>	<i>Obligations</i>				
12/01/70-11/30/76	FY74: \$18,804	TOTAL: \$114,463			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ousterhout, D. S. (23-702 760-62-01)	LARC/Gentry, G. L., Jr. (23-760 721-00-00)	41-Aero Engr			
NGL 47-003-067	Old Dominion University	3186			
Interdisciplinary investigation of atmospheric processes and constituents of the mid-Atlantic coastal region					
<i>Period</i>	<i>Obligations</i>				
05/10/72-05/31/77	FY74: \$75,000	TOTAL: \$300,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kindle, E. C. (10-371 340-00-00)	HQ-PY/Vitale, J. A. WFC/Krieger, R. L.	31-Atmos Sci			
NGR 47-003-040	Old Dominion University	3187			
Electron emission induced by electric field of a laser beam					
<i>Period</i>	<i>Obligations</i>				
12/01/70-09/30/72	FY74:	TOTAL: \$13,182			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Cox, J. L. (23-740 129-00-00)	LARC/Outlaw, R. A. LARC/Yeager, P. R.	13-Physics			
NGR 47-003-043	Old Dominion University	3188			
Investigation of sources of errors in low density gas structure measurements					
<i>Period</i>	<i>Obligations</i>				
10/01/70-11/30/74	FY74: \$57,802	TOTAL: \$178,388			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Pittman, M. A. Brock, F. J. Cox, J. L. (23-980 975-90-95)	LARC/Outlaw, R. A. LARC/Melfi, L. T., Jr.	13-Physics			
(23-601 645-50-01)	(23-840 185-47-91)				
NGR 47-003-048	Old Dominion University	3189			
Exciton coupling in molecular crystals					
<i>Period</i>	<i>Obligations</i>				
03/08/71-10/31/74	FY74: \$3,509	TOTAL: \$44,394			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ake, R. L. (23-704 502-01-03)	LARC/Phillips, D. H. (23-740 129-00-00)	13-Physics			
NGR 47-003-052	Old Dominion University	3190			
Graduate research program in aeronautics and air transportation					
<i>Period</i>	<i>Obligations</i>				
05/12/71-08/31/75	FY74: \$79,576	TOTAL: \$360,560			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Roberts, A. S. (23-704 501-15-82)	LARC/Martin, D. J. (23-760 136-13-01)	41-Aero Engr			
NGR 47-003-068	Old Dominion University	3191			
Aerosol studies					
<i>Period</i>	<i>Obligations</i>				
12/11/72-11/01/74	FY74: \$35,900	TOTAL: \$71,400			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Harris, F. S., Jr. Pittman, M. A. (23-680 176-21-31)	LARC/Hulten, W. C. LARC/McCormick, M. P. (23-704 502-23-56)	31-Atmos Sci (23-830 180-72-50)			

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

NGR 47-003-069	Old Dominion University	3192			
Laser holographic interferometric techniques for structure inspection					
<i>Period</i>		<i>Obligations</i>			
09/22/72-11/30/73	FY74:	TOTAL: \$22,136			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Chu, W. P.	LARC/McCormick, M. P.	13-Physics			
	LARC/Goad, J. H., Jr.				
(23-704 501-22-02)	(23-830 180-32-51)				
NGR 47-003-071	Old Dominion University	3193			
Raman spectroscopy as a remote sensor of polyatomic ions in sea & estuarine water					
<i>Period</i>		<i>Obligations</i>			
09/20/72-09/01/73	FY74:	TOTAL: \$10,370			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bandy, A. R.	LARC/Houghton, W. M.	33-Oceanography			
(23-704 502-23-56)					
NGR 47-003-077	Old Dominion University	3194			
Study of stratospheric gases catalytically reacting on alumina					
<i>Period</i>		<i>Obligations</i>			
02/21/73-04/30/74	FY74:	TOTAL: \$7,082			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Cox, J. L.	LARC/Outlaw, R. A.	13-Physics			
(23-980 909-72-47)					
NGR 47-003-078	Old Dominion University	3195			
Heavy-heavy nuclear reactions					
<i>Period</i>		<i>Obligations</i>			
02/01/73-12/21/75	FY74: \$24,990	TOTAL: \$52,147			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Khandelwal, G. S.	LARC/Wilson, J. W.	13-Physics			
(23-704 502-21-32)					
NGR 47-003-082	Old Dominion University	3196			
Optimum geometric configuration of a space shuttle materials laboratory					
<i>Period</i>		<i>Obligations</i>			
03/16/73-06/30/75	FY74: \$111,029	TOTAL: \$156,026			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Clay, F. P.	LARC/Melfi, L. T., Jr.	31-Atmos Sci			
	LARC/Outlaw, R. A.				
(23-601 645-50-01)	(23-850 188-36-56)	(23-980 975-61-02)			
NGR 47-003-083	Old Dominion University	3197			
Laboratory study of passenger subjective response to ideal and real vehicle vibration environments					
<i>Period</i>		<i>Obligations</i>			
05/02/73-08/31/74	FY74:	TOTAL: \$37,990			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kirby, R. H.	LARC/Mixson, J. S.	69-Psych, NEC			
(23-704 501-29-12)					
NGR 47-003-087	Old Dominion University	3198			
Theoretical and experimental program to develop active optical pollution sensors					
<i>Period</i>		<i>Obligations</i>			
06/22/73-08/31/74	FY74: \$39,670	TOTAL: \$50,350			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bandy, A. R.	LARC/Northam, G.B.	39-Env Sci, NEC			
(23-980 975-61-02)					
NGR 47-003-088	Old Dominion University	3199			
Coherent optical instrumentation to measure particle parameters					
<i>Period</i>		<i>Obligations</i>			
09/15/73-11/14/74	FY74: \$36,738	TOTAL: \$36,738			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Chu, W. P.	LARC/McCormick, M. P.	13-Physics			
	LARC/Mauldin, L. E.				
(23-680 683-73-06)	(23-702 760-63-02)	(23-704 502-23-56)			
NGT 47-003-028	Old Dominion University	3200			
Summer faculty fellowship program in engineering systems design					
<i>Period</i>		<i>Obligations</i>			
11/14/69-12/31/74	FY74: \$94,701	TOTAL: \$461,341			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Goglia, G. L.	HQ-PY/Carter, C. H.	49-Engr, NEC			
(10-371 340-00-00)					
NGT 47-003-029	Old Dominion University	3201			
Summer faculty fellowship program in research					
<i>Period</i>		<i>Obligations</i>			
11/14/69-03/31/75	FY74: \$107,090	TOTAL: \$557,480			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Goglia, G. L.	HQ-PY/Carter, C. H.	49-Engr, NEC			
(10-371 340-00-00)					
NSG 1022	Old Dominion University	3202			
X-ray emission from high temperature plasmas					
<i>Period</i>		<i>Obligations</i>			
05/01/74-08/30/75	FY74: \$12,000	TOTAL: \$12,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Harriss, W. L.	LARC/Hohl, F.	13-Physics			
(23-704 502-10-01)					
NSG 1028	Old Dominion University	3203			
Collection, reduction and interpretation of neutral thermospheric and exospheric measurements					
<i>Period</i>		<i>Obligations</i>			
04/01/74-04/01/76	FY74: \$64,948	TOTAL: \$64,948			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Goglia, G. L.	LARC/Keating, G. M.	31-Atmos Sci			
	LARC/Prior, E. J.				
(23-840 185-47-91)	(23-850 385-36-00)				
NSG 1038	Old Dominion University	3204			
Finite element methods in low-speed aerodynamics					
<i>Period</i>		<i>Obligations</i>			
09/01/74-05/31/75	FY74: \$22,500	TOTAL: \$22,500			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Baker, A. J.	LARC/Morgan, H. L., Jr.	41-Aero Engr			
	LARC/Paulson, J. W., Jr.				
(23-702 760-62-01)	(23-704 501-06-01)				
NSG 1039	Old Dominion University	3205			
High temperature wideband pressure transducer					
<i>Period</i>		<i>Obligations</i>			
09/01/74-08/30/75	FY74: \$34,450	TOTAL: \$34,450			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Zuckerwar, A. J.	LARC/Holmes, H. K.	49-Engr, NEC			
	LARC/Mixon, J. S.				
(23-704 501-22-04)					

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NSG 1040 Old Dominion University 3206
Computer simulation of plasma and n-body problems
Period Obligations
06/01/74-05/31/75 FY74: \$19,872 TOTAL: \$19,872
Prin. Invest. NASA Tech. Officer CASE Category
Harries, W. L. LARC/Hohl, F. 19-Phys Sci, NEC
(23-704 502-10-01)

NSG 1041 Old Dominion University 3207
Sensitivity analysis of the remote gas filter correlation analyzer
Period Obligations
05/15/74-05/14/75 FY74: \$24,880 TOTAL: \$24,880
Prin. Invest. NASA Tech. Officer CASE Category
Becher, J. LARC/Orr, H. D., III 39-Env Sci, NEC
LARC/Reichle, H. G., Jr.
(23-680 642-12-00)

NSG 1042 Old Dominion University 3208
Development of ride comfort criteria for mass transit systems
Period Obligations
05/01/74-04/30/75 FY74: \$45,000 TOTAL: \$45,000
Prin. Invest. NASA Tech. Officer CASE Category
Kirby, R. H. LARC/Mixson, J. S. 69-Psych, NEC
Mikulka, P. J. (23-704 504-09-02) (23-704 504-29-12)

NSG 1043 Old Dominion University 3209
Students summer research studies at Langley
Period Obligations
06/01/74-05/31/75 FY74: \$22,127 TOTAL: \$22,127
Prin. Invest. NASA Tech. Officer CASE Category
Thornton, E. A. LARC/Davis, J. G., Jr. 49-Engr, NEC
Murray, K. H. LARC/Pride, R. A.
(23-704 502-32-01)

NSG 1055 Old Dominion University 3210
Dosimeter for distributed body organs
Period Obligations
06/01/74-07/31/76 FY74: \$29,804 TOTAL: \$29,804
Prin. Invest. NASA Tech. Officer CASE Category
Khandelwal, G. S. LARC/Wilson, J. W. 19-Phys Sci, NEC
(23-704 501-08-10)

NSG 1060 Old Dominion University 3211
Active optical pollution sensors development
Period Obligations
06/01/74-10/31/75 FY74: \$83,867 TOTAL: \$83,867
Prin. Invest. NASA Tech. Officer CASE Category
Kindle, E. C. LARC/Remsberg, E. E. 31-Atmos Sci
LARC/Northam, G. B. (23-980 975-61-02)
(23-601 645-20-01)

NSG 1065 Old Dominion University 3212
Numerical solution of viscous shock-layer equations for laminar, transitional, and turbulent flows of a radiating gas mixture in chemical equilibrium
Period Obligations
06/10/74-06/09/75 FY74: \$35,429 TOTAL: \$35,429
Prin. Invest. NASA Tech. Officer CASE Category
Goglia, G. L. LARC/Walberg, G. D. 41-Aero-Engr
Anderson, E. C. LARC/Olstad, W. B.
(23-704 502-27-01)

NAS 1-10210 University of Virginia 3213
Master agreement for research and development in the physical and life sciences and engineering
Period Obligations
07/24/70-01/30/75 FY74: \$72,765 TOTAL: \$164,581
Prin. Invest. NASA Tech. Officer CASE Category
White, E. J. LARC/Kelly, W. L. 45-Elec Engr
(23-702 768-81-01) (23-850 863-11-00)

NAS 1-12754 University of Virginia 3214
Research in the physical and life sciences
Period Obligations
10/26/73-10/25/74 FY74: \$99,982 TOTAL: \$99,982
Prin. Invest. NASA Tech. Officer CASE Category
Barnes, D. LARC/Martin, D. J. 99-Multi-Discip
(23-702 768-81-02) (23-790 797-00-00)

NAS 2-1554 University of Virginia 3215
Biosatellite project experiment P-1145 effect of weightlessness on gross body composition of the rat
Period Obligations
09/14/64-01/31/74 FY74: TOTAL: \$596,155
Prin. Invest. NASA Tech. Officer CASE Category
Pitts, G. C. ARC/Oyama, J. 51-Biology
(21-970 970-21-61) (21-870 883-00-00)

NAS 5-20065 University of Virginia 3216
Performance limits of the astrometric multiplexing area scanner for the large space telescope
Period Obligations
02/04/74-03/25/75 FY74: \$10,000 TOTAL: \$10,000
Prin. Invest. NASA Tech. Officer CASE Category
Frederick, L. W. GSFC/Kelsall, T. N. 11-Astronomy
GSFC/Sobieski, S.
(51-850 188-78-56)

NAS 5-22266 University of Virginia 3217
Supernova monitor experiment
Period Obligations
09/01/73-08/31/74 FY74: \$4,800 TOTAL: \$4,800
Prin. Invest. NASA Tech. Officer CASE Category
Frederick, L. W. GSFC/Bertsch, D. L. 11-Astronomy
(51-850 879-11-00)

NAS 9-12752 University of Virginia 3218
Principal investigator support of the lunar altitude profile determination
Period Obligations
06/13/72-07/01/75 FY74: TOTAL: \$83,745
Prin. Invest. NASA Tech. Officer CASE Category
Junkins, J. L. JSC/Hardee, S. N. 13-Physics
(72-910 914-49-00)

NGL 47-005-050 University of Virginia 3219
Investigation of the dynamic stability of the rigid body rotor
Period Obligations
05/31/66-08/31/75 FY74: TOTAL: \$265,113
Prin. Invest. NASA Tech. Officer CASE Category
Gunter, E. J. LERC/Cunningham, R.E. 46-Mech Engr
LERC/Anderson, W. J.
(22-704 501-24-10)

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NGL 47-005-066 **University of Virginia** **3220**
Studies in astronomy and related scientific and engineering fields

<i>Period</i>	<i>Obligations</i>	
10/10/66-09/14/76	FY74: \$20,000	TOTAL: \$184,256
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Frederick, L. W.	HQ-SG/Roman, N. G.	11-Astronomy
(10-850 188-41-51)	HQ-SG/Bogges, N. W.	(10-850 188-00-00)

NGL 47-005-098 **University of Virginia** **3221**
Study of numerical methodology for dynamic buckling of shell structures

<i>Period</i>	<i>Obligations</i>	
03/07/69-03/15/75	FY74:	TOTAL: \$84,569
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Haviland, J. K.	LARC/Yates, E. C., Jr.	41-Aero Engr
Barton, F. W.	(23-765 742-73-01)	
(23-742 124-00-00)		

NGL 47-005-108 **University of Virginia** **3222**
Investigation of topics in structural dynamics

<i>Period</i>	<i>Obligations</i>	
05/01/69-02/28/74	FY74:	TOTAL: \$49,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Haviland, J. K.	LARC/Rainey, A. G.	41-Aero Engr
(23-760 126-00-00)		

NGR 47-005-112 **University of Virginia** **3223**
Development of the research potential of cold balance

<i>Period</i>	<i>Obligations</i>	
12/22/69-10/01/74	FY74: \$51,000	TOTAL: \$321,938
<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.	LARC/Boyd, R. P.	
(23-704 501-06-04)	(23-704 501-06-09)	(23-760 126-00-00)

NGR 47-005-145 **University of Virginia** **3224**
Performance evaluation capabilities for the design of physical systems

<i>Period</i>	<i>Obligations</i>	
04/22/70-05/31/75	FY74: \$32,000	TOTAL: \$151,910
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pilkey, W. D.	LARC/Sewall, J. L.	46-Mech Engr
(23-704 502-22-01)	LARC/Parrish, R. V.	(23-740 134-00-00)
	(23-704 501-22-05)	

NGR 47-005-172 **University of Virginia** **3225**
Interpretation of surface features and surface processes on Mars

<i>Period</i>	<i>Obligations</i>	
03/03/71-10/31/74	FY74: \$69,089	TOTAL: \$137,279
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dolan, R.	HQ-SL/Dwormik, S. E.	32-Geological Sci
(10-840 384-50-80)		

NGR 47-005-176 **University of Virginia** **3226**
Trace element analysis of mineral separates and determination of partition coefficients

<i>Period</i>	<i>Obligations</i>	
06/07/71-11/30/75	FY74: \$29,169	TOTAL: \$51,149
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Allen, R. O.	HQ-SM/Bryson, R. P.	32-Geological Sci
(10-810 195-42-67)	HQ-SM/Pomeroy, J. H.	(10-810 195-00-00)

NGR 47-005-181 **University of Virginia** **3227**
Model for predicting passenger acceptance of STOL transportation systems

<i>Period</i>	<i>Obligations</i>	
06/15/71-05/31/75	FY74: \$154,000	TOTAL: \$385,157
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jacobson, I. D.	LARC/Schoonover, W. E., Jr.	41-Aero Engr
Kuhlthau, A. R.	LARC/Conner, D. W.	(23-701 791-93-9X)
(23-704 501-15-82)	(23-704 504-29-12)	

NGR 47-005-186 **University of Virginia** **3228**
Vestibular system in a sample of amphibian and reptilian species

<i>Period</i>	<i>Obligations</i>	
10/12/71-02/01/75	FY74: \$14,614	TOTAL: \$43,451
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ebbesson, S. O.	ARC/Mehler, W. R.	59-Life Sci, NEC
Fuller, P. M.	(21-970 970-21-11)	

NGR 47-005-202 **University of Virginia** **3229**
Flight research experiments to determine ride quality and passenger acceptance of air transportation

<i>Period</i>	<i>Obligations</i>	
06/14/73-06/14/75	FY74: \$50,158	TOTAL: \$50,158
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jacobson, I. D.	FRC/Wolf, T. D.	59-Life Sci, NEC
Kuhlthau, A. R.	FRC/Gee, S. W.	
(24-704 504-29-21)		

NGR 47-005-208 **University of Virginia** **3230**
Effects of aircraft design on STOL ride quality: a simulator study

<i>Period</i>	<i>Obligations</i>	
06/07/73-01/31/75	FY74: \$14,949	TOTAL: \$14,949
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jacobson, I. D.	LARC/Stone, R. W., Jr.	41-Aero Engr
(23-704 504-29-12)	LARC/Bergeron, H. P.	

NGR 47-005-213 **University of Virginia** **3231**
Study of rats under chronic exposure, high protein diet, and exercise during centrifugation

<i>Period</i>	<i>Obligations</i>	
08/01/73-10/31/74	FY74: \$39,935	TOTAL: \$39,935
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pitts, G. C.	ARC/Oyama, J.	51-Biology
(21-970 970-21-61)		

NGR 47-005-219 **University of Virginia** **3232**
Unsteady loads due to pulsative lift configurations

<i>Period</i>	<i>Obligations</i>	
01/01/74-12/31/74	FY74: \$39,916	TOTAL: \$39,916
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Haviland, J. K.	LARC/Schoenster, J. A.	41-Aero Engr
Morton, J. B.	LARC/Mixon, J. S.	
(23-702 760-61-02)		

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NSG 1010 University of Virginia 3233
 Superconducting magnetic suspension and balance experiment
Period *Obligations*
 03/01/74-08/31/74 FY74: \$42,700 TOTAL: \$42,700
Prin. Invest. NASA Tech. Officer CASE Category
 Zapata, R. N. LARC/Kilgore, R. A. 41-Aero Engr
 LARC/Boydson, R. P.
 (23-702 760-72-01) (23-704 501-06-09)

NSG 1067 University of Virginia 3234
 Investigation of processor architectures utilizing magnetic bubble and semiconductor memories
Period *Obligations*
 07/01/74-06/30/75 FY74: \$32,646 TOTAL: \$32,646
Prin. Invest. NASA Tech. Officer CASE Category
 Parrish, E. A. LARC/Wells, J. G., Jr. 45-Elec Engr
 Aylor, J. H. LARC/Husson, C.
 (23-704 502-03-52)

NGL 47-002-005 Virginia Commonwealth University 3235
 Radiation hazards to the eye
Period *Obligations*
 06/25/65-04/30/77 FY74: \$100,000 TOTAL: \$488,317
Prin. Invest. NASA Tech. Officer CASE Category
 Ham, W. T. HQ-MM/Saunders, J. F. 51-Biology
 HQ-MM/Jones, W. L.
 (10-371 340-00-00) (23-770 127-00-00)

NGL 47-002-020 Virginia Commonwealth University 3236
 Microbiological performance testing on water management subsystem for a four man space capsule
Period *Obligations*
 04/25/68-05/31/76 FY74: TOTAL: \$252,162
Prin. Invest. NASA Tech. Officer CASE Category
 Dalton, H. P. LARC/Wilkins, J. R. 51-Biology
 (23-770 127-00-00) (23-970 970-32-10)

NGR 47-002-041 Virginia Commonwealth University 3237
 Isomer effects on polyimide properties
Period *Obligations*
 09/15/72-06/30/75 FY74: \$14,875 TOTAL: \$30,175
Prin. Invest. NASA Tech. Officer CASE Category
 Stump, B. L. LARC/Bell, V. L. 12-Chemistry
 LARC/Johnston, N. J.
 (23-704 501-21-22) (23-705 118-06-03)

NGR 47-018-005 Virginia Military Institute 3238
 Digital adaptive control of a VTOL aircraft
Period *Obligations*
 11/01/73-11/30/74 FY74: \$10,928 TOTAL: \$10,928
Prin. Invest. NASA Tech. Officer CASE Category
 Reid, G. F. LARC/Creedon, J. F. 41-Aero Engr
 (23-704 501-23-11)

NAS 1-10233 Virginia Polytechnic Institute 3239
 Effects of swirl and multiple injection points on co-axial mixing in supersonic flow
Period *Obligations*
 07/24/70-02/28/74 FY74: TOTAL: \$66,919
Prin. Invest. NASA Tech. Officer CASE Category
 Schetz, J. A. LARC/Russin, W. R. 41-Aero Engr
 LARC/Anderson, G. Y.
 (23-704 501-04-03)

NAS 1-10646 Virginia Polytechnic Institute 3240
 Research and development in the life sciences, physical sciences, and engineering
Period *Obligations*
 02/12/71-05/31/75 FY74: \$80,253 TOTAL: \$361,174
Prin. Invest. NASA Tech. Officer CASE Category
 Wightman, J. P. LARC/Byvik, C. E. 31-Atmos Sci
 (23-704 501-22-04) (23-830 180-72-50) (23-980 975-73-48)

NAS 1-13175 Virginia Polytechnic Institute 3241
 Research in the physical and life sciences
Period *Obligations*
 05/10/74-05/09/75 FY74: \$41,892 TOTAL: \$41,892
Prin. Invest. NASA Tech. Officer CASE Category
 Robertson, R. M. LARC/Martin, D. J. 49-Engr, NEC
 (23-680 638-10-00) (23-920 989-10-00)

NAS 5-21729 Virginia Polytechnic Institute 3242
 Geological landform analysis in the Central Piedmont of Virginia and North Carolina
Period *Obligations*
 05/02/72-04/01/74 FY74: TOTAL: \$2,164
Prin. Invest. NASA Tech. Officer CASE Category
 Glover, L., III GSFC/Gordon, F., Jr. 32-Geological Sci
 (51-680 641-14-00)

NAS 5-21984 Virginia Polytechnic Institute 3243
 Study of the ATS-F millimeter wave experiment
Period *Obligations*
 01/31/74-09/01/75 FY74: \$174,447 TOTAL: \$174,447
Prin. Invest. NASA Tech. Officer CASE Category
 Bostian, C. W. GSFC/Hirschmann, E. 45-Elec Engr
 Stutzman, W. L.
 Wiley, P. H.
 (51-620 643-10-00)

NAS 6-1863 Virginia Polytechnic Institute 3244
 Remote sensing in agriculture
Period *Obligations*
 07/14/70-07/13/73 FY74: TOTAL: \$73,422
Prin. Invest. NASA Tech. Officer CASE Category
 Pettry, D. E. WFC/Bettle, J. F. 39-Env Sci, NEC
 Hutcheson, T. B. WFC/Scott, J. H.
 (53-680 160-75-01)

NAS 6-2388 Virginia Polytechnic Institute 3245
 Remote sensing in agriculture
Period *Obligations*
 11/01/73-10/31/76 FY74: \$38,910 TOTAL: \$38,910
Prin. Invest. NASA Tech. Officer CASE Category
 Pettry, D. E. WFC/Scott, J. H. 39-Env Sci, NEC
 (53-680 177-51-61)

NAS 9-12630 Virginia Polytechnic Institute 3246
 Viscous shock-layer method to predict surface pressure and heat transfer to distributions over two-dimensional nonanalytic shapes
Period *Obligations*
 04/17/72-09/30/74 FY74: \$25,000 TOTAL: \$119,242
Prin. Invest. NASA Tech. Officer CASE Category
 Lewis, C. H. JSC/Curry, D. M. 41-Aero Engr
 (72-920 986-15-00) (72-920 982-42-00)

NASA'S UNIVERSITY PROGRAM
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NGL 47-004-067	Virginia Polytechnic Institute	3247
Measurement of the ground wind structure		
<i>Period</i>	<i>Obligations</i>	
06/15/70-06/30/74	FY74: \$38,000	TOTAL: \$305,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tieleman, H. W.	WFC/Spurling, J. F.	31-Atmos Sci
(53-704 501-08-10)	(10-760 126-00-00)	
NGL 47-004-080	Virginia Polytechnic Institute	3248
Synthesis, energetics, and chemical characterization of unusual molecules of interest in astronomy at temperatures below 100 K		
<i>Period</i>	<i>Obligations</i>	
04/19/71-06/30/75	FY74:	TOTAL: \$61,960
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McGee, H. A.	HQ-SL/Fellows, R. F.	11-Astronomy
(10-840 185-00-00)		
NGR 47-004-076	Virginia Polytechnic Institute	3249
Photoelastic influence of boundary layer effects		
<i>Period</i>	<i>Obligations</i>	
03/16/71-02/28/74	FY74:	TOTAL: \$38,683
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, C. W.	LARC/Newman, J. C., Jr.	46-Mech Engr
(23-740 134-03-21)	LARC/Poe, C. C., Jr.	
NGR 47-004-082	Virginia Polytechnic Institute	3250
Oxidation behavior of dispersion-stabilized alloys exposed to a dynamic high temperature environment		
<i>Period</i>	<i>Obligations</i>	
04/23/71-12/31/73	FY74:	TOTAL: \$50,877
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tenney, D. R.	LARC/Stein, B. A.	47-Materials Engr
(23-742 117-07-03)		
NGR 47-004-090	Virginia Polytechnic Institute	3251
Research program in astronautics & air transportation systems		
<i>Period</i>	<i>Obligations</i>	
07/01/71-06/30/75	FY74: \$100,000	TOTAL: \$289,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fabrycky, W. J.	LARC/Martin, D. J.	41-Aero Engr
(23-704 501-15-82)	(23-760 136-13-01)	
NGR 47-004-091	Virginia Polytechnic Institute	3252
Influence of polarization on millimeter wave propagation through rain		
<i>Period</i>	<i>Obligations</i>	
01/01/72-03/31/74	FY74:	TOTAL: \$73,648
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bostian, C. W.	GSFC/Hirschmann, E.	45-Elec Engr
Stutzman, W. L.		
(51-620 164-21-72)	(51-620 164-06-58)	
NGR 47-004-093	Virginia Polytechnic Institute	3253
Study iron (2+) magnesium distribution in synthetic and lunar calcic pyroxenes		
<i>Period</i>	<i>Obligations</i>	
12/01/71-09/01/73	FY74:	TOTAL: \$15,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gibbs, G. V.	GSFC/Walter, L. S.	12-Chemistry
(51-910 914-40-00)		
NGR 47-004-097	Virginia Polytechnic Institute	3254
Diffusion behavior of a two-phase metal matrix composite exposed to a high temperature environment		
<i>Period</i>	<i>Obligations</i>	
02/17/72-12/31/73	FY74:	TOTAL: \$9,968
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tenney, D. R.	LARC/Stein, B. A.	47-Materials Engr
(23-740 134-03-23)		
NGR 47-004-098	Virginia Polytechnic Institute	3255
The stability of motion of satellites with long flexible appendages		
<i>Period</i>	<i>Obligations</i>	
05/01/72-02/28/74	FY74:	TOTAL: \$35,525
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Meirovitch, L.	GSFC/Fedor, J. V.	42-Astro Engr
(51-850 877-11-00)		
NGR 47-004-100	Virginia Polytechnic Institute	3256
The stability of motion of satellites with cavities partially filled with liquid		
<i>Period</i>	<i>Obligations</i>	
08/01/72-10/31/74	FY74: \$24,970	TOTAL: \$49,870
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Meirovitch, L.	GSFC/Hrastar, J. A.	49-Engr, NEC
Neyfeh, A. H.		
(51-850 868-11-00)	(51-680 160-44-52)	
NGR 47-004-101	Virginia Polytechnic Institute	3257
Mechanical behavior of composite reinforced metals		
<i>Period</i>	<i>Obligations</i>	
08/01/72-12/31/73	FY74:	TOTAL: \$28,854
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Herakovich, C. T.	LARC/Davis, J. G., Jr.	47-Materials Engr
	LARC/Pride, R. A.	
(23-704 501-22-03)		
NGR 47-004-102	Virginia Polytechnic Institute	3258
Study of diffraction effects in waveguide lens		
<i>Period</i>	<i>Obligations</i>	
09/01/72-08/01/73	FY74:	TOTAL: \$24,321
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Galindo, V.	GSFC/Dod, L. R.	45-Elec Engr
Stutzman, W. L.		
(51-620 164-00-00)		
NGR 47-004-103	Virginia Polytechnic Institute	3259
Synthesis of multiple-shaped beam antenna patterns		
<i>Period</i>	<i>Obligations</i>	
09/01/72-08/01/73	FY74:	TOTAL: \$25,150
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stutzman, W. L.	GSFC/Dod, L. R.	45-Elec Engr
Galindo, V.		
(51-620 164-21-54)		
NGR 47-004-106	Virginia Polytechnic Institute	3260
Optimization of skin friction reduction in supersonic flow by fluid injection		
<i>Period</i>	<i>Obligations</i>	
05/01/73-06/30/74	FY74:	TOTAL: \$45,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schetz, J. A.	LARC/Beckwith, I. E.	41-Aero Engr
Lewis, C. H.		
(23-701 599-85-00)		

NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)

NGR 47-004-108 Virginia Polytechnic Institute 3261
Correlation of creep rate with microstructural changes during high temperature creep

<i>Period</i>	<i>Obligations</i>	
06/08/72-09/30/74	FY74: \$21,495	TOTAL: \$76,358
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lytton, J. L.	LARC/Stein, B. A.	47-Materials Engr
Young, C. T.		
(23-704 502-37-02)		

NGR 47-004-109 Virginia Polytechnic Institute 3262
Propagation and instability of waves in ducts with varying cross sections

<i>Period</i>	<i>Obligations</i>	
09/01/72-08/31/74	FY74: \$25,913	TOTAL: \$89,911
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nayfeh, A. H.	LARC/Zorumski, W. E.	13-Physics
(23-704 501-24-01)		

NGR 47-004-114 Virginia Polytechnic Institute 3263
Crash safety of general aviation aircraft

<i>Period</i>	<i>Obligations</i>	
09/01/72-12/31/74	FY74: \$55,171	TOTAL: \$111,454
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Melosh, R. J.	LARC/Hayduk, R. J.	44-Civil Engr
Swift, G. W.	LARC/Thomson, R. G.	
(23-702 760-60-01)		

NGR 47-004-116 Virginia Polytechnic Institute 3264
Investigation of digital flight control systems

<i>Period</i>	<i>Obligations</i>	
01/01/73-01/01/75	FY74: \$14,446	TOTAL: \$27,148
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vanlandingham, H. F.	LARC/Montgomery, R. C.	41-Aero Engr
Lutze, F. H.		
(23-702 766-75-02)		

NGR 47-004-119 Virginia Polytechnic Institute 3265
Analytical study of subsonic turbulent boundary layer separation, including viscous inviscid interaction

<i>Period</i>	<i>Obligations</i>	
04/13/73-11/30/74	FY74: \$21,970	TOTAL: \$21,970
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Inger, G. R.	LARC/Wornom, S. F.	13-Physics
(23-702 760-64-60)		

NGR 47-004-126 Virginia Polytechnic Institute 3266
Spin stabilization of flexible satellites about nontrivial equilibrium positions

<i>Period</i>	<i>Obligations</i>	
04/15/74-04/14/75	FY74: \$24,960	TOTAL: \$24,960
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Meirovitch, L.	GSFC/Fedor, J. V.	11-Astronomy
(51-830 492-04-15)		

NGR 47-004-129 Virginia Polytechnic Institute 3267
Composite materials research and education

<i>Period</i>	<i>Obligations</i>	
01/01/74-01/01/75	FY74: \$12,600	TOTAL: \$12,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Herakovich, C. T.	LARC/Davis, J. G., Jr.	49-Engr, NEC
	LARC/Pride, R. A.	
(23-704 501-22-03)		

NSG 1015 Virginia Polytechnic Institute 3268
Redundancy in self reorganizing system: A geometric formulation

<i>Period</i>	<i>Obligations</i>	
03/06/74-06/05/75	FY74: \$22,435	TOTAL: \$22,435
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cliff, E. M.	LARC/Montgomery, R. C.	41-Aero Engr
(23-702 766-75-02)		

NSG 1020 Virginia Polytechnic Institute 3269
Determining ion kinetic energies by a method of mass spectrometer peak-shape variation

<i>Period</i>	<i>Obligations</i>	
07/01/74-06/30/75	FY74: \$10,000	TOTAL: \$10,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sanzone, G.	LARC/Yeager, P. R.	13-Physics
	LARC/Smith, A.	
(23-630 161-00-00)		

NSG 1024 Virginia Polytechnic Institute 3270
Stress intensity factor determination for cracks emanating from holes in plates

<i>Period</i>	<i>Obligations</i>	
09/15/74-09/14/75	FY74: \$23,425	TOTAL: \$23,425
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, C. W.	LARC/Newman, J. C., Jr.	46-Mech Engr
	LARC/Poe, C. C., Jr.	
(23-704 501-22-02)		

NSG 1064 Virginia Polytechnic Institute 3271
Synthesis of aromatic secondary diamines

<i>Period</i>	<i>Obligations</i>	
06/01/74-05/31/75	FY74: \$14,020	TOTAL: \$14,020
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wolfe, J. F.	LARC/Johnston, N. J.	12-Chemistry
	LARC/Bell, V. L.	
(23-704 501-21-22)		

NSG 1071 Virginia Polytechnic Institute 3272
Statistical support for the advanced technology laboratory program

<i>Period</i>	<i>Obligations</i>	
07/01/74-06/30/75	FY74: \$35,000	TOTAL: \$35,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hinkelmann, K.	LARC/Llewellyn, C. P.	21-Mathematics
Myers, R. H.	LARC/Campbell, J. W.	
(23-680 176-14-31)		

NSG 1085 Virginia Polytechnic Institute 3273
Kinetics of the reactions of acid anhydrides with aromatic amines in aprotic solvents

<i>Period</i>	<i>Obligations</i>	
07/01/74-06/30/75	FY74: \$23,140	TOTAL: \$23,140
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mason, J. G.	LARC/Young, P. R.	12-Chemistry
	LARC/Johnston, N. J.	
(23-704 501-21-22)		

NSG 2016 Virginia Polytechnic Institute 3274
Aeroelastic phenomena associated with oblique winged aircraft

<i>Period</i>	<i>Obligations</i>	
04/01/74-04/01/75	FY74: \$23,173	TOTAL: \$23,173
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weisshaar, T. A.	ARC/Gaspers, P. A., Jr.	41-Aero Engr
(21-702 760-64-01)		

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

NGL 47-014-009 **Virginia State College** **3275**
Numerical treatment of sound propagation through a duct
Period *Obligations*
06/29/73-06/30/76 **FY74:** **TOTAL: \$50,500**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Agrawal, D. M. HQ-PY/Pohly, J. G. 21-Mathematics
(10-371 340-00-00)

NGR 47-014-004 **Virginia State College** **3276**
Analysis of Martian surface, its origin & theory
Period *Obligations*
01/24/72-06/30/74 **FY74:** **TOTAL: \$22,234**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gipson, M., Jr. HQ-SL/Dwornik, S. E. 32-Geological Sci
(10-840 384-50-80)

NGR 47-014-005 **Virginia State College** **3277**
Numerical treatment of sound propagation through a duct
Period *Obligations*
05/11/72-04/30/73 **FY74:** **TOTAL: \$24,366**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Agrawal, K. M. HQ-PY/Pohly, J. G. 41-Aero Engr
LARC/Lansing, D. L.
(10-371 340-00-00)

NGR 47-014-006 **Virginia State College** **3278**
Research program in nuclear and solid state physics
Period *Obligations*
07/03/72-08/31/74 **FY74: \$25,761** **TOTAL: \$42,024**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stronach, C. E. LARC/Wilson, J. W. 13-Physics
(23-371 340-00-00) (10-371 340-00-00)

NGR 47-014-007 **Virginia State College** **3279**
Industrial arts curriculum development
Period *Obligations*
01/15/73-09/14/75 **FY74: \$28,578** **TOTAL: \$41,534**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Van Dyke, A. LARC/Mehrens, H. E. 49-Engr, NEC
LARC/Parker, M. H.
(23-371 340-00-00) (23-704 502-21-27) (23-701 599-85-00)

NSG 1007 **Virginia State College** **3280**
Exploring careers in technology
Period *Obligations*
06/20/74-08/19/74 **FY74: \$8,432** **TOTAL: \$8,432**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Crawley, L. F. LARC/Mehrens, H. E. 99-Multi-Discip
Payne, W. V. LARC/Parker, M. H.
Russell, W. P.
(23-030 023-09-98)

WASHINGTON

NAS 1-9694 **University of Washington** **3281**
Participation in the science planning for the Viking 1975 missions in the area of meteorology
Period *Obligations*
04/27/70-03/31/77 **FY74: \$135,667** **TOTAL: \$186,067**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leovy, C. B. LARC/Soffen, G. A. 13-Physics
(23-840 815-20-00)

NAS 2-6541 **University of Washington** **3282**
Research on nature and properties of ceramic insulation
Period *Obligations*
06/29/71-06/30/73 **FY74:** **TOTAL: \$114,397**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mueller, J. I. ARC/Goldstein, H. E. 47-Materials Engr
ARC/Larson, H. K.
(10-704 502-31-50)

NAS 2-6778 **University of Washington** **3283**
Remote sensing of salmon
Period *Obligations*
03/07/72-12/07/73 **FY74:** **TOTAL: \$50,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Unavailable ARC/Unavailable 39-Env Sci, NEC
(21-680 160-75-81)

NAS 9-13029 **University of Washington** **3284**
Total body calcium analysis
Period *Obligations*
06/29/72-12/31/75 **FY74: \$52,500** **TOTAL: \$152,486**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nelp, W. B. JSC/Smith, M. C., Jr. 59-Life Sci, NEC
(72-970 970-51-14)

NAS 9-13743 **University of Washington** **3285**
Scanning electron microscope analysis
Period *Obligations*
11/21/73-11/21/74 **FY74: \$5,000** **TOTAL: \$5,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brownlee, D. E. JSC/Horz, F. 32-Geological Sci
(72-950 951-00-00)

NGL 48-002-004 **University of Washington** **3286**
Multidisciplinary research in materials sciences with emphasis on investigation of inorganic nonmetallic ceramic materials
Period *Obligations*
06/28/73-05/31/77 **FY74: \$200,000** **TOTAL: \$3,119,170**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mueller, J. I. LERC/Lad, R. A. 47-Materials Engr
(22-704 502-01-04) (10-740 129-00-00)

NGL 48-002-010 **University of Washington** **3287**
Experimental and theoretical investigation of wind tunnel geometry, emphasizing factors pertinent to V/STOL vehicle testing
Period *Obligations*
11/20/64-09/14/76 **FY74: \$40,000** **TOTAL: \$383,514**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Joppa, R. G. LARC/Heyson, H. H. 41-Aero Engr
(23-702 760-61-02) (23-760 721-00-00)

NGL 48-002-035 **University of Washington** **3288**
An experimental investigation of wind tunnel test limits for V/STOL type vehicles in wind tunnels with curved walls
Period *Obligations*
08/24/66-06/30/76 **FY74:** **TOTAL: \$185,428**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rac, W. H. LARC/Heyson, H. H. 41-Aero Engr
(23-702 760-61-02) (23-702 760-72-01)

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

NGL 48-002-044 University of Washington 3289
Generation of coherent radiation and the use of intense coherent radiation for generation of plasmas

<i>Period</i>	<i>Obligations</i>	
05/19/67-02/14/75	FY74: \$77,900	TOTAL: \$525,900
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hertzberg, A.	HQ-RR/Thom, K.	13-Physics
	LERC/Nored, D.	
(10-704 502-10-01)	(10-740 129-00-00)	

NGL 48-002-047 University of Washington 3290
Interaction shock wave and turbulent boundary layer

<i>Period</i>	<i>Obligations</i>	
09/16/67-07/01/76	FY74: \$82,000	TOTAL: \$318,659
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Childs, M. E.	ARC/Watson, E. C.	41-Aero Engr
	ARC/Rose, W. C.	
(21-704 501-06-08)		

NGR 48-002-033 University of Washington 3291
Study of interplanetary dust

<i>Period</i>	<i>Obligations</i>	
10/17/66-09/30/74	FY74:	TOTAL: \$231,857
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hodge, P. W.	HQ-SG/Dubin, M.	11-Astronomy
(10-850 188-45-53)	(10-850 188-00-00)	

NGR 48-002-073 University of Washington 3292
Meteorology of Mars and Venus

<i>Period</i>	<i>Obligations</i>	
05/22/69-12/31/73	FY74:	TOTAL: \$81,900
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Leovy, C. B.	HQ-SL/Fellows, R. F.	31-Atmos Sci
(10-840 185-00-00)		

NGR 48-002-085 University of Washington 3293
Experimental and theoretical investigation of the simulation of atmospheric turbulence

<i>Period</i>	<i>Obligations</i>	
03/23/70-12/31/74	FY74:	TOTAL: \$170,654
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Joppa, R. G.	ARC/Kurkowski, R. L.	41-Aero Engr
(21-704 501-26-02)		

NGR 48-002-107 University of Washington 3294
High Reynolds numbers flows

<i>Period</i>	<i>Obligations</i>	
01/28/71-02/14/75	FY74: \$62,219	TOTAL: \$176,219
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Russell, D. A.	ARC/Steinle, F. W., Jr.	41-Aero Engr
	ARC/Treon, S. L.	
(21-704 501-06-09)		

NGR 48-002-125 University of Washington 3295
Study of large-scale winds & ionization in mesosphere

<i>Period</i>	<i>Obligations</i>	
07/01/71-12/31/73	FY74:	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Leovy, C. B.	GSFC/Treon, S. L.	31-Atmos Sci
(51-680 160-44-55)		

NGR 48-002-129 University of Washington 3296
Carbon materials for aerospace refractory applications

<i>Period</i>	<i>Obligations</i>	
09/10/71-05/31/74	FY74: \$5,600	TOTAL: \$27,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fischbach, D. B.	LARC/Dicus, D. L.	47-Materials Engr
(23-740 114-08-01)	(23-740 134-14-01)	(23-704 502-21-20)

NGR 48-002-130 University of Washington 3297
Models of primordial self-replicating systems

<i>Period</i>	<i>Obligations</i>	
07/19/72-04/01/75	FY74:	TOTAL: \$13,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gordon, M. P.	HQ-SL/Young, R. S.	51-Biology
(10-840 192-55-61)		

NGR 48-002-141 University of Washington 3298
Research program in aeronautics & air transportation

<i>Period</i>	<i>Obligations</i>	
05/10/72-09/14/75	FY74:	TOTAL: \$130,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kippenhan, C. J.	ARC/Anderson, A. E.	41-Aero Engr
	ARC/Watson, E. C.	
(21-760 136-63-02)		

NGR 48-002-142 University of Washington 3299
Analysis of continuum channel light curves

<i>Period</i>	<i>Obligations</i>	
10/03/72-11/30/74	FY74: \$24,657	TOTAL: \$49,628
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Greene, T. F.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Fellows, R. F.	
(10-840 196-41-80)		

NGR 48-002-144 University of Washington 3300
Sound generation in subsonic rotors

<i>Period</i>	<i>Obligations</i>	
06/09/72-12/14/73	FY74:	TOTAL: \$29,990
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chalupnik, J. D.	ARC/Hodder, B. K.	41-Aero Engr
	ARC/Atencio, A.	
(21-760 136-13-01)		

NGR 48-002-149 University of Washington 3301
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
10/01/72-01/31/75	FY74: \$45,449	TOTAL: \$79,749
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ghose, S.	JSC/Harris, J. W.	13-Physics
(72-810 388-10-01)		

NGR 48-002-153 University of Washington 3302
Classification and mapping of planetary soils

<i>Period</i>	<i>Obligations</i>	
02/12/73-10/31/74	FY74:	TOTAL: \$3,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vgolih, F. C.	HQ-SL/Dwornik, S. E.	32-Geological Sci
(10-840 384-50-80)		

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

NGR 48-002-154 **University of Washington** **3303**
Study of physical conditions in interplanetary and magnetospheric regions
Period *Obligations*
08/01/73-08/01/74 FY74: \$22,017 **TOTAL: \$22,017**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parks, G. K. HQ-SG/Calahan, H. D. 13-Physics
HQ-SG/Kavanagh, L. D., Jr.
(10-850 385-36-00)

NGR 48-002-162 **University of Washington** **3304**
Atmospheric studies based on Mariner 9 data
Period *Obligations*
07/01/73-06/30/74 FY74: \$29,272 **TOTAL: \$29,272**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leovy, C. B. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.
(10-840 384-47-81)

NGR 48-002-166 **University of Washington** **3305**
Interstellar lines in the Vela supernova remnant
Period *Obligations*
12/01/73-11/30/74 FY74: \$1,150 **TOTAL: \$1,150**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wallerstein, G. GSFC/Kupperian, J. E. 11-Astronomy
(51-850 831-43-00)

NGT 48-002-007 **University of Washington** **3306**
Training of graduate students in space-related science and technology
Period *Obligations*
04/09/63-08/01/72 FY74: **TOTAL: \$749,928**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McCarthy, J. L. HQ-PY/Carter, C. H. 99-Multi-Discip
(10-370 181-00-00)

NAS 8-29725 **Washington State University** **3307**
Solidification of binary alloys exhibiting solid state immiscibility under zero gravity conditions
Period *Obligations*
04/17/73-08/31/74 FY74: \$40,000 **TOTAL: \$40,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Johnson, A. A. MSFC/Yates, I. C., Jr. 47-Materials Engr
Anantatmula, R. P. MSFC/Wuenschel, H. F.
Gupta, S. P.
(62-630 179-11-13)

NSG 2015 **Washington State University** **3308**
Investigate condensation heat transfer in a closed tube containing a soluble non-condensable gas
Period *Obligations*
03/15/74-08/31/74 FY74: \$8,026 **TOTAL: \$8,026**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Saaski, E. W. ARC/Kirkpatrick, J. P. 12-Chemistry
Hanson, R. J.
(21-704 502-21-27)

WEST VIRGINIA

NGL 49-001-019 **West Virginia University** **3309**
Effect of changing gravity & weightlessness on vasopress in control systems
Period *Obligations*
06/02/66-02/14/75 FY74: **TOTAL: \$135,344**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moran, W. H. ARC/Danellis, J. V. 52-Clinical Med
(21-770 127-00-00) (10-770 127-00-00)

NGR 49-001-048 **West Virginia University** **3310**
Weightless analog study of particle deposition in human lung
Period *Obligations*
04/28/70-04/30/75 FY74: **TOTAL: \$222,450**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leovy, C. B. ARC/Harrison, G. A. 52-Clinical Med
(21-970 970-21-35) (21-770 127-00-00)

NGR 49-001-056 **West Virginia University** **3311**
Analysis of microwave radiometer measurement of a water tank surface
Period *Obligations*
04/20/72-05/14/75 FY74: \$26,584 **TOTAL: \$26,584**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Balanis, C. A. LARC/Johnson, J. W. 45-Elec Engr
LARC/Jones, W. L.
(23-680 175-31-31)

NGR 49-001-061 **West Virginia University** **3312**
Technology to improve rural housing, utility system, and water sewage in West Virginia
Period *Obligations*
05/31/73-12/31/74 FY74: **TOTAL: \$19,373**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Steinhardt, E. LARC/Kirby, C. E. 39-Env Sci, NEC
(23-250 141-93-02)

WISCONSIN

NGR 50-010-001 **Beloit College** **3313**
Low spectral resolution studies large space telescope
Period *Obligations*
10/01/73-12/31/74 FY74: \$5,740 **TOTAL: \$5,740**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schroeder, D. J. GSFC/Sobieski, S. 11-Astronomy
GSFC/Levin, G. M.
(51-850 188-78-58)

NSG 1025 **Marquette University** **3314**
Development of a process for the attitude determination of a high altitude balloon payload system
Period *Obligations*
04/01/74-03/31/75 FY74: \$23,200 **TOTAL: \$23,200**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nigro, N. J. LARC/Hinton, D. E. 21-Mathematics
Elkouh, A. F. LARC/Dodgen, J. A.
(23-680 176-21-31)

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

NAS 5-23296	University of Wisconsin - Madison	3329
Update and improvement of interactive man-computer system		
<i>Period</i>	<i>Obligations</i>	
08/13/73-12/12/74	FY74: \$166,354	TOTAL: \$166,354
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suomi, V. E.	GSFC/Grecues, J.	31-Atmos Sci
(51-680 611-13-00)		
NAS 8-21015	University of Wisconsin - Madison	3330
Development & construction of an X-ray astronomy experiment		
<i>Period</i>	<i>Obligations</i>	
09/30/66-12/01/77	FY74: \$59,036	TOTAL: \$1,036,652
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kraushaar, W. L.	MSFC/Ponder, T. W.	11-Astronomy
MSFC/Rose, S. D.		
(62-960 948-80-81)		
NAS 8-28733	University of Wisconsin - Madison	3331
Metals-melting and exothermic braising		
<i>Period</i>	<i>Obligations</i>	
05/25/72-08/14/75	FY74: \$10,000	TOTAL: \$57,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heine, R. W.	MSFC/Williams, J. R.	47-Materials Engr
Adams, C. M.	MSFC/Schuerer, P. H.	
Siewert, T. A.		
(62-960 948-90-95)		
NAS 8-29387	University of Wisconsin - Madison	3332
Studies associated with large space telescope working group		
<i>Period</i>	<i>Obligations</i>	
07/15/73-12/31/74	FY74: \$847	TOTAL: \$847
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Code, A. D.	MSFC/Odell, C. R.	11-Astronomy
MSFC/Snoddy, W. C.		
(62-850 188-78-56)		
NGL 50-002-001	University of Wisconsin - Madison	3333
Space-related research in theoretical chemistry in molecular, quantum & statistical mechanics		
<i>Period</i>	<i>Obligations</i>	
07/16/63-09/30/74	FY74:	TOTAL: \$3,920,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bock, R. M.	HQ-PY/Redding, E. R.	12-Chemistry
(10-370 183-00-00)		
NGL 50-002-013	University of Wisconsin - Madison	3334
Investigations and studies of ultraviolet stellar spectra and associated instrumentation		
<i>Period</i>	<i>Obligations</i>	
05/20/64-03/31/77	FY74: \$365,000	TOTAL: \$1,968,420
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Code, A. D.	HQ-SG/Rosendhal, J. D.	11-Astronomy
HQ-SG/Ott, E. J.		
(10-850 879-11-00) (10-850 188-00-00)		
NGL 50-002-044	University of Wisconsin - Madison	3335
Research in cosmic and solar physics		
<i>Period</i>	<i>Obligations</i>	
10/25/65-12/31/76	FY74: \$150,000	TOTAL: \$1,512,661
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kraushaar, W. L.	HQ-SG/Roman, N. G.	11-Astronomy
HQ-SG/Bogges, N. W.		
(10-850 879-11-00) (10-850 188-00-00)		
NGL 50-002-078	University of Wisconsin - Madison	3336
Study of methods to effect a more complete and rapid detection of human-infectious agents		
<i>Period</i>	<i>Obligations</i>	
06/15/67-12/31/73	FY74:	TOTAL: \$138,213
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dick, E. C.	ARC/Mandel, A. D.	51-Biology
D'Alessio, D. J.		
(21-770 127-00-00)		
NGL 50-002-114	University of Wisconsin - Madison	3337
Multidisciplinary studies of social, economic, and political impact of recent advances in satellite meteorology		
<i>Period</i>	<i>Obligations</i>	
02/25/69-12/01/74	FY74:	TOTAL: \$450,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suomi, V. E.	HQ-PY/Vitale, J. A.	39-Env Sci, NEC
(10-680 160-00-00) (10-370 183-00-00) (10-371 340-00-00)		
NGL 50-002-127	University of Wisconsin - Madison	3338
Multidisciplinary research in space science & engineering		
<i>Period</i>	<i>Obligations</i>	
12/19/69-07/31/77	FY74: \$320,000	TOTAL: \$965,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clapp, J. L.	HQ-PY/Vitale, J. A.	39-Env Sci, NEC
(10-371 340-00-00)		
NGL 50-002-148	University of Wisconsin - Madison	3339
Lunar sample analysis		
<i>Period</i>	<i>Obligations</i>	
02/01/71-01/31/76	FY74:	TOTAL: \$394,040
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Haskin, L. A.	JSC/Harris, J. W.	12-Chemistry
(72-910 914-40-00)		
NGR 50-002-051	University of Wisconsin - Madison	3340
Applications of the direct photon absorption techniques for measuring bone-mineral content		
<i>Period</i>	<i>Obligations</i>	
09/01/66-08/31/74	FY74: \$60,000	TOTAL: \$429,164
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cameron, J. R.	ARC/Young, D. R.	53-Other Medical
Mazess, R. B.		
(21-970 970-23-30)		
NGR 50-002-140	University of Wisconsin - Madison	3341
Solar radiation within clouds		
<i>Period</i>	<i>Obligations</i>	
07/30/70-08/31/73	FY74:	TOTAL: \$292,091
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weinman, J. A.	HQ-SL/Fellows, R. F.	31-Atmos Sci
HQ-SL/Hipsher, H. F.		
(10-840 185-47-80)		
NGR 50-002-160	University of Wisconsin - Madison	3342
Pattern recognition and information processing in a microelectronic artificial neural network		
<i>Period</i>	<i>Obligations</i>	
01/25/71-08/31/73	FY74:	TOTAL: \$100,490
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Parmentier, R. D.	HQ-RE/Pontious, C. E.	21-Mathematics
Scott, A. C.		
Uhr, L.		
(21-750 115-04-60)		

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

NGR 50-002-162 University of Wisconsin - Madison 3343
Solar wind physics

<i>Period</i>	<i>Obligations</i>	
01/26/71-12/31/74	FY74: \$51,685	TOTAL: \$202,304
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Scherb, F.	HQ-SG/Kavanagh, L. D., Jr.	13-Physics
	HQ-SG/Ott, E. J.	

(10-850 188-36-55)

NGR 50-002-174 University of Wisconsin - Madison 3344
Prevention of transmission of human respiratory viruses

<i>Period</i>	<i>Obligations</i>	
03/01/72-01/31/75	FY74:	TOTAL: \$52,870
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dick, E. C.	ARC/Mandel, A. D.	52-Clinical Med

(21-970 970-21-25)

NGR 50-002-183 University of Wisconsin - Madison 3345
Tissue & fluid changes by radionuclide absorption

<i>Period</i>	<i>Obligations</i>	
04/24/72-06/30/74	FY74:	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mazess, R. B.	ARC/Young, D. R.	52-Clinical Med

(21-970 970-23-30)

NGR 50-002-189 University of Wisconsin - Madison 3346
Cloud image processing for planetary flybys

<i>Period</i>	<i>Obligations</i>	
01/19/72-12/31/74	FY74:	TOTAL: \$19,297
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suomi, V. E.	HQ-SL/Fellows, R. F.	31-Atmos Sci

(10-840 185-47-81)

NGR 50-002-191 University of Wisconsin - Madison 3347
Elimination of microbial flora and its effect on immunity to infection

<i>Period</i>	<i>Obligations</i>	
02/04/72-01/14/75	FY74: \$43,000	TOTAL: \$113,300
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Balish, E.	ARC/Mandel, A. D.	52-Clinical Med

(21-970 970-21-25)

NGR 50-002-215 University of Wisconsin - Madison 3348
Investigation of cloud displacement data in a sophisticated model of the atmosphere

<i>Period</i>	<i>Obligations</i>	
03/01/73-02/28/75	FY74: \$40,000	TOTAL: \$79,634
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suomi, V. E.	GSFC/Halem, M.	31-Atmos Sci
	GSFC/Druyan, L. M.	

(51-680 611-13-00) (51-680 408-02-02)

NGR 50-002-223 University of Wisconsin - Madison 3349
Study of the use and design characteristics of visible and ultraviolet interference spectrometers for the large space telescope

<i>Period</i>	<i>Obligations</i>	
10/01/73-12/31/74	FY74: \$4,323	TOTAL: \$4,323
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Roesler, F. L.	GSFC/Sobieski, S.	11-Astronomy
	GSFC/Levin, G. M.	

(51-850 188-78-58)

NGR 50-002-242 University of Wisconsin - Madison 3350
Fabry-Perot observations of comet Kohoutek

<i>Period</i>	<i>Obligations</i>	
12/10/73-09/09/74	FY74: \$9,001	TOTAL: \$9,001
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Roesler, F. L.	GSFC/Hobbs, R. W.	11-Astronomy

(51-840 196-41-53)

NSG 1057 University of Wisconsin - Madison 3351
Evaluation of lidar experiments to obtain meteorological and air quality measurements from a space shuttle platform

<i>Period</i>	<i>Obligations</i>	
05/15/74-02/14/75	FY74: \$49,941	TOTAL: \$49,941
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weinman, J. A.	LARC/Remsberg, E. E.	31-Atmos Sci
Eloranta, E. E.	LARC/Northam, G. B.	

(23-601 645-20-01)

NSG 2002 University of Wisconsin - Madison 3352
Diagnosis of rhinovirus infection by antibody studies

<i>Period</i>	<i>Obligations</i>	
01/15/74-01/15/75	FY74: \$25,000	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dick, E. C.	ARC/Mandel, A. D.	52-Clinical Med

(21-970 970-21-25)

NSG 7033 University of Wisconsin - Madison 3353
Investigation of the galactic and interplanetary night sky emission

<i>Period</i>	<i>Obligations</i>	
05/01/74-04/30/75	FY74: \$32,540	TOTAL: \$32,540
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Scherb, F.	HQ-SG/Bogges, N. W.	11-Astronomy
Roesler, F. L.	HQ-SG/Calahan, H. D.	

(10-850 385-41-00)

NGR 50-007-001 University of Wisconsin - Milwaukee 3354
Dynamic response and flow visualization analyses for helicopter rotor blades

<i>Period</i>	<i>Obligations</i>	
01/02/71-01/01/75	FY74: \$49,980	TOTAL: \$184,869
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bratanow, T.	LARC/Ward, J. F.	41-Aero Engr
Ecer, A.	LARC/Young, W. H., Jr.	

(23-702 760-63-02) (23-760 721-00-00)

NGR 50-009-001 University of Wisconsin - Parkside 3355
Identification, distribution and significance of forms on Mars

<i>Period</i>	<i>Obligations</i>	
02/00/32-12/31/74	FY74: \$4,071	TOTAL: \$7,464
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, E. I.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Holt, H. E.	

(10-840 384-50-80)

**NASA'S UNIVERSITY PROGRAM
WYOMING**

WYOMING

NAS 1-12798 University of Wyoming 3356
Conceptual design of a stratospheric aerosol Nimbus G spacecraft

<i>Period</i>	<i>Obligations</i>	
10/16/73-06/30/74	FY74: \$99,650	TOTAL: \$99,650
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pepin, T. J. (23-680 642-12-00)	LARC/Mauldin, L. E. (23-680 683-73-06)	31-Atmos Sci

NAS 1-13213 University of Wyoming 3357
Stratospheric aerosol measurements for Apollo/Soyuz test project

<i>Period</i>	<i>Obligations</i>	
05/02/74-11/01/76	FY74: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pepin, T. J. (23-930 966-30-00)	LARC/Crumby, K. H. LARC/Mauldin, L. E., III	31-Atmos Sci

NAS 5-21799 University of Wyoming 3358
Analysis of ERTS-A imagery

<i>Period</i>	<i>Obligations</i>	
06/27/72-01/01/75	FY74: \$48,725	TOTAL: \$141,725
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Houston, R. S. (51-680 641-14-03)	GSFC/Gordon, F., Jr. (51-680 641-14-00)	32-Geological Sci

NAS 5-21818 University of Wyoming 3359
Cooperative study of the geology of a test site in ice-free valleys of Antarctica

<i>Period</i>	<i>Obligations</i>	
10/11/72-01/31/75	FY74:	TOTAL: \$7,002
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Houston, R. S. (51-680 641-00-00)	GSFC/Gordon, F., Jr.	32-Geological Sci

NAS 9-13298 University of Wyoming 3360
Multidisciplinary study of Wyoming test sites

<i>Period</i>	<i>Obligations</i>	
03/27/73-10/31/74	FY74:	TOTAL: \$88,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Houston, R. S. (72-960 948-63-83)	JSC/Miller, M. L.	32-Geological Sci

NGR 51-001-033 University of Wyoming 3361
Magnetospheric modulation effects on solar cosmic rays

<i>Period</i>	<i>Obligations</i>	
01/29/71-08/31/73	FY74:	TOTAL: \$28,950
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hoffman, D. J. (10-850 385-00-00)	HQ-SG/Hallenbeck, D. R. HQ-SG/Schmerling, E. R.	13-Physics

NGR 51-001-035 University of Wyoming 3362
Search for relativistic magnetic charges in cosmic rays

<i>Period</i>	<i>Obligations</i>	
02/03/71-12/31/74	FY74: \$30,000	TOTAL: \$46,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tompkins, D. R., Jr. (10-850 188-46-56)	HQ-SG/Opp, A. G. HQ-SG/Kavanagh, L. D., Jr.	13-Physics

NGR 51-001-036 University of Wyoming 3363
Measurement of meteoric dust from the Lear jet

<i>Period</i>	<i>Obligations</i>	
05/17/71-02/01/75	FY74:	TOTAL: \$52,778
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hackwell, J. A. (21-850 352-02-01)	ARC/Mason, R. H. (10-850 352-02-01)	31-Atmos Sci

NGR 51-001-045 University of Wyoming 3364
Dustsonde support for clear-air turbulence and air pollution studies

<i>Period</i>	<i>Obligations</i>	
07/01/72-12/31/75	FY74: \$25,000	TOTAL: \$49,847
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schroeder, D. J. (23-250 141-95-01)	LARC/McCormick, M. P. (23-250 141-93-00)	31-Atmos Sci

NSG 1006 University of Wyoming 3365
Stratospheric aerosol measurements

<i>Period</i>	<i>Obligations</i>	
03/01/74-02/28/75	FY74: \$7,930	TOTAL: \$7,930
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pepin, T. J. Rosen, J. M. Hoffman, D. J. (23-680 176-91-31)	LARC/Mauldin, L. E. LARC/McCormick, M. P.	31-Atmos Sci

NSG 1009 University of Wyoming 3366
Dustsonde and ozonesonde support for the lacate equipment

<i>Period</i>	<i>Obligations</i>	
04/01/74-09/30/74	FY74: \$22,682	TOTAL: \$22,682
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rosen, J. M. Pepin, T. J. Hoffman, D. J. (23-680 638-10-00)	LARC/Fuller, W. H., Jr. LARC/McCormick, M. P.	31-Atmos Sci

VIRGIN ISLANDS

NGL 52-083-009 College of Virgin Islands 3367
Reflection spectroscopy of lunar samples (Apollo 14-19)

<i>Period</i>	<i>Obligations</i>	
05/05/71-01/01/74	FY74:	TOTAL: \$68,642
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCord, T. B. Adams, J. B. Johnson, T. V. (72-910 914-40-00)	JSC/Harris, J. W.	19-Phys Sci, NEC

NGR 52-083-003 College of Virgin Islands 3368
Investigation of spectral reflectance properties of lunar and planetary surfaces

<i>Period</i>	<i>Obligations</i>	
04/30/69-12/31/74	FY74:	TOTAL: \$134,239
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Adams, J. B. (10-810 195-00-00)	HQ-SM/Bryson, R. P. HQ-SM/Allenby, R. J.	32-Geological Sci

**NASA'S UNIVERSITY PROGRAM
CANADA**

CANADA

NGR 52-133-001 **Laval University** **3369**
 Rb-87 gas cell study
Period *Obligations*
 01/09/70-09/30/73 **FY74:** **TOTAL: \$35,290**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Vanier, J. GSFC/Major, F. G. 45-Elec Engr
 (51-750 115-21-10)

NGR 52-163-001 **University of New Brunswick** **3370**
 Determination of NO2 molecular parameters necessary for
 atmospheric slant path transmittance calculations
Period *Obligations*
 08/10/72-08/15/74 **FY74: \$25,300** **TOTAL: \$60,300**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Young, C. LARC/Reichle, H. G., Jr. 31-Atmos Sci
 (23-680 160-44-64) (23-680 160-20-56)

NGR 52-134-005 **York University** **3371**
 Studies of production and reaction processes of O(1D2) of interest
 in the earth's atmosphere
Period *Obligations*
 04/26/73-08/31/74 **FY74: \$39,850** **TOTAL: \$39,850**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Schiff, H. I. LERC/Baker, C. E. 31-Atmos Sci
 (22-704 501-24-20)

CHILE

NAS 5-1925 **University of Chile** **3372**
 Maintenance & operation of minitrack facilities
Period *Obligations*
 09/21/62-12/31/74 **FY74: \$1,895,501** **TOTAL: \$16,338,470**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Danyau, C. R. GSFC/Christie, C. J. 99-Multi-Discip
 (51-500 312-02-22) GSFC/Augenstein, R. J. (51-500 312-20-10) (51-500 311-00-00)

ECUADOR

NAS 5-21224 **National Polytechnic Institute** **3373**
 Training program in techniques required for NASA operations
Period *Obligations*
 02/16/71-02/15/73 **FY74:** **TOTAL: \$145,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Orellana, J. R. GSFC/McKeehan, H. B. 49-Engr, NEC
 (51-500 311-20-10) (51-500 311-01-19)

GREAT BRITAIN

NGR 52-140-002 **Loughborough University of Technology** **3374**
 Broadband noise generation by rotating blades
Period *Obligations*
 03/12/71-12/31/72 **FY74:** **TOTAL: \$33,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lowson, M. V. LARC/Cawthorn, J. M. 41-Aero Engr
 (23-760 126-00-00) LARC/Hubbard, H. H.

ISRAEL

NGR 52-012-006 **Israel Institute of Technology** **3375**
 Flutter suppression and gust alleviation using active controls
Period *Obligations*
 01/24/72-01/01/73 **FY74:** **TOTAL: \$13,174**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Nissim, E. LARC/Bland, S. R. 41-Aero Engr
 (23-760 136-14-02)

ITALY

NASW 2135 **University of Rome** **3376**
 Back-up data acquisition
Period *Obligations*
 10/21/71-06/30/73 **FY74: \$10,223** **TOTAL: \$60,223**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Broglio, L. HQ-TN/Bavely, J. C. 11-Astronomy
 (10-500 311-20-09) HQ-TN/Stockwell, E. J. (10-500 311-00-00)

**NASA'S UNIVERSITY PROGRAM
NEW ZEALAND**

NEW ZEALAND

NGR 52-001-001	University of Auckland	3377
Investigation of the propagation of radio signals from artificial satellites		
<i>Period</i>	<i>Obligations</i>	
03/31/60-11/30/72	FY74: TOTAL: \$108,610	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Titheridge, J. E.	HQ-SG/Schmerling, E. R.	31-Atmos Sci
	HQ-SG/Hallenbeck, D. R.	
(10-850 385-36-00)	(10-850 873-00-00)	(10-850 188-00-00)

PERU

NASW 7	University of Peru	3378
Operation of tracking station		
<i>Period</i>	<i>Obligations</i>	
12/01/68-06/01/79	FY74: TOTAL: \$3,237,512	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Unavailable	GSFC/Christie, C.	49-Engr, NEC
(51-620 636-00-00)	(51-500 310-20-23)	

SWEDEN

NGR 52-028-004	Uppsala University	3379
Inner ear research		
<i>Period</i>	<i>Obligations</i>	
12/01/72-03/01/75	FY74: \$15,000 TOTAL: \$30,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Engstrom, H.	ARC/Mehler, W. R.	53-Other Medical
(21-970 970-21-11)		

**NASA'S UNIVERSITY PROGRAM
APPENDIX A
CROSS INDEX BY GRANT/CONTRACT NUMBER**

Entries are arranged alphanumerically. Grants are identifiable by prefix letters NGF, NGL, NGR, NGT and NSG. All other prefixes denote contracts.

GRANT/ CONTRACT NUMBER	ACC NO.	GRANT/ CONTRACT NUMBER	ACC NO.	GRANT/ CONTRACT NUMBER	ACC NO.
AF306 24144	1835	NAS 1-12762	3048	NAS 2-7476	1097
NAS 1-6860	2235	NAS 1-12798	3356	NAS 2-7503	1377
NAS 1-9434	3178	NAS 1-12833	2662	NAS 2-7513	1378
NAS 1-9680	2874	NAS 1-12840	2987	NAS 2-7516	1379
NAS 1-9682	1238	NAS 1-12976	1921	NAS 2-7519	1380
NAS 1-9683	2528	NAS 1-13129	1903	NAS 2-7562	1315
NAS 1-9684	2108	NAS 1-13175	3241	NAS 2-7567	1316
NAS 1-9685	3021	NAS 1-13204	3315	NAS 2-7613	2370
NAS 1-9689	2647	NAS 1-13213	3357	NAS 2-7615	2415
NAS 1-9691	2109	NAS 1-13342	2988	NAS 2-7616	1227
NAS 1-9692	1239	NAS 2-1554	3215	NAS 2-7655	2655
NAS 1-9693	1680	NAS 2-3082	3118	NAS 2-7684	2113
NAS 1-9694	3281	NAS 2-4671	1241	NAS 2-7722	1836
NAS 1-9697	2301	NAS 2-5587	1242	NAS 2-7730	2848
NAS 1-9699	3088	NAS 2-6057	2244	NAS 2-7785	1392
NAS 1-9701	1240	NAS 2-6158	1243	NAS 2-7794	1580
NAS 1-9702	2110	NAS 2-6265	1096	NAS 2-7839	1098
NAS 1-9703	1161	NAS 2-6340	1723	NAS 2-7846	2529
NAS 1-9705	2410	NAS 2-6484	2459	NAS 2-7850	2746
NAS 1-10048	1920	NAS 2-6541	3282	NAS 2-7865	3089
NAS 1-10090	2575	NAS 2-6551	1804	NAS 2-7877	2245
NAS 1-10210	3213	NAS 2-6552	1446	NAS 2-7879	1317
NAS 1-10233	3239	NAS 2-6553	1904	NAS 2-7882	3317
NAS 1-10373	1442	NAS 2-6556	1163	NAS 2-7883	1099
NAS 1-10492	2079	NAS 2-6558	1506	NAS 2-7892	3318
NAS 1-10493	2619	NAS 2-6614	2961	NAS 2-7900	2303
NAS 1-10646	3240	NAS 2-6615	1529	NAS 2-7901	1553
NAS 1-10693	2111	NAS 2-6624	1772	NAS 2-7916	1979
NAS 1-11105	2745	NAS 2-6633	1375	NAS 2-7917	2989
NAS 1-11231	2411	NAS 2-6634	2722	NAS 2-7927	1870
NAS 1-11257	1902	NAS 2-6700	1773	NAS 2-7959	1246
NAS 1-11676	2302	NAS 2-6705	2412	NAS 2-7963	2577
NAS 1-11707	3179	NAS 2-6706	1244	NAS 2-7969	1507
NAS 1-11808	3158	NAS 2-6778	3283	NAS 2-7994	2114
NAS 1-11854	1235	NAS 2-6779	2723	NAS 2-8015	3319
NAS 1-11855	2472	NAS 2-6791	1389	NAS 2-8108	3148
NAS 1-11871	2806	NAS 2-6813	2576	NAS 2-8143	1234
NAS 1-11958	3159	NAS 2-7059	1495	NAS 2-8157	2115
NAS 1-12055	1860	NAS 2-7078	2365	NAS 2-8179	2611
NAS 1-12106	1528	NAS 2-7152	1376	NAS 2-8200	1581
NAS 1-12152	3156	NAS 2-7187	2413	NAS 2-8244	3132
NAS 1-12209	1625	NAS 2-7199	1245	NAS 2-8288	1318
NAS 1-12304	1620	NAS 2-7251	1390	NAS 2-8302	3090
NAS 1-12311	1162	NAS 2-7262	2112	NAS 2-8399	2591
NAS 1-12328	3157	NAS 2-7273	2769	NAS 3-14336	1247
NAS 1-12445	3166	NAS 2-7314	3316	NAS 3-17213	1530
NAS 1-12468	1899	NAS 2-7350	2414	NAS 3-17353	2717
NAS 1-12688	2721	NAS 2-7358	3127	NAS 3-17357	1898
NAS 1-12705	3131	NAS 2-7397	2217	NAS 3-17508	2990
NAS 1-12715	2458	NAS 2-7435	3022	NAS 3-17534	2116
NAS 1-12754	3214	NAS 2-7440	1391	NAS 3-17658	2854

NASA'S UNIVERSITY PROGRAM
APPENDIX A CROSS INDEX BY GRANT/CONTRACT NUMBER

GRANT/ CONTRACT NUMBER	ACC NO.	GRANT/ CONTRACT NUMBER	ACC NO.	GRANT/ CONTRACT NUMBER	ACC NO.
NAS 3-17826	2762	NAS 5-11456	1101	NAS 5-21819	1104
NAS 3-17827	1724	NAS 5-11674	1394	NAS 5-21820	1105
NAS 3-17855	2819	NAS 5-11687	2308	NAS 5-21822	1923
NAS 3-17857	1508	NAS 5-11694	2399	NAS 5-21826	2382
NAS 3-17861	1725	NAS 5-11988	2991	NAS 5-21827	1322
NAS 3-18010	1871	NAS 5-20028	2648	NAS 5-21831	2779
NAS 3-18522	2473	NAS 5-20041	2487	NAS 5-21833	1081
NAS 3-18901	1726	NAS 5-20062	2013	NAS 5-21834	2236
NAS 4-1995	1393	NAS 5-20064	1395	NAS 5-21837	1622
NAS 4-2148	1922	NAS 5-20065	3216	NAS 5-21844	2531
NAS 5-1348	3320	NAS 5-20068	3323	NAS 5-21849	1106
NAS 5-1810	2416	NAS 5-20069	2417	NAS 5-21850	1785
NAS 5-1925	3372	NAS 5-20079	1320	NAS 5-21852	1915
NAS 5-3838	2304	NAS 5-20080	1321	NAS 5-21857	2992
NAS 5-3949	2080	NAS 5-20091	2120	NAS 5-21870	2392
NAS 5-9096	1805	NAS 5-20093	1912	NAS 5-21873	2908
NAS 5-9314	2474	NAS 5-20094	1913	NAS 5-21875	2909
NAS 5-9317	2962	NAS 5-20492	1165	NAS 5-21876	1063
NAS 5-9366	1806	NAS 5-20507	2418	NAS 5-21880	1874
NAS 5-10102	1248	NAS 5-20514	1102	NAS 5-21881	2341
NAS 5-11003	3091	NAS 5-20521	2724	NAS 5-21882	2910
NAS 5-11011	3092	NAS 5-20539	1914	NAS 5-21883	3133
NAS 5-11037	1807	NAS 5-20565	2460	NAS 5-21884	1251
NAS 5-11038	1319	NAS 5-20622	2252	NAS 5-21892	1627
NAS 5-11039	1905	NAS 5-21038	2253	NAS 5-21960	1252
NAS 5-11062	2117	NAS 5-21055	1449	NAS 5-21965	3327
NAS 5-11063	2012	NAS 5-21147	2254	NAS 5-21968	1396
NAS 5-11064	1906	NAS 5-21224	3373	NAS 5-21970	1628
NAS 5-11066	1164	NAS 5-21432	2461	NAS 5-21980	2121
NAS 5-11067	1808	NAS 5-21433	2462	NAS 5-21982	3049
NAS 5-11068	3321	NAS 5-21505	1509	NAS 5-21983	2725
NAS 5-11073	2246	NAS 5-21684	1249	NAS 5-21984	3243
NAS 5-11074	1907	NAS 5-21720	3019	NAS 5-22071	1996
NAS 5-11080	1447	NAS 5-21726	2907	NAS 5-22203	2463
NAS 5-11081	1448	NAS 5-21729	3242	NAS 5-22219	2464
NAS 5-11082	2118	NAS 5-21732	2663	NAS 5-22263	1107
NAS 5-11128	2247	NAS 5-21749	2394	NAS 5-22266	3217
NAS 5-11167	1908	NAS 5-21752	1626	NAS 5-22277	2639
NAS 5-11173	2305	NAS 5-21753	3153	NAS 5-23001	2465
NAS 5-11174	2248	NAS 5-21754	3324	NAS 5-23004	1607
NAS 5-11265	1909	NAS 5-21756	2385	NAS 5-23006	2255
NAS 5-11276	2398	NAS 5-21773	1872	NAS 5-23117	1253
NAS 5-11279	1910	NAS 5-21774	2894	NAS 5-23125	2386
NAS 5-11309	2249	NAS 5-21775	1250	NAS 5-23133	2820
NAS 5-11310	2306	NAS 5-21778	1525	NAS 5-23174	1961
NAS 5-11361	3322	NAS 5-21781	2530	NAS 5-23176	1108
NAS 5-11362	2501	NAS 5-21784	1621	NAS 5-23190	1582
NAS 5-11363	1554	NAS 5-21785	1873	NAS 5-23199	2081
NAS 5-11376	2250	NAS 5-21792	2570	NAS 5-23205	1254
NAS 5-11380	2251	NAS 5-21793	2571	NAS 5-23230	2256
NAS 5-11405	1555	NAS 5-21794	3325	NAS 5-23236	2532
NAS 5-11406	3093	NAS 5-21795	1861	NAS 5-23237	2014
NAS 5-11407	3094	NAS 5-21798	3326	NAS 5-23249	1224
NAS 5-11415	1995	NAS 5-21799	3358	NAS 5-23263	2400
NAS 5-11431	1911	NAS 5-21812	1103	NAS 5-23267	2257
NAS 5-11438	2307	NAS 5-21816	3180	NAS 5-23273	2309
NAS 5-11444	1100	NAS 5-21817	2340	NAS 5-23274	1556
NAS 5-11450	2119	NAS 5-21818	3359	NAS 5-23284	2419

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GRANT/ CONTRACT NUMBER	ACC NO.	GRANT/ CONTRACT NUMBER	ACC NO.	GRANT/ CONTRACT NUMBER	ACC NO.
NAS 5-23285	3328	NAS 8-27863	1110	NAS 8-29582	2995
NAS 5-23287	1166	NAS 8-27950	1774	NAS 8-29583	1533
NAS 5-23288	1809	NAS 8-27970	2504	NAS 8-29584	2913
NAS 5-23296	3329	NAS 8-27972	2124	NAS 8-29603	1324
NAS 5-23310	2258	NAS 8-27974	1450	NAS 8-29616	2489
NAS 5-23315	1167	NAS 8-27975	2125	NAS 8-29632	2914
NAS 5-23316	1997	NAS 8-27976	2372	NAS 8-29650	1052
NAS 5-23334	1837	NAS 8-27977	2310	NAS 8-29704	1325
NAS 5-23338	2963	NAS 8-27978	1169	NAS 8-29707	2690
NAS 6-1667	2964	NAS 8-28015	1451	NAS 8-29725	3307
NAS 6-1863	3244	NAS 8-28019	1066	NAS 8-29745	2614
NAS 6-1908	3134	NAS 8-28028	1170	NAS 8-29753	1729
NAS 6-1932	1082	NAS 8-28055	2126	NAS 8-29764	2996
NAS 6-2067	2065	NAS 8-28058	1011	NAS 8-29778	1659
NAS 6-2388	3245	NAS 8-28097	1042	NAS 8-29778	2296
NAS 6-2439	2488	NAS 8-28098	1067	NAS 8-29823	1511
NAS 6-2454	3050	NAS 8-28248	1043	NAS 8-29847	2129
NAS 6-2455	2502	NAS 8-28294	2260	NAS 8-29849	2997
NAS 6-2456	2761	NAS 8-28304	1044	NAS 8-29851	1018
NAS 6-2463	1397	NAS 8-28305	1510	NAS 8-29852	1400
NAS 6-2484	2726	NAS 8-28306	2127	NAS 8-29854	1078
NAS 6-2498	3135	NAS 8-28307	1398	NAS 8-29855	1019
NAS 8-11175	1767	NAS 8-28310	1399	NAS 8-29856	1730
NAS 8-20172	1064	NAS 8-28358	1045	NAS 8-29860	1020
NAS 8-20228	2259	NAS 8-28545	1046	NAS 8-29881	1070
NAS 8-20247	1686	NAS 8-28588	1531	NAS 8-29900	1071
NAS 8-20765	1013	NAS 8-28590	1727	NAS 8-29936	1768
NAS 8-21015	3330	NAS 8-28591	2808	NAS 8-29937	2776
NAS 8-21140	2821	NAS 8-28654	1532	NAS 8-29939	1053
NAS 8-24364	2122	NAS 8-28655	2775	NAS 8-30175	1054
NAS 8-24365	2123	NAS 8-28659	2889	NAS 8-30216	3051
NAS 8-24908	1036	NAS 8-28660	1111	NAS 8-30224	1731
NAS 8-24953	1037	NAS 8-28661	1079	NAS 8-30245	1055
NAS 8-25562	1065	NAS 8-28722	2128	NAS 8-30246	1021
NAS 8-25750	1038	NAS 8-28732	3331	NAS 8-30248	1534
NAS 8-26055	1039	NAS 8-28733	1598	NAS 8-30250	2612
NAS 8-26084	2371	NAS 8-28734	1728	NAS 8-30251	1660
NAS 8-26146	2597	NAS 8-28735	1970	NAS 8-30252	3136
NAS 8-26193	1014	NAS 8-28736	1980	NAS 8-30253	2915
NAS 8-26379	2993	NAS 8-28955	2343	NAS 8-30256	1056
NAS 8-26579	1015	NAS 8-29026	2223	NAS 8-30286	2130
NAS 8-26601	2685	NAS 8-29036	1068	NAS 8-30301	1962
NAS 8-26749	2342	NAS 8-29073	2420	NAS 8-30380	1073
NAS 8-26751	2994	NAS 8-29100	2785	NAS 8-30479	2131
NAS 8-26758	1496	NAS 8-29239	2912	NAS 8-30531	2505
NAS 8-26930	1016	NAS 8-29256	2652	NAS 8-30532	1732
NAS 8-27181	1040	NAS 8-29271	1171	NAS 8-30534	2132
NAS 8-27296	2911	NAS 8-29286	1048	NAS 8-30537	1012
NAS 8-27301	1077	NAS 8-29313	3332	NAS 8-30561	2133
NAS 8-27334	2822	NAS 8-29316	2934	NAS 8-30576	2599
NAS 8-27403	1168	NAS 8-29387	1069	NAS 8-30578	1401
NAS 8-27405	2503	NAS 8-29460	1049	NAS 8-30579	1057
NAS 8-27407	1810	NAS 8-29494	1050	NAS 8-30616	1733
NAS 8-27408	1323	NAS 8-29501	1051	NAS 8-30617	2344
NAS 8-27408	1017	NAS 8-29542	1051	NAS 8-30618	1764
NAS 8-27664	1498	NAS 8-29543	1112	NAS 8-30619	1963
NAS 8-27799	1109	NAS 8-29566	2578	NAS 8-30620	3052
NAS 8-27804	1041	NAS 8-29578		NAS 8-30622	

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NASA'S UNIVERSITY PROGRAM
APPENDIX A CROSS INDEX BY GRANT/CONTRACT NUMBER

GRANT/ CONTRACT NUMBER	ACC NO.	GRANT/ CONTRACT NUMBER	ACC NO.	GRANT/ CONTRACT NUMBER	ACC NO.
NAS 8-30623	2345	NAS 9-12466	1497	NAS 9-13394	1526
NAS 8-30624	1074	NAS 9-12485	2136	NAS 9-13406	2823
NAS 8-30625	2261	NAS 9-12526	2361	NAS 9-13410	3181
NAS 8-30653	1734	NAS 9-12560	2311	NAS 9-13436	2362
NAS 8-30654	1022	NAS 9-12563	2232	NAS 9-13452	2946
NAS 8-30656	2935	NAS 9-12564	2233	NAS 9-13457	3030
NAS 8-30657	1735	NAS 9-12568	3053	NAS 9-13462	3031
NAS 8-30737	1058	NAS 9-12585	1172	NAS 9-13504	1381
NAS 8-30772	1059	NAS 9-12630	3246	NAS 9-13512	3096
NAS 8-301378	2916	NAS 9-12650	3026	NAS 9-13545	3003
NAS 8-30879	2917	NAS 9-12692	3027	NAS 9-13589	1382
NAS 8-308133	2936	NAS 9-12728	2944	NAS 9-13605	3115
NAS 8-308815	1060	NAS 9-12749	1945	NAS 9-13617	2933
NAS 8-309119	1736	NAS 9-12752	3218	NAS 9-13642	2490
NAS 9-5632	1255	NAS 9-12757	1403	NAS 9-13647	3004
NAS 9-5886	2015	NAS 9-12770	2641	NAS 9-13669	2884
NAS 9-5911	2965	NAS 9-12776	2968	NAS 9-13680	3056
NAS 9-6037	2506	NAS 9-12777	3028	NAS 9-13737	2947
NAS 9-6164	1512	NAS 9-12783	3123	NAS 9-13741	2373
NAS 9-7280	2940	NAS 9-12823	3124	NAS 9-13743	3285
NAS 9-7801	1326	NAS 9-12889	2937	NAS 9-13782	3005
NAS 9-8109	2941	NAS 9-12912	2969	NAS 9-13799	1328
NAS 9-9053	2998	NAS 9-12941	1971	NAS 9-13803	2855
NAS 9-9209	2359	NAS 9-12972	1535	NAS 9-13807	1329
NAS 9-9285	2999	NAS 9-13029	3284	NAS 9-13844	1030
NAS 9-9317	1972	NAS 9-13042	3087	NAS 9-13865	3057
NAS 9-9690	2786	NAS 9-13089	2939	NAS 9-13878	2899
NAS 9-9766	3000	NAS 9-13093	2727	NAS 9-13894	3006
NAS 9-9964	2485	NAS 9-13102	3113	NAS 9-13904	3007
NAS 9-10261	1924	NAS 9-13139	2945	NAS 9-13905	3008
NAS 9-10428	2966	NAS 9-13143	3114	NAS 9-13940	2491
NAS 9-10509	1327	NAS 9-13176	3054	NAS 9-13945	1083
NAS 9-10537	2942	NAS 9-13196	1158	NAS 9-13946	3058
NAS 9-10566	3110	NAS 9-13262	3029	NAS 9-13956	1629
NAS 9-11045	2387	NAS 9-13271	1925	NAS 9-13957	3059
NAS 9-11088	3112	NAS 9-13273	1926	NAS 9-13960	1173
NAS 9-11118	3111	NAS 9-13274	2393	NAS 9-13980	1513
NAS 9-11162	3020	NAS 9-13298	3360	NAS 9-14006	2885
NAS 9-11201	2943	NAS 9-13301	1875	NAS 9-14016	1877
NAS 9-11528	1998	NAS 9-13308	2572	NAS 9-14042	1811
NAS 9-11540	2134	NAS 9-13311	2395	NAS 9-14052	1929
NAS 9-11676	3023	NAS 9-13312	3055	NAS 9-14088	1330
NAS 9-11701	3122	NAS 9-13313	1916	NAS 9-14134	1154
NAS 9-11751	2507	NAS 9-13321	2664	NAS 9-14190	3097
NAS 9-11827	2967	NAS 9-13322	3138	NAS 9-14195	2243
NAS 9-11845	3024	NAS 9-13331	1927	NAS 9-14197	3009
NAS 9-11846	2640	NAS 9-13332	2237	NAS 9-14209	3032
NAS 9-11885	3025	NAS 9-13337	2895	NAS 9-14251	1155
NAS 9-11941	1599	NAS 9-13342	1095	NAS 9-95435	2466
NAS 9-12074	3095	NAS 9-13344	1623	NASR 138	1113
NAS 9-12168	3137	NAS 9-13347	1928	NASW 7	3378
NAS 9-12236	1402	NAS 9-13357	1256	NASW 1964	2770
NAS 9-12280	1790	NAS 9-13360	2777	NASW 2135	3376
NAS 9-12334	2135	NAS 9-13363	2346	NASW 2197	2137
NAS 9-12352	1964	NAS 9-13364	2533	NASW 2216	1257
NAS 9-12369	2360	NAS 9-13370	2082	NASW 2283	1114
NAS 9-12434	3001	NAS 9-13374	3002	NASW 2307	1600
NAS 9-12459	1838	NAS 9-13380	1876	NASW 2326	1775

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GRANT/ CONTRACT NUMBER	ACC NO.	GRANT/ CONTRACT NUMBER	ACC NO.	GRANT/ CONTRACT NUMBER	ACC NO.
NASW 2353	1862	NGL 05-002-034	1178	NGL 05-020-134	1262
NASW 2360	1514	NGL 05-002-069	1179	NGL 05-020-176	1263
NASW 2362	1583	NGL 05-002-100	1180	NGL 05-020-232	1264
NASW 2366	2534	NGL 05-002-105	1181	NGL 05-020-242	1265
NASW 2386	1661	NGL 05-002-134	1182	NGL 05-020-243	1266
NASW 2399	2475	NGL 05-002-136	1183	NGL 05-020-272	1267
NASW 2401	1769	NGL 05-002-140	1184	NGL 05-020-275	1268
NASW 2412	2138	NGL 05-002-187	1185	NGL 05-020-305	1269
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NGR 50-002-183	3345	NGT 39-009-141	2843	NSG 1049	2590
NGR 50-002-189	3346	NGT 39-011-003	2871	NSG 1050	2369
NGR 50-002-191	3347	NGT 44-005-114	3046	NSG 1051	2209
NGR 50-002-215	3348	NGT 44-005-115	3047	NSG 1052	2608
NGR 50-002-223	3349	NGT 44-012-009	3084	NSG 1053	3173
NGR 50-002-242	3350	NGT 47-003-028	3200	NSG 1054	2929
NGR 50-007-001	3354	NGT 47-003-029	3201	NSG 1055	3210
NGR 50-009-001	3355	NGT 48-002-007	3306	NSG 1056	1579
NGR 50-010-001	3313	NSG 310	2220	NSG 1057	3351
NGR 51-001-033	3361	NSG 801	1943	NSG 1058	2683
NGR 51-001-035	3362	NSG 901	1677	NSG 1059	2527
NGR 51-001-036	3363	NSG 1001	3085	NSG 1060	3211
NGR 51-001-045	3364	NSG 1002	1025	NSG 1061	1940
NGR 52-001-001	3377	NSG 1003	2290	NSG 1062	2930
NGR 52-012-006	3375	NSG 1004	1754	NSG 1063	1856
NGR 52-012-006	3375	NSG 1005	1215	NSG 1064	3271
NGR 52-028-004	3379	NSG 1006	3365	NSG 1065	3212
NGR 52-083-003	3368	NSG 1007	3280	NSG 1066	1992
NGR 52-133-001	3369	NSG 1008	2882	NSG 1067	3234
NGR 52-134-005	3371	NSG 1009	3366	NSG 1069	2708
NGR 52-140-002	3374	NSG 1010	3233	NSG 1070	2448
NGR 52-140-002	3374	NSG 1011	3172	NSG 1071	3272
NGR 52-163-001	3370	NSG 1012	1308	NSG 1073	3176
NGT 01-002-080	1076	NSG 1013	2682	NSG 1074	3177
NGT 01-003-044	1023	NSG 1014	3175	NSG 1075	2061
NGT 01-003-045	1024	NSG 1015	3268	NSG 1080	2291
NGT 05-018-127	1522	NSG 1016	2379	NSG 1085	3273
NGT 05-020-361	1305	NSG 1017	2977	NSG 1089	3165
NGT 05-020-409	1306	NSG 1018	2207	NSG 2001	1233
NGT 05-020-412	1307	NSG 1019	2103	NSG 2002	3352
NGT 06-004-008	1593	NSG 1020	3269	NSG 2003	1372
NGT 09-005-093	1637	NSG 1021	1683	NSG 2004	1756
NGT 09-011-051	1671	NSG 1022	3202	NSG 2005	1232
NGT 09-011-058	1672	NSG 1023	1549	NSG 2006	2986
NGT 11-002-064	1753	NSG 1024	3270	NSG 2007	1309
NGT 11-008-004	1762	NSG 1025	3314	NSG 2008	2299
NGT 11-013-001	1766	NSG 1026	1657	NSG 2009	1550
NGT 17-002-044	1937	NSG 1027	1577	NSG 2010	2210
NGT 21-002-254	2057	NSG 1028	3203	NSG 2011	1236
NGT 21-025-006	2010	NSG 1030	2716	NSG 2012	1310
NGT 21-027-009	1989	NSG 1031	2058	NSG 2013	2720
NGT 21-027-012	1990	NSG 1032	2654	NSG 2014	2329
NGT 21-123-001	1994	NSG 1033	2684	NSG 2015	3308
NGT 22-007-008	2102	NSG 1034	3164	NSG 2016	3274
NGT 24-005-012	2327	NSG 1035	2059	NSG 2017	1311
NGT 24-005-078	2328	NSG 1036	2060	NSG 2018	2292
NGT 32-010-001	2457	NSG 1037	1578	NSG 2019	1638
NGT 33-006-003	2595	NSG 1038	3204	NSG 2020	1312
NGT 33-008-013	2526	NSG 1039	3205	NSG 2022	3151
NGT 33-010-052	2565	NSG 1040	3206	NSG 2023	2358
NGT 34-002-097	2681	NSG 1041	3207	NSG 2024	2211

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APPENDIX A CROSS INDEX BY GRANT/CONTRACT NUMBER

GRANT/ CONTRACT NUMBER	ACC NO.	GRANT/ CONTRACT NUMBER	ACC NO.	GRANT/ CONTRACT NUMBER	ACC NO.
NSG 2025	1437	NSG 7015	2978	NSG 9002	1160
NSG 2026	1373	NSG 7016	2380	NSG 9004	2007
NSG 2028	1704	NSG 7017	2063	NSG 9005	2794
NSG 2030	2384	NSG 7018	2106	NSG 9006	2960
NSG 2031	2104	NSG 7019	1093	NSG 9007	2954
NSG 2032	2212	NSG 7020	1151	NSG 9008	2596
NSG 2033	1226	NSG 7021	3155	NSG 9009	3018
NSG 3001	2062	NSG 7022	2689	NSG 9010	1673
NSG 3002	2872	NSG 7023	1216	NSR 05-002-071	1217
NSG 3003	1080	NSG 7024	1152	NSR 05-018-087	1524
NSG 3004	2338	NSG 7025	2979	NSR 09-010-027	1658
NSG 3005	2742	NSG 7026	1225	NSR 14-007-103	1802
NSG 3006	2213	NSG 7027	1487	NSR 15-005-037	1897
NSG 3007	2609	NSG 7028	2499	NSR 21-001-077	2008
NSG 3008	1857	NSG 7029	1313	NSR 23-005-364	2294
NSG 3009	2709	NSG 7030	1858	NSR 23-005-376	2295
NSG 3010	2873	NSG 7031	2853	NSR 24-005-238	2331
NSG 3011	1551	NSG 7032	2980	NSR 24-005-245	2332
NSG 3012	2844	NSG 7033	3353	NSR 31-001-127	2450
NSG 3013	1952	NSG 7034	3109	NSR 31-001-259	2451
NSG 3014	2300	NSG 7035	2711	NSR 31-001-286	2452
NSG 3015	1757	NSG 7036	2638	NSR 31-001-313	2453
NSG 3016	2845	NSG 7037	3016	NSR 31-001-901	2454
NSG 3017	2214	NSG 7038	3152	NSR 33-012-006	2567
NSG 3018	1705	NSG 7039	1789	NSR 36-008-108	2743
NSG 3019	2566	NSG 7040	1094		
NSG 3022	2759	NSG 7041	2767		
NSG 3023	2805	NSG 7042	1314		
NSG 3024	2760	NSG 7043	2981		
NSG 3025	1523	NSG 7044	1859		
NSG 3026	2718	NSG 7045	1153		
NSG 3027	2710	NSG 7046	2064		
NSG 3028	1374	NSG 7047	2409		
NSG 3029	1895	NSG 7048	2216		
NSG 4001	1438	NSG 7049	2932		
NSG 5001	1148	NSG 7051	1090		
NSG 5002	2931	NSG 7052	1441		
NSG 5004	1594	NSG 7053	2449		
NSG 5005	3086	NSG 7055	2006		
NSG 5006	2766	NSG 7063	2078		
NSG 5009	1991	NSG 7065	2610		
NSG 5010	1896	NSG 7067	1759		
NSG 5011	1552	NSG 8001	1008		
NSG 5012	1758	NSG 8002	1765		
NSG 5013	2498	NSG 8003	1034		
NSG 5014	2397	NSG 8004	2883		
NSG 5015	2636	NSG 8005	2334		
NSG 7001	1486	NSG 8007	2898		
NSG 7002	1439	NSG 8008	1944		
NSG 7003	2637	NSG 8009	2352		
NSG 7004	2293	NSG 8010	1029		
NSG 7005	2330	NSG 8011	1009		
NSG 7008	1440	NSG 8012	2904		
NSG 7009	2105	NSG 8013	1010		
NSG 7010	2215	NSG 8014	1763		
NSG 7011	1149	NSG 8015	2339		
NSG 7013	1505	NSG 8016	1977		
NSG 7014	1150	NSG 9001	1978		

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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><u>PHYSICAL SCIENCES</u></p> <p>11 ASTRONOMY 12 CHEMISTRY 13 PHYSICS 19 PHYSICAL SCIENCES, NEC*</p>	<p><u>ENVIRONMENTAL SCIENCES</u> <i>(Terrestrial and extraterrestrial)</i></p> <p>31 ATMOSPHERIC SCIENCES 32 GEOLOGICAL SCIENCES 33 OCEANOGRAPHY 39 ENVIRONMENTAL SCIENCES, NEC*</p> <p><u>ENGINEERING</u></p> <p>41 AERONAUTICAL 42 ASTRONAUTICAL 43 CHEMICAL 44 CIVIL 45 ELECTRICAL 46 MECHANICAL 47 METALLURGY AND MATERIALS 49 ENGINEERING, NEC*</p>	<p><u>LIFE SCIENCES</u></p> <p>51 BIOLOGY 52 CLINICAL MEDICAL 53 OTHER MEDICAL 59 LIFE SCIENCES, NEC*</p>	<p><u>SOCIAL SCIENCES</u></p> <p>71 ANTHROPOLOGY 72 ECONOMICS 73 HISTORY 74 LINGUISTICS 75 POLITICAL SCIENCE 76 SOCIOLOGY 79 SOCIAL SCIENCE, NEC*</p>
<p><u>MATHEMATICS</u></p> <p>21 ANY DISCIPLINE(S)</p>		<p><u>PSYCHOLOGICAL</u></p> <p>61 BIOLOGICAL 62 SOCIAL ASPECTS 69 PSYCHOLOGICAL, NEC*</p>	<p><u>OTHER SCIENCES**</u></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	GRANT/ CONTRACT NUMBER	ACC NO.
11	ALABAMA A&M UNIV	Parnell, T. A.	MSFC	George, M. C.	NSG 8001	1008
11	BELOIT COLLEGE	Sobieski, S.	GSFC	Schroeder, D. J.	NGR 50-010-001	3313
11	BOWIE STATE COLLEGE	Boldt, E. A.	GSFC	Tornabene, H. S.	NGR 21-027-001	1986
11	BOWLING GRN STATE U	Bogges, N. W.	HQ-SG	Ptak, R. L.	NSG 7022	2689
11	BRIGHAM YOUNG UNIV	Brunk, W. E.	HQ-SL	Jones, D. E.	NGR 45-001-032	3129
11	CALIF INST OF TECH	Hall, C. F.	ARC	Munch, G.	NAS 2-6556	1163
11	CALIF INST OF TECH	Cameron, R. M.	ARC	Werner, M. W.	NGR 05-002-281	1202
11	CALIF INST OF TECH	Johnson, R. D.	ARC	Horowitz, N. H.	NGR 05-002-308	1209
11	CALIF INST OF TECH	Sobieski, S.	GSFC	Neugebauer, G.	NAS 5-23287	1166
11	CALIF INST OF TECH	Wrublik, D. P.	GSFC	Garmire, G. P.	NAS 5-23315	1167
11	CALIF INST OF TECH	Kenimer	LARC	Nicolett, M. A.	NGL 05-002-100	1180
11	CALIF INST OF TECH	Krome, H. O.	MSFC	Stone, E. C.	NAS 8-27403	1168
11	CALIF INST OF TECH	Krome, H. O.	MSFC	Stone, E. C.	NAS 8-27978	1169
11	CALIF INST OF TECH	Reichman, E. J.	MSFC	Zirin, H.	NAS 8-28028	1170
11	CALIF INST OF TECH	Roman, N. G.	HQ-SG	Neugebauer, G.	NGL 05-002-007	1177
11	CALIF INST OF TECH	Weldon, J. M.	HQ-SG	Zirin, H.	NGL 05-002-034	1178
11	CALIF INST OF TECH	Bogges, N. W.	HQ-SG	Oke, J. B.	NGL 05-002-134	1182
11	CALIF INST OF TECH	Bogges, N. W.	HQ-SG	Neugebauer, G.	NGL 05-002-207	1188
11	CALIF INST OF TECH	Weldon, J. M.	HQ-SG	Leighton, R. B.	NGR 05-002-142	1194
11	CALIF INST OF TECH	Opp, A. G.	HQ-SG	Vogt, R. E.	NGR 05-002-160	1197
11	CALIF INST OF TECH	Bogges, N. W.	HQ-SG	Thorne, K. S.	NGR 05-002-256	1201
11	CALIF INST OF TECH	Kelsall, T.	HQ-SG	Garmire, G. P.	NGR 05-002-284	1203
11	CALIF INST OF TECH	Hallenbeck, D. R.	HQ-SG	Zirin, H.	NGR 05-002-294	1204
11	CALIF INST OF TECH	Hallenbeck, D. R.	HQ-SG	Garmire, G. P.	NGR 05-002-296	1205
11	CALIF INST OF TECH	Weldon, J. M.	HQ-SG	Zirin, H.	NGR 05-002-345	1214
11	CALIF INST OF TECH	Chase, R. H.	HQ-SG	Zirin, H.	NSR 05-002-071	1217
11	CALIF INST OF TECH	Brunk, W. E.	HQ-SL	Muhleman, D. O.	NGL 05-002-003	1175
11	CALIF INST OF TECH	Brunk, W. E.	HQ-SL	Munch, G.	NGL 05-002-140	1184
11	CALIF INST OF TECH	Brunk, W. E.	HQ-SL	Muhleman, D. O.	NGR 05-002-114	1191
11	CALIF INST OF TECH	Brunk, W. E.	HQ-SL	Westphal, J. A.	NGR 05-002-185	1199

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APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
11	CAL STATE U-FULLERTN	Dubin, M.	HQ-SG	Johnson, F. M.	NGR 05-071-002	1219
11	CASE WESTERN RESERVE	Wdowiak, T. J.	MSFC	Bidelman, W.	NAS 8-29707	2690
11	CITY COLLEGE OF N Y	Stothers, R. B.	GSFC	Lea, R. M.	NGL 33-013-040	2494
11	COLUMBIA UNIVERSITY	Thaddeus, P.	GSFC	Broecker, W. S.	NGR 33-008-191	2522
11	COLUMBIA UNIVERSITY	Neuschaefer, R. W.	MSFC	Angel, J. R.	NAS 8-27405	2503
11	COLUMBIA UNIVERSITY	Lavender, R. E.	MSFC	Novick, R.	NAS 8-27970	2504
11	COLUMBIA UNIVERSITY	Manning, H.	MSFC	Novick, R.	NAS 8-30532	2505
11	COLUMBIA UNIVERSITY	Roman, N. G.	HQ-SG	Novick, R.	NGR 33-008-102	2512
11	COLUMBIA UNIVERSITY	Oertel, G. K.	HQ-SG	Novick, R.	NGR 33-008-125	2514
11	COLUMBIA UNIVERSITY	Bogges, N. W.	HQ-SG	Novick, R.	NGR 33-008-158	2516
11	COLUMBIA UNIVERSITY	Hallenbeck, D. R.	HQ-SG	Wolff, R. S.	NGR 33-008-183	2520
11	COLUMBIA UNIVERSITY	Oertel, G. K.	HQ-SG	Wolff, R. S.	NGR 33-008-189	2521
11	COLUMBIA UNIVERSITY	Kelsall, T.	HQ-SG	Weisskopf, M. C.	NGR 33-008-194	2523
11	COLUMBIA UNIVERSITY	Oertel, G. K.	HQ-SG	Novick, R.	NGR 33-008-200	2525
11	CORNELL UNIVERSITY	Cameron, R. M.	ARC	Houck, J. R.	NGR 33-010-081	2547
11	CORNELL UNIVERSITY	Cameron, R. M.	ARC	Harwit, M. O.	NGR 33-010-146	2553
11	CORNELL UNIVERSITY	Mason, R. H.	ARC	Houck, J. R.	NGR 33-010-182	2559
11	CORNELL UNIVERSITY	Opp, A. G.	HQ-SG	Greisen, K. I.	NGR 33-010-145	2552
11	CORNELL UNIVERSITY	Bogges, N. W.	HQ-SG	Harwit, M. O.	NGR 33-010-172	2556
11	DUKE UNIVERSITY	Trombka, J. I.	GSFC	O'Foghlu, F.	NGR 34-001-041	2657
11	FEDERAL CITY COLLEGE	McDonald, F. B.	GSFC	Whiteside, H.	NGR 09-050-001	1641
11	FEDERAL CITY COLLEGE	Webster, W. H., Jr.	GSFC	Nottingham, W. C.	NGR 09-050-003	1642
11	FEDERAL CITY COLLEGE	Pohly, J. G.	HQ-PY	McDowell, H.	NGR 09-050-010	1643
11	FLORIDA STATE UNIV	Brunk, W. E.	HQ-SL	Hunt, R. H.	NGR 10-004-056	1682
11	FOOTHILL COLLEGE	Reynolds, R. T.	ARC	Kellman, S. A.	NSG 2001	1233
11	HARVARD UNIVERSITY	Kupperian, J. E.	GSFC	Noyes, R. W.	NGR 22-007-285	2101
11	HARVARD UNIVERSITY	Unavailable	MSFC	Goldberg, L.	NAS 5-3949	2080
11	HARVARD UNIVERSITY	Weldon, J. M.	HQ-SG	Goldberg, L.	NGL 22-007-006	2083
11	HARVARD UNIVERSITY	Weldon, J. M.	HQ-SG	Dalgarno, O.	NGL 22-007-136	2086
11	HARVARD UNIVERSITY	Weldon, J. M.	HQ-SG	Goldberg, L.	NGR 22-007-202	2091
11	HARVARD UNIVERSITY	Oertel, G. K.	HQ-SG	Maxwell, A.	NGR 22-007-257	2095
11	HARVARD UNIVERSITY	Bogges, N. W.	HQ-SG	Noyes, R. W.	NGR 22-007-270	2098
11	HARVARD UNIVERSITY	Kelsall, T.	HQ-SG	Cameron, A. G.	NGR 22-007-272	2099
11	HARVARD UNIVERSITY	Weldon, J. M.	HQ-SG	Parkinson, W. H.	NSG 7009	2105
11	HARVARD UNIVERSITY	Weldon, J. M.	HQ-SG	Noyes, R. W.	NSG 7018	2106
11	HOUSTON BAPTIST COL	White, D. R.	JSC	Modisette, J. L.	NGR 44-081-001	2952
11	HOUSTON BAPTIST COL	Kondo, Y.	JSC	Modisette, J. L.	NGR 44-081-005	2953
11	HOWARD UNIVERSITY	Hobbs, R. W.	GSFC	Kumar, C. K.	NGR 09-011-056	1669
11	HOWARD UNIVERSITY	Pohly, J. G.	HQ-PY	Kumar, C. K.	NGR 09-011-052	1667
11	INDIANA U-BLOOMINGTN	Bogges, N. W.	HQ-SG	Johnson, H. R.	NGL 15-003-002	1864
11	JOHNS HOPKINS UNIV	Sobieski, S.	GSFC	Fastie, W. G.	NAS 5-23316	1997
11	JOHNS HOPKINS UNIV	Kupperian, J. E.	GSFC	Moos, H. W.	NGR 21-001-120	2005
11	JOHNS HOPKINS UNIV	Baugher, C. R.	MSFC	Gotwols, B. L.	NGR 21-001-024	2000
11	JOHNS HOPKINS UNIV	Dubin, M.	HQ-SG	Fastie, W. G.	NGR 21-001-001	1999
11	LEHIGH UNIVERSITY	Kondo, Y.	JSC	McCluskey, G. E., Jr.	NGR 39-007-061	2814
11	LA STATE U-BAT ROUGE	Browning, R. K.	GSFC	Huggett, R. W.	NAS 5-23174	1961
11	LA STATE U-BAT ROUGE	Opp, A. G.	HQ-SG	Huggett, R. W.	NGR 19-001-012	1969
11	LA STATE U-SHREVEPT	Giuli, R. T.	JSC	Moss, T. A.	NAS 9-9317	1972
11	MASS INST OF TECH	Cameron, R. M.	ARC	McCord, T. B.	NGR 22-009-718	2185
11	MASS INST OF TECH	Piterski, N. J.	GSFC	Clark, G. W.	NAS 5-11450	2119
11	MASS INST OF TECH	Sobieski, S.	GSFC	McCord, T. B.	NGR 22-009-778	2194
11	MASS INST OF TECH	Bodie, W. G.	MSFC	Bradt, H. V.	NAS 8-27972	2124
11	MASS INST OF TECH	Jordan, W.	MSFC	Lewin, W. H.	NAS 8-27975	2125
11	MASS INST OF TECH	Manning, H.	MSFC	Clark, G. W.	NAS 8-30531	2131
11	MASS INST OF TECH	Bogges, N. W.	HQ-SG	Weiss, R.	NGR 22-009-526	2169
11	MASS INST OF TECH	Dubin, M.	HQ-SG	McCord, T. B.	NGR 22-009-583	2173
11	MASS INST OF TECH	Roman, N. G.	HQ-SG	Bradt, H.	NGR 22-009-730	2189

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APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
11	MASS INST OF TECH	Brunk, W. E.	HQ-SL	McCord, T. B.	NGR 22-009-473	2167
11	MASS INST OF TECH	Brunk, W. E.	HQ-SL	Pettengill, G. H.	NGR 22-009-672	2181
11	MASS INST OF TECH	Bryson, R. P.	HQ-SM	Press, F.	NGL 22-009-187	2149
11	MASS INST OF TECH	Kosofsky, L. J.	HQ-SM	Counselman, C. C., III	NSG 7010	2215
11	MONTANA STATE UNIV	Roman, N. G.	HQ-SG	Nordivedt, K., Jr.	NGR 27-001-040	2381
11	NEW MEX ST U-LAS CR	Oosterhout, J. D.	GSFC	Chavez, R.	NAS 5-21433	2462
11	NEW MEX ST U-LAS CR	Harvey, G. A.	LARC	Beebe, R.	NAS 1-12715	2458
11	NEW MEX ST U-LAS CR	Roman, N. G.	HQ-SG	Liefeld, R. J.	NGL 32-003-069	2469
11	NEW MEX ST U-LAS CR	Brunk, W. E.	HQ-SL	Smith, B. A.	NGL 32-003-001	2468
11	NEW YORK UNIVERSITY	Unavailable	ARC	Unavailable	NAS 2-7963	2577
11	NEW YORK UNIVERSITY	Kelsall, T.	HQ-SG	Glassgold, A. E.	NGR 33-016-196	2587
11	NO CAROLINA STATE U	Dubin, M.	HQ-SG	Manring, E. R.	NGR 34-002-196	2680
11	NORTHEASTERN UNIV	Unavailable	GSFC	Kaula, W. M.	NSG 310	2220
11	NORTHWESTERN UNIV	Henize, K. G.	JSC	Hynek, J. A.	NAS 9-12280	1790
11	NORTHWESTERN UNIV	Boggess, N. W.	HQ-SG	Huang, S. S.	NGL 14-007-041	1792
11	NORTHWESTERN UNIV	Roman, N. G.	HQ-SG	Bahng, J. D.	NGR 14-007-122	1798
11	POMONA COLLEGE	Cameron, R. M.	ARC	Webb, W.	NSG 2011	1236
11	PRINCETON UNIVERSITY	Kupperian, J. E.	GSFC	Spitzer, L., Jr.	NAS 5-1810	2416
11	PRINCETON UNIVERSITY	Sobieski, S.	GSFC	Spitzer, L., Jr.	NAS 5-20069	2417
11	PRINCETON UNIVERSITY	Sobieski, S.	GSFC	Danielson, R. E.	NAS 5-23284	2419
11	PRINCETON UNIVERSITY	Sobieski, S.	GSFC	Morton, D. C.	NGR 31-001-306	2444
11	PRINCETON UNIVERSITY	Boggess, A., III	GSFC	Lowrance, J. L.	NSR 31-001-286	2452
11	PRINCETON UNIVERSITY	Harris, J. W.	JSC	Hoffister, L. S.	NGL 31-001-283	2428
11	PRINCETON UNIVERSITY	Rosendhal, J. D.	HQ-SG	Spitzer, L., Jr.	NGL 31-001-007	2422
11	PRINCETON UNIVERSITY	Roman, N. G.	HQ-SG	Millich, F.	NGR 31-001-001	2429
11	PRINCETON UNIVERSITY	Sures, A. H.	HQ-SG	Danielson, R. E.	NGR 31-001-142	2430
11	PRINCETON UNIVERSITY	Sures, A. H.	HQ-SG	Spitzer, L., Jr.	NGR 31-001-236	2438
11	PRINCETON UNIVERSITY	Roman, N. G.	HQ-SG	Spitzer, L.	NSR 31-001-127	2450
11	PRINCETON UNIVERSITY	Sures, A. H.	HQ-SG	Morton, D. C.	NSR 31-001-259	2451
11	PRINCETON UNIVERSITY	Roman, N. G.	HQ-SG	Lowrance, J. L.	NSR 31-001-901	2454
11	PRINCETON UNIVERSITY	Brunk, W. E.	HQ-SL	Smith, W. H.	NGR 31-001-242	2439
11	PRINCETON UNIVERSITY	Brunk, W. E.	HQ-SL	Danielson, R. E.	NSG 7053	2449
11	PURDUE UNIVERSITY	Roman, N. G.	HQ-SG	Andrew, K. L.	NGL 15-005-003	1878
11	RENSSELAER POLY-NY	Dubin, M.	HQ-SG	Hudson, J. B.	NGL 33-018-017	2602
11	RICE UNIVERSITY	Gray, J. W.	WFC	Freeman, J. W.	NAS 6-1667	2964
11	RICE UNIVERSITY	Opp, A. G.	HQ-SG	Clayton, D. D.	NSG 7015	2978
11	SACRAMENTO CITY COL	Oertel, G. K.	HQ-SG	Vorpahl, J. A.	NGR 05-084-002	1237
11	ST LOUIS UNIVERSITY	Fellows, R. F.	HQ-SL	Pallman, A. J.	NGR 26-006-042	2357
11	SO UNIV-BATON ROUGE	Estabrook, F. B.	JPL	Chakkalakal, D. A.	NGR 19-005-006	1974
11	STANFORD UNIVERSITY	Wrublik, D. P.	GSFC	Hofstadter, R.	NAS 5-23117	1253
11	STANFORD UNIVERSITY	Opp, A. G.	HQ-SG	Hofstadter, R.	NGR 05-020-452	1280
11	STANFORD UNIVERSITY	Boggess, N. W.	HQ-SG	Petrosian, V.	NGR 05-020-510	1282
11	STANFORD UNIVERSITY	Weldon, J. M.	HQ-SG	Wilcox, J. M.	NGR 05-020-559	1284
11	STANFORD UNIVERSITY	Roman, N. G.	HQ-SG	Sturrock, P. A.	NGR 05-020-668	1297
11	STANFORD UNIVERSITY	Weldon, J. M.	HQ-SG	Walker, A. B.	NGR 05-020-695	1301
11	STANFORD UNIVERSITY	Brunk, W. E.	HQ-SL	Bracewell, R. N.	NGR 05-020-644	1293
11	STATE UNIV NY-ALBANY	Hobbs, R. W.	GSFC	Weinberg, J. L.	NGR 33-182-018	2613
11	STATE UNIV NY-ALBANY	Ousley, A. T.	MSFC	Weinberg, J. L.	NAS 8-30251	2612
11	ST U NY COL-GENESE0	Roman, N. G.	HQ-SG	Meisel, D. D.	NGR 33-219-002	2642
11	STATE U NY-STONY BRK	Mason, R. H.	ARC	Knacke, R. E.	NGR 33-015-140	2626
11	STATE U NY-STONY BRK	Cameron, R. M.	ARC	Gebel, W.	NGR 33-015-166	2631
11	STATE U NY-STONY BRK	Chiu, H. Y.	GSFC	Owen, T.	NGL 33-015-082	2621
11	STATE U NY-STONY BRK	Hobbs, R. W.	GSFC	Simon, M.	NGR 33-015-195	2634
11	STATE U NY-STONY BRK	Opp, A. G.	HQ-SG	Forman, M. A.	NGR 33-015-180	2633
11	STATE U NY-STONY BRK	Brunk, W. E.	HQ-SL	Owen, T.	NGR 33-015-141	2627
11	TEMPLE UNIVERSITY	Dubin, M.	HQ-SG	Bohn, J. L.	NGR 39-012-001	2846
11	UNIV ALA-HUNTSVILLE	Parnell, T. A.	MSFC	Gregory, J. C.	NAS 8-24908	1036
11	UNIV ALA-HUNTSVILLE	Oertel, G. K.	HQ-SG	Rao, G. L.	NGR 01-008-015	1062

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11	UNIV ALASKA-FAIRBNKS	Haughney, L. C.	ARC	Sivjee, C. G.	NGR 02-001-099	1088
11	UNIV ALASKA-FAIRBNKS	Haughney, L. C.	ARC	Sivjee, C. G.	NGR 02-001-106	1089
11	UNIV OF ARIZONA	Brunk, W.	HQ-SL	Hubbard, W. B.	NSG 7045	1153
11	UNIV OF ARIZONA	Hall, C. F.	ARC	Gehrels, A. M.	NAS 2-6265	1096
11	UNIV OF ARIZONA	Wirth, M. N.	ARC	Baker, L. R.	NAS 2-7476	1097
11	UNIV OF ARIZONA	Cameron, R. M.	ARC	Johnson, H. L.	NGR 03-002-331	1135
11	UNIV OF ARIZONA	Cameron, R. M.	ARC	Larson, H. P.	NGR 03-002-332	1136
11	UNIV OF ARIZONA	Cameron, R. M.	ARC	Johnson, H. L.	NGR 03-002-333	1137
11	UNIV OF ARIZONA	Cameron, R. M.	ARC	Hoffman, W. F.	NGR 03-002-390	1145
11	UNIV OF ARIZONA	Chin, E. S.	GSFC	Maratly, A. S.	NAS 5-11456	1101
11	UNIV OF ARIZONA	Stecher, T. P.	GSFC	Kuiper, G. P.	NAS 5-22263	1107
11	UNIV OF ARIZONA	Browning, R. K.	GSFC	Bowen, T.	NAS 5-23176	1108
11	UNIV OF ARIZONA	Hoffman, W. F.	GSFC	Lee, T. A.	NGR 03-002-180	1129
11	UNIV OF ARIZONA	Sobieski, S.	GSFC	Serkowski, K. M.	NGR 03-002-363	1139
11	UNIV OF ARIZONA	Sobieski, S.	GSFC	Gilbert, G. R.	NGR 03-002-372	1142
11	UNIV OF ARIZONA	Hobbs, R. W.	GSFC	Fink, U.	NGR 03-002-392	1146
11	UNIV OF ARIZONA	Hobbs, R. W.	GSFC	Larson, S. M.	NGR 03-002-393	1147
11	UNIV OF ARIZONA	Sobieski, S.	GSFC	Angel, J. R.	NSG 5001	1148
11	UNIV OF ARIZONA	Roman, N. G.	HQ-SG	Bashkin, S.	NGL 03-002-017	1118
11	UNIV OF ARIZONA	Roman, N. G.	HQ-SG	Tifft, W. G.	NGL 03-002-032	1120
11	UNIV OF ARIZONA	Dubin, M.	HQ-SG	Gehrels, A. M.	NGL 03-002-081	1121
11	UNIV OF ARIZONA	Opp, A. G.	HQ-SG	Bowen, T.	NGR 03-002-071	1125
11	UNIV OF ARIZONA	Boggess, N. W.	HQ-SG	Low, F. J.	NGR 03-002-269	1133
11	UNIV OF ARIZONA	Sobieski, S.	HQ-SG	Weymann, R. J.	NGR 03-002-309	1134
11	UNIV OF ARIZONA	Boggess, N. W.	HQ-SG	Hoffman, W. F.	NGR 03-002-371	1141
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Kuiper, G. P.	NGL 03-002-002	1116
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Roemer, E.	NGL 03-002-122	1122
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Gehrels, A. M.	NGR 03-002-219	1131
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Low, F. J.	NGR 03-002-356	1138
11	UNIV CALIF-BERKELEY	Cameron, R. M.	ARC	Townes, C. H.	NGR 05-003-432	1348
11	UNIV CALIF-BERKELEY	Cameron, R. M.	ARC	Townes, C. H.	NGR 05-003-511	1363
11	UNIV CALIF-BERKELEY	Kupperian, J. E.	GSFC	Spinrad, H.	NGR 05-003-587	1370
11	UNIV CALIF-BERKELEY	Hobbs, R. W.	GSFC	Townes, C. H.	NGR 05-003-598	1371
11	UNIV CALIF-BERKELEY	Sanders, J.	JSC	Bowyer, C. S.	NAS 9-13799	1328
11	UNIV CALIF-BERKELEY	Sanders, J.	JSC	Bowyer, C. S.	NAS 9-13807	1329
11	UNIV CALIF-BERKELEY	Dabbs, J. R.	MSFC	Alvarez, L. W.	NAS 8-27408	1323
11	UNIV CALIF-BERKELEY	Opp, A. G.	HQ-SG	Price, P. B.	NGR 05-003-376	1345
11	UNIV CALIF-BERKELEY	Boggess, N. W.	HQ-SG	Townes, C. H.	NGR 05-003-402	1346
11	UNIV CALIF-BERKELEY	Roman, N. G.	HQ-SG	Bowyer, C. S.	NGR 05-003-450	1351
11	UNIV CALIF-BERKELEY	Kelsall, T.	HQ-SG	Silk, J. I.	NGR 05-003-453	1354
11	UNIV CALIF-BERKELEY	Weldon, J. M.	HQ-SG	Phillips, J. G.	NGR 05-003-499	1361
11	UNIV CALIF-BERKELEY	Oertel, G. K.	HQ-SG	Anderson, K. A.	NGR 05-003-510	1362
11	UNIV CALIF-BERKELEY	Opp, A. G.	HQ-SG	Heckman, H. H.	NGR 05-003-513	1364
11	UNIV CALIF-BERKELEY	Opp, A. G.	HQ-SG	Alvarez, L. W.	NGR 05-003-553	1366
11	UNIV CALIF-BERKELEY	Kelsall, T.	HQ-SG	Silk, J. I.	NGR 05-003-578	1369
11	UNIV CALIF-BERKELEY	Brunk, W. E.	HQ-SL	Townes, C. H.	NGR 05-003-452	1353
11	UNIV CALIF-L ANGELES	Kupperian, J. E.	GSFC	Plavec, M.	NGR 05-007-489	1436
11	UNIV CALIF-L ANGELES	Dubin, M.	HQ-SG	Wetherill, G. W.	NGL 05-007-005	1407
11	UNIV CALIF-L ANGELES	Weldon, J. M.	HQ-SG	Alley, L. H.	NGL 05-007-046	1409
11	UNIV CALIF-RIVERSIDE	Opp, A. G.	HQ-SG	White, R. S.	NGR 05-008-022	1444
11	UNIV CALIF-SAN DIEGO	Hall, C. F.	ARC	Fillius, R. W.	NAS 2-6552	1446
11	UNIV CALIF-SAN DIEGO	Cameron, R. M.	ARC	Stein, W. A.	NGR 05-005-055	1466
11	UNIV CALIF-SAN DIEGO	Sobieski, S.	GSFC	Beaver, E. A.	NGR 05-009-239	1480
11	UNIV CALIF-SAN DIEGO	Jordan, W. E.	MSFC	Peterson, L. E.	NAS 8-27974	1450
11	UNIV CALIF-SAN DIEGO	Fountain, W. F.	MSFC	Hudson, H. S.	NAS 8-28015	1451
11	UNIV CALIF-SAN DIEGO	Boggess, N. W.	HQ-SG	Burbidge, G. R.	NGL 05-005-004	1453
11	UNIV CALIF-SAN DIEGO	Boggess, N. W.	HQ-SG	Stein, W. A.	NGL 05-009-230	1464

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11	UNIV CALIF-SAN DIEGO	Aucremanne, M. J.	HQ-SG	McIlwain, C. E.	NGR 05-009-188	1474
11	UNIV CALIF-SAN DIEGO	Brunk, W. E.	HQ-SL	Gillett, F. C.	NGR 05-009-142	1472
11	UNIV CALIF-S CRUZ	Bogges, N. W.	HQ-SG	Rank, D. M.	NGR 05-061-015	1494
11	UNIV OF CHICAGO	Hall, C. F.	ARC	Simpson, J. A.	NAS 2-6551	1804
11	UNIV OF CHICAGO	Cameron, R. M.	ARC	Harper, D. A.	NGR 14-001-211	1828
11	UNIV OF CHICAGO	Cameron, R. M.	ARC	Harper, D. A.	NGR 14-001-227	1831
11	UNIV OF CHICAGO	Sobieski, S.	GSFC	Van Altena, W. F.	NAS 5-23288	1809
11	UNIV OF CHICAGO	Dabbs, J. R.	MSFC	Meyer, P.	NAS 8-27407	1810
11	UNIV OF CHICAGO	Opp, A. G.	HQ-SG	Parker, E. N.	NGL 14-001-001	1812
11	UNIV OF CHICAGO	Opp, A. G.	HQ-SG	Meyer, P.	NGL 14-001-005	1813
11	UNIV OF CHICAGO	Opp, A. G.	HQ-SG	Simpson, J. A.	NGL 14-001-006	1814
11	UNIV OF CHICAGO	Dubin, M.	HQ-SG	Adams, T.	NGL 14-001-060	1817
11	UNIV OF CHICAGO	Kelsall, T.	HQ-SG	Adams, T.	NGR 14-001-147	1824
11	UNIV COLORADO-BOLDR	Sobieski, S.	GSFC	Lillie, C. F.	NGR 06-003-219	1574
11	UNIV COLORADO-BOLDR	Weldon, J. M.	HQ-SG	Hummer, D. G.	NGL 06-003-057	1558
11	UNIV COLORADO-BOLDR	Weldon, J. M.	HQ-SG	Bruner, E. C.	NGR 06-003-069	1561
11	UNIV COLORADO-BOLDR	Roman, N. G.	HQ-SG	Lillie, C. F.	NGR 06-003-176	1565
11	UNIV COLORADO-BOLDR	Roman, N. G.	HQ-SG	Lillie, C. F.	NGR 06-003-179	1566
11	UNIV COLORADO-BOLDR	Calahan, H. D.	HQ-SG	Linsky, J. L.	NGR 06-003-216	1573
11	UNIV COLORADO-BOLDR	Dubin, M.	HQ-SG	Lillie, C. F.	NGR 06-003-222	1575
11	UNIV OF DENVER	Hobbs, R. W.	GSFC	Lesh, J. R.	NGR 06-004-133	1592
11	UNIV OF DENVER	Kupperian, J. E.	GSFC	Lesh, J. R.	NSG 5004	1594
11	UNIV OF FLORIDA	Unavailable	GSFC	Unavailable	NGR 10-005-183	1703
11	UNIV OF FLORIDA	Hallenbeck, D. R.	HQ-SG	Carr, T. D.	NGR 10-005-176	1701
11	UNIV OF HAWAII	McGuire, J. P.	MSFC	Jeffries, J. T.	NAS 8-27950	1774
11	UNIV OF HAWAII	Weldon, J. M.	HQ-SG	Jefferies, J. T.	NGL 12-001-011	1777
11	UNIV OF HAWAII	Weldon, J. M.	HQ-SG	Jefferies, J. T.	NGR 12-001-075	1780
11	UNIV OF HAWAII	Bogges, N. W.	HQ-SG	Jefferies, J. T.	NGR 12-001-111	1783
11	UNIV OF HAWAII	Brunk, W. E.	HQ-SL	Jefferies, J. T.	NGL 12-001-057	1779
11	UNIV OF HAWAII	Brunk, W. E.	HQ-SL	Sinton, W. M.	NGR 12-001-083	1781
11	UNIV OF HAWAII	Strickland, A. T.	HQ-SM	Jefferies, J. T.	NASW 2326	1775
11	UNIV OF HAWAII	Strickland, A. T.	HQ-SM	Jefferies, J. T.	NGF 12-001-102	1776
11	UNIV OF HOUSTON	Golden, R. L.	JSC	Sheldon, W. R.	NAS 9-14209	3032
11	UNIV ILLINOIS-URBANA	Rosendhal, J. D.	HQ-SG	Swenson, G. W.	NSG 7030	1858
11	UNIV ILLINOIS-URBANA	Brunk, W. E.	HQ-SL	Dichel, J. R.	NGR 14-005-176	1845
11	UNIV OF IOWA	Madden, J. J.	GSFC	Gurnett, D. A.	NAS 5-11074	1907
11	UNIV OF IOWA	Ousley, G. W.	GSFC	Gurnett, D. A.	NAS 5-11279	1910
11	UNIV OF IOWA	Allen, R. F., Jr.	GSFC	Van Allen, J. A.	NAS 5-20539	1914
11	UNIV MARYLAND-BALT	Roman, N. G.	HQ-SG	Misner, C. W.	NGR 21-002-010	2011
11	UNIV MARYLAND-COL PK	Fainberg, J.	GSFC	Erickson, W. C.	NGL 21-002-029	2017
11	UNIV MARYLAND-COL PK	Fainberg, J.	GSFC	Kundu, M. R.	NGL 21-002-367	2020
11	UNIV MARYLAND-COL PK	Dubin, M.	HQ-SG	Opik, E. J.	NGR 21-002-002	2021
11	UNIV MARYLAND-COL PK	Weldon, J. M.	HQ-SG	Wilkerson, T. D.	NGR 21-002-007	2022
11	UNIV MARYLAND-COL PK	Opp, A. G.	HQ-SG	Earl, J. A.	NGR 21-002-066	2023
11	UNIV MARYLAND-COL PK	Rosendhal, J. D.	HQ-SG	Griem, H. R.	NGR 21-002-073	2024
11	UNIV MARYLAND-COL PK	Weldon, J. M.	HQ-SG	Kundu, M. R.	NGR 21-002-199	2027
11	UNIV MARYLAND-COL PK	Opp, A. G.	HQ-SG	Gloeckler, G.	NGR 21-002-224	2029
11	UNIV MARYLAND-COL PK	Bogges, N. W.	HQ-SG	Currie, D. G.	NGR 21-002-301	2035
11	UNIV MARYLAND-COL PK	Kavanagh, L. D., Jr.	HQ-SG	Matthews, D. L.	NGR 21-002-386	2046
11	UNIV OF MASS-AMHERST	Weldon, J. M.	HQ-SG	Strong, J.	NGL 22-010-025	2226
11	UNIV OF MASS-AMHERST	Weldon, J. M.	HQ-SG	Huquein, G. R.	NGR 22-010-039	2228
11	UNIV OF MASS-AMHERST	Brunk, W. E.	HQ-SL	Irvine, W. M.	NGL 22-010-023	2225
11	UNIV MICH-ANN ARBOR	Pelz, D. T.	GSFC	Carignan, G. R.	NAS 5-11309	2249

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11	UNIV MICH-ANN ARBOR	Weldon, J. M.	HQ-SG	Mohler, O. C.	NGL 23-005-275	2265
11	UNIV MICH-ANN ARBOR	Boggess, N. W.	HQ-SG	Hiltner, W. A.	NGR 23-005-464	2272
11	UNIV MICH-ANN ARBOR	Weldon, J. M.	HQ-SG	Teske, R. G.	NGR 23-005-543	2279
11	UNIV MICH-ANN ARBOR	Oertel, G. K.	HQ-SG	Haddock, F. T.	NGR 23-005-549	2280
11	UNIV MICH-ANN ARBOR	Oertel, G. K.	HQ-SG	Haddock, F. T.	NSG 7004	2293
11	U MINN-MNPLS-ST PAUL	Cameron, R. M.	ARC	Woolf, N. J.	NGR 24-005-265	2324
11	U MINN-MNPLS-ST PAUL	Cameron, R. M.	ARC	Ney, E. P.	NGR 24-005-267	2325
11	U MINN-MNPLS-ST PAUL	Cameron, R. M.	ARC	Ney, E. P.	NSG 2014	2329
11	U MINN-MNPLS-ST PAUL	Cameron, R. M.	ARC	Ney, E. P.	NSR 24-005-238	2331
11	U MINN-MNPLS-ST PAUL	Krome, H. O.	MSFC	Waddington, C. J.	NAS 8-27977	2310
11	U MINN-MNPLS-ST PAUL	Opp, A. G.	HQ-SG	Waddington, C. J.	NGR 24-005-050	2318
11	U MINN-MNPLS-ST PAUL	Dubin, M.	HQ-SG	Nier, A. O.	NGR 24-005-196	2320
11	U MINN-MNPLS-ST PAUL	Roman, N. G.	HQ-SG	Luyten, W. J.	NSR 24-005-245	2332
11	UNIV OF MONTEVALLO	Hoover, R. B.	MSFC	Foreman, J. W., Jr.	NAS 8-27301	1077
11	UNIV OF MONTEVALLO	Randall, J. L.	MSFC	Foreman, W. J.	NAS 8-29855	1078
11	UNIV NEBRASKA-LINCLN	Kalet, M. W.	GSFC	Samson, J. A.	NAS 5-23125	2386
11	UNIV NEBRASKA-LINCLN	Kupperian, J. E.	GSFC	Gallagher, J. S.	NGR 28-004-028	2391
11	UNIV NEW HAMPSHIRE	Teegarden, B. J.	GSFC	Webber, W. R.	NAS 5-11276	2398
11	UNIV NEW HAMPSHIRE	Wales, R. O.	GSFC	Arnoldy, R. L.	NAS 5-11694	2399
11	UNIV NEW HAMPSHIRE	Weldon, J. M.	HQ-SG	Chupp, E. L.	NGL 30-002-018	2401
11	UNIV NEW HAMPSHIRE	Opp, A. G.	HQ-SG	Chupp, E. L.	NGL 30-002-021	2402
11	UNIV NEW HAMPSHIRE	Opp, A. G.	HQ-SG	Webber, W. R.	NGR 30-002-052	2403
11	UNIV NEW HAMPSHIRE	Weldon, J. M.	HQ-SG	Chupp, E. L.	NGR 30-002-104	2406
11	UNIV OF NEW MEXICO	Dubin, M.	HQ-SG	Peterson, A. W.	NGR 32-004-068	2483
11	UNIV OREGON-EUGENE	Cameron, R. M.	ARC	Donnelly, R. J.	NGR 38-003-035	2792
11	UNIV OF PITTSBURGH	Sobieski, S.	HQ-SG	Gerjuoy, E.	NGR 39-011-150	2866
11	UNIV OF ROCHESTER	Cameron, R. M.	ARC	Pipher, J. L.	NGR 33-019-127	2651
11	UNIV OF ROCHESTER	Weldon, J. M.	HQ-SG	Clark, A.	NGR 33-019-126	2650
11	UNIV OF ROME	Bavely, J. C.	HQ-TN	Broglio, L.	NASW 2135	3376
11	UNIV OF SANTA CLARA	Poppoff, I. G.	ARC	Barker, W. A.	NGR 05-017-027	1500
11	UNIV TENNESSEE-KNOXV	Harris, J. W.	JSC	Taylor, L. A.	NGL 43-001-140	2919
11	UNIV TENNESSEE-KNOXV	Weldon, J. M.	HQ-SG	Sellin, I. A.	NSG 7049	2932
11	UNIV TEXAS-AUSTIN	Mason, R. H.	ARC	Ulrich, B. T.	NGR 44-012-240	3074
11	UNIV TEXAS-AUSTIN	Sobieski, S.	GSFC	Tull, R. G.	NGR 44-012-260	3077
11	UNIV TEXAS-AUSTIN	Sobieski, S.	GSFC	Nather, R. E.	NGR 44-012-261	3078
11	UNIV TEXAS-AUSTIN	Sobieski, S.	GSFC	Angel, J. R.	NGR 44-012-263	3079
11	UNIV TEXAS-AUSTIN	Kupperian, J. E.	GSFC	Lambert, D. L.	NSG 5005	3086
11	UNIV TEXAS-AUSTIN	Potter, A. E.	JSC	Barnes, T. G., III	NAS 9-12568	3053
11	UNIV TEXAS-AUSTIN	Mansur, S. R.	JSC	Henize, K. G.	NAS 9-13176	3054
11	UNIV TEXAS-AUSTIN	Boggess, N. W.	HQ-SG	Vanden Bout, P. A.	NGR 44-012-209	3068
11	UNIV TEXAS-AUSTIN	Weldon, J. M.	HQ-SG	Lambert, D. L.	NGR 44-012-215	3069
11	UNIV TEXAS-AUSTIN	Brunk, W. E.	HQ-SL	Cogdell, J. R.	NGL 44-012-006	3060
11	UNIV TEXAS-AUSTIN	Brunk, W. E.	HQ-SL	Douglas, J. N.	NGL 44-012-055	3063
11	UNIV TEXAS-AUSTIN	Brunk, W. E.	HQ-SL	Smith, H. J.	NGR 44-012-152	3065
11	UNIV TEXAS-AUSTIN	Dwornik, S. E.	HQ-SL	Ingerson, F. E.	NGR 44-012-194	3067
11	UNIV TEXAS-AUSTIN	Brunk, W. E.	HQ-SL	Mulholland, J. D.	NGR 44-012-282	3082
11	UNIV TEXAS-AUSTIN	Strickland, A. T.	HQ-SM	Mulholland, J. D.	NGR 44-012-219	3070
11	UNIV TEXAS-DALLAS	Opp, A. G.	HQ-SG	McCracken, K. G.	NGR 44-004-121	3104
11	UNIV TEXAS-DALLAS	Opp, A. G.	HQ-SG	Allum, F. R.	NGR 44-004-133	3106
11	UNIV OF TOLEDO	Kupperian, J. E.	GSFC	Molnar, M. R.	NGR 36-010-031	2765
11	UNIV OF TOLEDO	Kupperian, J. E.	GSFC	Molnar, M. R.	NSG 5006	2766
11	UNIV OF TOLEDO	Dubin, M.	HQ-SG	Witt, A. D.	NGR 36-010-022	2763
11	UNIV OF TOLEDO	Roman, N. G.	HQ-SG	Witt, A. N.	NSG 7041	2767
11	UNIV OF VIRGINIA	Kelsall, T. N.	GSFC	Frederick, L. W.	NAS 5-20065	3216
11	UNIV OF VIRGINIA	Bertsch, D. L.	GSFC	Frederick, L. W.	NAS 5-22266	3217
11	UNIV OF VIRGINIA	Roman, N. G.	HQ-SG	Frederick, L. W.	NGL 47-005-066	3220
11	UNIV OF WASHINGTON	Kupperian, J. E.	GSFC	Wallerstein, G.	NGR 48-002-166	3305
11	UNIV OF WASHINGTON	Dubin, M.	HQ-SG	Hodge, P. W.	NGR 48-002-033	3291

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11	UNIV OF WASHINGTON	Brunk, W. E.	HQ-SL	Greene, T. F.	NGR 48-002-142	3299
11	UNIV WISC-MADISON	Kupperian, J. E.	GSFC	Code, A. D.	NAS 5-1348	3320
11	UNIV WISC-MADISON	Sobieski, S.	GSFC	Bless, R. C.	NAS 5-23285	3328
11	UNIV WISC-MADISON	Sobieski, S.	GSFC	Roesler, F. L.	NGR 50-002-223	3349
11	UNIV WISC-MADISON	Hobbs, R. W.	GSFC	Roesler, F. L.	NGR 50-002-242	3350
11	UNIV WISC-MADISON	Ponder, T. W.	MSFC	Kraushaar, W. L.	NAS 8-21015	3330
11	UNIV WISC-MADISON	Odell, C. R.	MSFC	Code, A. D.	NAS 8-29387	3332
11	UNIV WISC-MADISON	Rosendhal, J. D.	HQ-SG	Code, A. D.	NGL 50-002-013	3334
11	UNIV WISC-MADISON	Roman, N. G.	HQ-SG	Kraushaar, W. L.	NGL 50-002-044	3335
11	UNIV WISC-MADISON	Bogges, N. W.	HQ-SG	Scherb, F.	NSG 7033	3353
11	VIRGINIA POLY INST	Fedor, J. V.	GSFC	Meirovitch, L.	NGR 47-004-126	3266
11	VIRGINIA POLY INST	Fellows, R. F.	HQ-SL	McGee, H. A.	NGL 47-004-080	3248
11	WASHINGTON UNIVERSTY	Krome, H. O.	MSFC	Israel, M. H.	NAS 8-27976	2372
11	WASHINGTON UNIVERSTY	Opp, A. G.	HQ-SG	Klarman, J.	NGR 26-008-001	2377
11	WASHINGTON UNIVERSTY	Bogges, N. W.	HQ-SG	Friedlander, M. W.	NGR 26-008-069	2378
11	WESLEYAN UNIVERSITY	Kondo, Y.	JSC	Page, T.	NGR 07-006-006	1605
11	WESLEYAN UNIVERSITY	Roman, N. G.	HQ-SG	Page, T.	NGR 07-006-004	1604
12	ARIZONA STATE UNIV	Harris, J. W.	JSC	Moore, C. B.	NGR 03-001-057	1092
12	BENNETT COLLEGE-NC	Lanford, W. E.	LARC	Maggiolo, A.	NSG 1032	2654
12	BOWIE STATE COLLEGE	Unavailable	GSFC	Unavailable	NSG 5009	1991
12	BROWN UNIVERSITY	Howe, J. T.	ARC	Mason, E. A.	NGL 40-002-059	2876
12	CALIF INST OF TECH	Harris, J. W.	JSC	Silver, L. T.	NGL 05-002-187	1185
12	CALIF INST OF TECH	Harris, J. W.	JSC	Wasserburg, G. J.	NGL 05-002-188	1186
12	CAL STATE U-FULLERTN	Young, R. S.	HQ-SL	Wegner, P. A.	NGR 05-071-008	1221
12	CAL STATE U-SAN JOSE	Wydeven, T. J.	ARC	Spitze, L. A.	NGR 05-046-011	1229
12	CASE WESTERN RESERVE	Quattrone, P. D.	ARC	Yeager, E.	NGR 36-027-050	2700
12	CASE WESTERN RESERVE	Quattrone, P. D.	ARC	Yeager, E.	NGR 36-027-052	2702
12	CASE WESTERN RESERVE	Harris, J. W.	JSC	Radcliffe, S. V.	NGL 36-027-057	2695
12	CATHOLIC UNIVERSITY	Stief, L. J.	GSFC	Timmons, R. B.	NGR 09-005-103	1636
12	COLUMBIA UNIVERSITY	Harris, J. W.	JSC	Ridley, W. I.	NGR 33-008-199	2524
12	CORNELL UNIVERSITY	Allario, F.	LARC	Cool, T. A.	NGL 33-010-064	2541
12	CORNELL UNIVERSITY	Young, R. S.	HQ-SL	Sagan, C.	NGR 33-010-101	2548
12	HARVARD UNIVERSITY	Harris, J. W.	JSC	Hays, J. F.	NGL 22-007-247	2088
12	HARVEY MUDD COLLEGE	Unavailable	ARC	Unavailable	NAS 2-8143	1234
12	INDIANA U-BLOOMINGTN	Harris, J. W.	JSC	Meinschein, W. G.	NGR 15-003-105	1868
12	KENT STATE UNIV	Quattrone, P. D.	ARC	Madex, R.	NSG 2013	2720
12	KENTUCKY STATE UNIV	Patterson, W. J.	MSFC	Marano, G. A.	NSG 8008	1944
12	LEHIGH UNIVERSITY	Harris, J. W.	JSC	Goldstein, J. I.	NGR 39-007-056	2813
12	MASS INST OF TECH	Quattrone, P. D.	ARC	Quattrone, P. D.	NGR 22-009-723	2186
12	MASS INST OF TECH	Quattrone, P. D.	ARC	Steinfeld, J. I.	NGR 22-009-766	2193
12	MASS INST OF TECH	Quattrone, P. D.	ARC	Modell, M.	NGR 22-009-799	2201
12	MASS INST OF TECH	Harris, J. W.	JSC	Burns, R. G.	NGR 22-009-551	2172
12	MASS INST OF TECH	Williams, T. S., Jr.	LARC	Biemann, K.	NAS 1-9684	2108
12	MASS INST OF TECH	Hess, R. V.	LARC	Wrighton, M. S.	NSG 1048	2208
12	MASS INST OF TECH	Davidson, M. C.	MSFC	Gatos, H. C.	NGR 22-009-517	2168
12	MASS INST OF TECH	Young, R. S.	HQ-SL	Rich, A.	NGR 22-009-277	2161
12	MOREHOUSE COLLEGE	Smith, R. E.	MSFC	Gales, J. N.	NGL 11-008-001	1760
12	NO DAKOTA STATE UNIV	Hall, L. B.	HQ-SL	Hill, T. W.	NGR 35-001-012	2687
12	OLD DOMINION UNIV	Johnston, N. J.	LARC	Williams, R. L.	NGL 47-003-008	3183
12	OREGON STATE UNIV	Tuttle, F. B.	HQ-FE	Williamson, S. E.	NGR 38-002-018	2784
12	POLY INST OF NY	Young, R. S.	HQ-SL	Eirich, F. R.	NGR 33-006-070	2594
12	POMONA COLLEGE	Soffen, G. A.	LARC	Baird, A. K.	NAS 1-11854	1235
12	PRINCETON UNIVERSITY	Johnston, N. J.	LARC	Gillham, J. K.	NGR 31-001-221	2436
12	PRINCETON UNIVERSITY	Dunning, J. W.	LERC	Glassman, I.	NGL 31-001-129	2425
12	RENSSELAER POLY-NY	Geib, D. S.	HQ-SL	Ferris, J. P.	NGR 33-018-148	2604
12	SHAW UNIVERSITY	Bell, V. L.	LARC	Chatterji, A. K.	NSG 1033	2684
12	STANFORD UNIVERSITY	Chang, S.	ARC	Loew, G. H.	NGR 05-020-405	1277
12	STANFORD UNIVERSITY	Quattrone, P. D.	ARC	Manning, J. R.	NGR 05-020-706	1303

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12	STATE UNIV NY-BUFFAL	Harris, J. W.	JSC	Cadenhead, D. A.	NGL 33-183-013	2616
12	STATE UNIV NY-BUFFAL	Geib, D.	HQ-SL	Danielli, J. F.	NGR 33-015-002	2617
12	STATE U NY-STONY BRK	Harris, J. W.	JSC	Schaeffer, O. A.	NGL 33-015-174	2623
12	STATE U NY-STONY BRK	Geib, D. S.	HQ-SL	Owen, T.	NGR 33-015-169	2632
12	TALLADEGA COLLEGE	Rosser, R. W.	ARC	Kray, W. O.	NGR 01-007-010	1028
12	TEMPLE UNIVERSITY	Lad, R. A.	LERC	Labes, M. M.	NGR 39-012-024	2847
12	UNIV ALA-BIRMINGHAM	Young, R. S.	HQ-SL	Lacey, J. C., Jr.	NGR 01-010-001	1035
12	UNIV OF ARIZONA	Harris, J. W.	JSC	Nagy, B.	NGR 03-002-237	1132
12	UNIV OF ARIZONA	Harris, J. W.	JSC	Drake, M. J.	NGR 03-002-388	1144
12	UNIV CALIF-BERKELEY	Ricciello, S. R.	ARC	Williamson, R. B.	NAS 2-8288	1318
12	UNIV CALIF-BERKELEY	Harris, J. W.	JSC	Price, P. B.	NGL 05-003-410	1340
12	UNIV CALIF-BERKELEY	Young, R. S.	HQ-SL	Jukes, T. H.	NGR 05-003-460	1355
12	UNIV CALIF-L ANGELES	Chang, S.	ARC	Kaplan, I. R.	NAS 2-7440	1391
12	UNIV CALIF-L ANGELES	Harris, J. W.	JSC	Wasson, J. T.	NGL 05-007-367	1414
12	UNIV CALIF-L ANGELES	McPherson, W. B.	MSFC	Yue, A. S.	NAS 8-29854	1400
12	UNIV CALIF-SAN DIEGO	Harris, J. W.	JSC	Arnold, J. R.	NGL 05-009-148	1461
12	UNIV CALIF-SAN DIEGO	Harris, J. W.	JSC	Marti, K.	NGL 05-009-150	1462
12	UNIV CALIF-SAN DIEGO	Young, R. S.	HQ-SL	Miller, S. L.	NGR 05-009-218	1478
12	UNIV OF CHICAGO	Harris, J. W.	JSC	Clayton, R. N.	NGL 14-001-169	1819
12	UNIV OF CONNECTICUT	Antoine, A. C.	LERC	Wells, A. F.	NGR 07-002-058	1603
12	UNIV OF FLORIDA	Schell, J. T.	MSFC	Patterson, E. P.	NAS 8-20247	1686
12	UNIV OF HAWAII	Young, R. S.	HQ-SL	Folsome, C. E.	NGR 12-001-109	1782
12	UNIV OF HOUSTON	Young, R. S.	HQ-SL	Becker, R. S.	NGR 44-005-091	3040
12	UNIV ILLINOIS-URBANA	Thom, K.	HQ-SL	Miley, G. H.	NGR 14-005-183	1848
12	UNIV ILLINOIS-URBANA	Young, R. S.	HQ-SL	Woese, C. R.	NSG 7044	1859
12	UNIV OF KENTUCKY	Gordon, S.	LERC	Funk, J. E.	NGR 18-001-086	1951
12	UNIV MARYLAND-COL PK	Conrath, B. J.	GSFC	Ponnamperuma, C.	NAS 5-23237	2014
12	UNIV MARYLAND-COL PK	Pellett, G. L.	LARC	Davis, D. D.	NSG 1031	2058
12	UNIV MARYLAND-COL PK	Young, R. S.	HQ-SL	Ponnamperuma, C.	NGR 21-002-317	2038
12	UNIV MARYLAND-COL PK	Young, R. S.	HQ-SL	Ponnamperuma, C.	NGR 21-002-425	2053
12	UNIV OF MIAMI	Harris, J. W.	JSC	Fox, S. W.	NGR 10-007-088	1712
12	UNIV OF MIAMI	Young, R. S.	HQ-SL	Fox, S. W.	NGR 10-007-008	1710
12	UNIV OF MIAMI	Young, R. S.	HQ-SL	Harada, K.	NGR 10-007-052	1711
12	UNIV MICH-ANN ARBOR	Lanford, W. E.	LARC	Stedman, D. H.	NGR 23-005-599	2283
12	U MINN-MNPLS-ST PAUL	Geib, D. S.	HQ-SL	Swain, F. M.	NGR 24-005-275	2326
12	UNIV MO-ROLLA	Ginoza, H. S.	ARC	Millich, F.	NGR 26-001-018	2366
12	UNIV OF NEW MEXICO	Harris, J. W.	JSC	Keil, K.	NGL 32-004-063	2479
12	UNIV OF NEW MEXICO	Soffen, G. A.	LARC	Keil, K.	NAS 1-11855	2472
12	UNIV OREGON-EUGENE	Harris, J. W.	JSC	Goles, G. G.	NGL 38-003-024	2789
12	UNIV OF PITTSBURGH	Fordyce, J. S.	LERC	Liu, C. C.	NAS 3-17658	2854
12	UNIV OF PITTSBURGH	Baker, C. E.	LERC	Kaufman, F.	NGR 39-011-161	2869
12	UNIV OF PITTSBURGH	Fordyce, J. S.	LERC	Liu, C. C.	NSG 3002	2872
12	UNIV OF PITTSBURGH	O'Donnell, P. M.	LERC	Liv, C. C.	NSG 3010	2873
12	UNIV OF PITTSBURGH	Mitz, M. A.	HQ-SL	Donahue, T. M.	NGR 39-011-134	2863
12	UNIV OF SO CAROLINA	Young, R. S.	HQ-SL	Rohlfing, D. L.	NGR 41-002-034	2892
12	UNIV SO MISSISSIPPI	Johnston, N. J.	LARC	Thames, S. F.	NGR 25-005-005	2354
12	UNIV OF UTAH	Kourtides, D. A.	ARC	Einhorn, I. N.	NAS 2-8244	3132
12	UNIV OF UTAH	Krupnick, A. C.	MSFC	Andrade, J. D.	NAS 8-30253	3136
12	UNIV OF UTAH	Wasel, R. A.	HQ-RP	Baer, A. D.	NGL 45-003-019	3140
12	UNIV OF VERMONT	Young, R. S.	HQ-SL	Thanassi, J. W.	NSG 7021	3155
12	UNIV WISC-MADISON	Harris, J. W.	JSC	Haskin, L. A.	NGL 50-002-148	3339
12	UNIV WISC-MADISON	Redding, E. R.	HQ-PY	Bock, R. M.	NGL 50-002-001	3333
12	VIRGINIA COMWLTH U	Bell, V. L.	LARC	Stump, B. L.	NGR 47-002-041	3237
12	VIRGINIA POLY INST	Walter, L. S.	GSFC	Gibbs, G. V.	NGR 47-004-093	3253
12	VIRGINIA POLY INST	Johnston, N. J.	LARC	Wolfe, J. F.	NSG 1064	3271
12	VIRGINIA POLY INST	Young, P. R.	LARC	Mason, J. G.	NSG 1085	3273
12	WASHINGTON ST UNIV	Kirkpatrick, J. P.	ARC	Saaski, E. W.	NSG 2015	3308
12	WORCESTER POLY INST	Quattrone, P. D.	ARC	Weiss, A. H.	NGR 22-017-024	2234

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12	YALE UNIVERSITY	Unavailable	GSFC	Lamb, W. E., Jr.	NGL 07-004-035	1609
13	ALABAMA A&M UNIV	Kurtz, R. L.	MSFC	Lee, C. T.	NSG 8011	1009
13	ALABAMA A&M UNIV	Pohly, J. G.	HQ-PY	George, M. C.	NGR 01-001-017	1001
13	ALABAMA A&M UNIV	Pohly, J. G.	HQ-PY	Lee, C. T.	NGR 01-001-020	1003
13	ARIZONA STATE UNIV	Lundholm, J. G.	HQ-RR	Jacobson, D. L.	NSG 7019	1093
13	ATHENS COLLEGE	Jex, D. W.	MSFC	McNutt, R. C.	NAS 8-28058	1011
13	ATHENS COLLEGE	Zwiener, J. M.	MSFC	McNutt, R. C.	NAS 8-30561	1012
13	AUBURN UNIV-AUBURN	Jones, B. P.	MSFC	Vachon, R. I.	NAS 8-26579	1015
13	BOSTON UNIVERSITY	Bogges, N. W.	HQ-SG	Hegy, D. J.	NGR 22-004-035	2077
13	BOWIE STATE COLLEGE	Caruso, A. J.	GSFC	Bhatia, M. S.	NGR 21-027-010	1988
13	BRIGHAM YOUNG UNIV	Hall, C. F.	ARC	Jones, D. E.	NAS 2-7358	3127
13	BRIGHAM YOUNG UNIV	Dyal, P.	ARC	Jones, D. E.	NGR 45-001-040	3130
13	BROWN UNIVERSITY	Coates, R. J.	GSFC	Heller, G. S.	NGL 40-002-042	2875
13	BROWN UNIVERSITY	Walker, G. H.	LARC	Loferski, J. J.	NGR 40-002-093	2879
13	BRYN MAWR COLLEGE	Harris, J. W.	JSC	Crawford, M. L.	NSG 9005	2794
13	CALIF INST OF TECH	Davis, M. A.	GSFC	Stone, D. C.	NAS 5-11066	1164
13	CALIF INST OF TECH	Harris, J. W.	JSC	Epstein, S.	NGL 05-002-190	1187
13	CALIF INST OF TECH	Harris, J. W.	JSC	Albee, A. L.	NGL 05-002-338	1190
13	CALIF INST OF TECH	Harris, J. W.	JSC	Tombrello, T. A.	NGR 05-002-333	1212
13	CALIF INST OF TECH	Lansing, D. L.	LARC	Liepmann, H. W.	NGR 05-002-220	1200
13	CALIF INST OF TECH	Wasel, R. A.	HQ-RP	Knauss, W. G.	NGL 05-002-005	1176
13	CARNEGIE-MELLON UNIV	Shulman, A. R.	GSFC	Lee, S. R.	NGR 39-087-037	2802
13	CARNEGIE-MELLON UNIV	Walker, G. H.	LARC	Milnes, A. G.	NGR 39-087-021	2799
13	CASE WESTERN RESERVE	McAvoy, N.	GSFC	Pao, Y. H.	NGR 36-027-068	2705
13	CATHOLIC UNIVERSITY	Fichtel, C. E.	GSFC	Crannell, H.	NGR 09-005-077	1634
13	CATHOLIC UNIVERSITY	Deissler, R. G.	LERC	Ling, S. C.	NGR 09-005-076	1633
13	CATHOLIC UNIVERSITY	Kavanagh, L. D., Jr.	HQ-SG	Whang, Y. C.	NGR 09-005-063	1632
13	CENTRAL ST UNIV-OHIO	Pohly, J. G.	HQ-PY	Hartzler, E. A.	NGR 36-033-001	2712
13	CHESAPEAKE COLLEGE	Nealy, J. E.	LARC	Paul, F. W.	NSG 1066	1992
13	CITY COLLEGE OF N Y	Byrns, Z. H.	JSC	Pierson, W. J.	NAS 9-13642	2490
13	CITY COLLEGE OF N Y	Putre, H.	LERC	Pfeffer, R.	NGL 33-013-029	2492
13	CITY COLLEGE OF N Y	Thom, K.	HQ-NS	Tchen, C. M.	NGL 33-013-034	2493
13	CLEVELAND STATE UNIV	Barile, S.	LERC	Casper, K.	NGL 36-025-001	2715
13	COLLEGE OF WM & MARY	Wilson, J. W.	LARC	Remler, E. A.	NAS 1-11808	3158
13	COLLEGE OF WM & MARY	Martin, D. J.	LARC	Von Baeyer, H. C.	NSG 1034	3164
13	COLLEGE OF WM & MARY	Breckenridge, R. A.	LARC	Chen, A. B.	NSG 1089	3165
13	COLORADO STATE UNIV	Harris, J. W.	JSC	Lindsay, W. A.	NGR 06-002-119	1542
13	COLORADO STATE UNIV	Brown, G. V.	LERC	Etters, R. D.	NGR 06-002-159	1546
13	COLUMBIA UNIVERSITY	Harris, J. W.	JSC	Horai, K.	NGR 33-008-169	2518
13	COLUMBIA UNIVERSITY	Harris, J. W.	JSC	Horai, K.	NGR 33-008-177	2519
13	CORNELL UNIVERSITY	Conrath, B. J.	GSFC	Gierasch, P. J.	NAS 5-23236	2532
13	CORNELL UNIVERSITY	Harris, J. W.	JSC	Gold, T.	NGR 33-010-137	2551
13	CORNELL UNIVERSITY	Soffen, G. A.	LARC	Sagan, C.	NAS 1-9683	2528
13	CORNELL UNIVERSITY	Carlson, H. W.	LARC	Seebass, A. R.	NGL 33-010-054	2539
13	CORNELL UNIVERSITY	Brown, G. V.	LERC	Ashcroft, N. W.	NGR 33-010-188	2560
13	CORNELL UNIVERSITY	Fellows, R. F.	HQ-SL	Brice, N. M.	NGR 33-010-161	2554
13	DELAWARE STATE COL	Pohly, J. G.	HQ-PY	Helmy, E. M.	NGR 08-002-001	1617
13	DELAWARE STATE COL	Pohly, J. G.	HQ-PY	Helmy, E. M.	NGR 08-002-005	1619
13	DUKE UNIVERSITY	Harris, J. W.	JSC	Cocks, F. H.	NGR 34-001-054	2658
13	FAIRLEIGH-DICKNSON U	Harris, J. W.	JSC	Adams, J. B.	NGL 31-006-011	2408
13	FISK UNIVERSITY	Moore, W. W.	MSFC	Silberman, E.	NGR 43-021-002	2897
13	FISK UNIVERSITY	Parnell, T. A.	MSFC	Mickens, R. E.	NSG 8007	2898
13	FLORIDA A&M UNIV	Trajmar, S.	JPL	Jones, H. W.	NSG 901	1677
13	FLORIDA STATE UNIV	Hardin, J. C.	LARC	Tam, C. K.	NSG 1021	1683
13	GEORGIA INST OF TECH	Huff, R. G.	LERC	Strahle, W. C.	NSG 3015	1757
13	GEORGIA INST OF TECH	Smith, O. E.	MSFC	Justus, C. G.	NAS 8-29753	1729
13	GEORGIA INST OF TECH	Kerr, J. H.	MSFC	Callen, W. R.	NAS 8-30246	1731
13	GEORGIA INST OF TECH	Thom, K.	HQ-RR	Williams, R.	NSG 7067	1759

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13	GRAMBLING COLLEGE	Kroes, R. L.	MSFC	Murty, A. N.	NGR 19-011-016	1960
13	GRAMBLING COLLEGE	Pohly, J. G.	HQ-PY	Terrell, J.	NGR 19-011-009	1956
13	GRAMBLING COLLEGE	Pohly, J. G.	HQ-PY	Cross, M. A.	NGR 19-011-014	1959
13	GRAMBLING COLLEGE	Kavanagh, L. D., Jr.	HQ-SG	Cummings, W. D.	NGR 19-011-007	1954
13	HAMPTON INSTITUTE	Singh, J. J.	LARC	Han, K. S.	NGR 47-020-008	3171
13	HAMPTON INSTITUTE	Pohly, J. G.	HQ-PY	Hunter, C. E.	NGR 47-020-005	3168
13	HARVARD UNIVERSITY	Plotkin, H. H.	GSFC	Bloembergen, N.	NGL 22-007-117	2085
13	HIRAM COLLEGE	Buckley, D. H.	LERC	Wheeler, D. R.	NAS 3-17353	2717
13	HOUSTON BAPTIST COL	Potter, A. E.	JSC	Modisette, J. L.	NSG 9007	2954
13	HOWARD UNIVERSITY	Okeefe, J. A.	GSFC	Thorpe, A. N.	NGL 09-011-006	1662
13	HOWARD UNIVERSITY	Mentall, J. E.	GSFC	Thorpe, A. N.	NGR 09-011-004	1665
13	HOWARD UNIVERSITY	Yin, L. I.	GSFC	Tsang, T.	NGR 09-011-057	1670
13	HOWARD UNIVERSITY	Schafer, C. F.	MSFC	Ukanwa, A. O.	NAS 8-30252	1660
13	ILL INST OF TECH	Thom, K.	HQ-RR	Weinstein, H.	NSG 7039	1789
13	INDIANA U-BLOOMINGTN	Diaz, A. V.	LARC	Hayes, J. M.	NAS 1-12055	1860
13	JOHNS HOPKINS UNIV	Hardee, S. N.	JSC	Fastie, W. G.	NAS 9-11528	1998
13	JOHNS HOPKINS UNIV	Harris, J. W.	JSC	Henry, R. C.	NSG 9004	2007
13	JOHNS HOPKINS UNIV	Kavanagh, L. D., Jr.	HQ-SG	Bostrom, C.	NSG 7055	2006
13	JOHNS HOPKINS UNIV	Mitz, M. A.	HQ-SL	Krimigis, S. M.	NGR 21-001-097	2002
13	KENT STATE UNIV	Brown, G. V.	LERC	Johnson, D. L.	NGR 36-007-027	2719
13	LEHIGH UNIVERSITY	Harris, J. W.	JSC	Scelar, C. B.	NGR 39-007-064	2815
13	LA STATE U-BAT ROUGE	Wilson, H. B.	MSFC	Farmer, R. C.	NAS 8-30380	1962
13	MASS INST OF TECH	Davis, M. A.	GSFC	Bridge, H. S.	NAS 5-11062	2117
13	MASS INST OF TECH	Plotkin, H. H.	GSFC	Javan, A.	NGR 22-009-741	2192
13	MASS INST OF TECH	Harris, J. W.	JSC	Simmons, G.	NGR 22-009-540	2171
13	MASS INST OF TECH	Weinberg, I.	LERC	Gatos, H. C.	NSG 3017	2214
13	MASS INST OF TECH	Hale, D. P.	MSFC	Shapiro, I. I.	NAS 8-30301	2130
13	MASS INST OF TECH	Davidson, M. C.	MSFC	Gatos, H. C.	NAS 8-30537	2132
13	MASS INST OF TECH	Dalins, I.	MSFC	Gatos, H. C.	NGL 22-009-125	2147
13	MASS INST OF TECH	Hall, H.	HQ-MT	Chapman, P. K.	NGR 22-009-735	2191
13	MASS INST OF TECH	Opp, A. G.	HQ-SG	Bridge, H. S.	NGL 22-009-015	2142
13	MASS INST OF TECH	Roman, N. G.	HQ-SG	Clark, G. W.	NGR 22-009-785	2197
13	MASS INST OF TECH	Kavanagh, L. D., Jr.	HQ-SG	Bridge, H. S.	NGR 22-009-786	2198
13	MICHIGAN STATE UNIV	Unavailable	LARC	Unavailable	NAS 1-6860	2235
13	MICHIGAN STATE UNIV	Hardin, J. C.	LARC	Foss, J. F.	NGR 23-004-091	2242
13	MOREHOUSE COLLEGE	Shriver, E. L.	MSFC	Spight, C.	NSG 8014	1763
13	MOREHOUSE COLLEGE	Pohly, J. G.	HQ-PY	Spight, C.	NGR 11-008-002	1761
13	NO CAROLINA STATE U	Thom, K.	HQ-RR	Hassan, H. A.	NGR 34-002-177	2672
13	NO CAROLINA STATE U	Thom, K.	HQ-NS	Bennett, W. H.	NGL 34-002-017	2665
13	NORTHWESTERN UNIV	Lad, R. A.	LERC	Waber, J. T.	NGL 14-007-081	1795
13	NORTHWESTERN UNIV	Bambakidis, G.	LERC	Waber, J. T.	NGR 14-007-131	1800
13	OLD DOMINION UNIV	Outlaw, R. A.	LARC	Cox, J. L.	NGR 47-003-040	3187
13	OLD DOMINION UNIV	Outlaw, R. A.	LARC	Pittman, M. A.	NGR 47-003-043	3188
13	OLD DOMINION UNIV	Phillips, D. H.	LARC	Ake, R. L.	NGR 47-003-048	3189
13	OLD DOMINION UNIV	McCormick, M. P.	LARC	Chu, W. P.	NGR 47-003-069	3192
13	OLD DOMINION UNIV	Outlaw, R. A.	LARC	Cox, J. L.	NGR 47-003-077	3194
13	OLD DOMINION UNIV	Wilson, J. W.	LARC	Khandelwal, G. S.	NGR 47-003-078	3195
13	OLD DOMINION UNIV	McCormick, M. P.	LARC	Chu, W. P.	NGR 47-003-088	3199
13	OLD DOMINION UNIV	Hohl, F.	LARC	Harries, W. L.	NSG 1022	3202
13	OREGON STATE UNIV	Harris, J. W.	JSC	Schmitt, R. A.	NGL 38-002-039	2781
13	PAINE COLLEGE	Bannister, T. C.	MSFC	Lal, R. B.	NSG 8002	1765
13	PENNSYLVANIA STATE U	Harris, J. W.	JSC	Muan, A.	NGR 39-009-184	2836
13	PENNSYLVANIA STATE U	Schmerling, E. R.	HQ-SG	Ross, W. J.	NGL 39-009-002	2825
13	PENNSYLVANIA STATE U	Schmerling, E. R.	HQ-SG	Nisbet, J. S.	NGL 39-009-003	2826
13	PENNSYLVANIA STATE U	Kavanagh, L. D., Jr.	HQ-SG	Hale, L. C.	NGR 39-009-218	2839
13	POLY INST OF NY	Kavanagh, L. D., Jr.	HQ-SG	Gross, S. H.	NGR 33-006-047	2592
13	POLY INST OF NY	Fellows, R. F.	HQ-SL	Gross, S. H.	NGR 33-006-068	2593
13	PORTLAND STATE UNIV	Gary, A.	MSFC	Gurevitch, M.	NAS 8-29256	2785

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13	PRINCETON UNIVERSITY	Soffen, G. A.	LARC	Hargraves, R. B.	NAS 1-9705	2410
13	PRINCETON UNIVERSITY	Hunter, W. W., Jr.	LARC	Miles, R. B.	NSG 1070	2448
13	PRINCETON UNIVERSITY	Thom, K.	HQ-RR	Layton, J. P.	NGR 31-001-328	2447
13	PRINCETON UNIVERSITY	Harrison, H. H.	HQ-NS	Kelly, A. J.	NGR 31-001-151	2431
13	PRINCETON UNIVERSITY	Strickland, A. T.	HQ-SM	Dicke, R. H.	NGR 31-001-202	2435
13	PURDUE UNIVERSITY	Overton, J. D.	JSC	Landgrebe, D. A.	NGL 15-005-112	1880
13	PURDUE UNIVERSITY	Harris, J. W.	JSC	Taylor, L. A.	NGL 15-005-175	1882
13	PURDUE UNIVERSITY	Harris, J. W.	JSC	Meyer, H. O.	NGR 15-005-157	1889
13	QUEENS COLLEGE	Harris, J. W.	JSC	Schreiber, E.	NSG 9008	2596
13	RENSSELAER-CONN	Yeager, P. R.	LARC	Schwarz, H. J.	NGL 07-009-003	1596
13	RENSSELAER POLY-NY	Davidson, M. C.	MSFC	Wiedemeier, H. T.	NAS 8-26146	2597
13	RICE UNIVERSITY	Taylor, H. A., Jr.	GSFC	Cloutier, P. A.	NAS 5-23338	2963
13	RICE UNIVERSITY	Eichelman, W. F.	JSC	Freeman, J. W.	NAS 9-5911	2965
13	RICE UNIVERSITY	Hudson, R. D.	JSC	Stebbins, R. F.	NGR 44-006-156	2975
13	RICE UNIVERSITY	Hudson, R. D.	JSC	Walters, G. K.	NGR 44-006-169	2976
13	RICE UNIVERSITY	Outlaw, R. A.	LARC	Stebbins, R. F.	NSG 1017	2977
13	RICE UNIVERSITY	Lad, R. A.	LERC	Rorschach, H. E.	NGL 44-006-001	2970
13	RICE UNIVERSITY	Kavanagh, L. D., Jr.	HQ-SG	Stebbins, R. F.	NGL 44-006-012	2971
13	RICE UNIVERSITY	Kavanagh, L. D., Jr.	HQ-SG	Dessler, A. J.	NGR 44-006-137	2973
13	RUTGERS UNIV-NEWARK	Dubin, M.	HQ-SG	Carroll, B.	NGR 31-004-049	2455
13	SO CAROLINA ST COL	Pohly, J. G.	HQ-PY	Payne, J. E.	NGR 41-006-001	2888
13	SO UNIV-BATON ROUGE	Unavailable	MSFC	Unavailable	NSG 8016	1977
13	SO UNIV-BATON ROUGE	Pohly, J. G.	HQ-PY	Johnson, J. A.	NGR 19-005-003	1973
13	SO UNIV-BATON ROUGE	Pohly, J. G.	HQ-P	Scott, R. L.	NGR 19-005-009	1976
13	STANFORD UNIVERSITY	Hall, C. F.	ARC	Von Eshleman, V. R.	NAS 2-4671	1241
13	STANFORD UNIVERSITY	Hickey, D. H.	ARC	Karamcheti, K.	NGR 05-020-676	1299
13	STANFORD UNIVERSITY	Hickey, D. H.	ARC	Karamcheti, K.	NSG 2007	1309
13	STANFORD UNIVERSITY	Stone, R. G.	GSFC	Peterson, A. M.	NAS 5-23205	1254
13	STANFORD UNIVERSITY	Harris, J. W.	JSC	Nur, A.	NGR 05-020-633	1291
13	STANFORD UNIVERSITY	Soffen, G. A.	LARC	Levinthal, E. C.	NAS 1-9682	1238
13	STANFORD UNIVERSITY	Potter, R. A.	MSFC	Fairbanks, W. M.	NGR 05-020-019	1275
13	STANFORD UNIVERSITY	Unavailable	HQ-RL	Karamcheti, K.	NGL 05-020-275	1268
13	STANFORD UNIVERSITY	Thom, K.	HQ-RR	Pantell, R. H.	NSG 7042	1314
13	STANFORD UNIVERSITY	Weinberg, I.	HQ-RW	Little, W. A.	NGL 05-020-242	1265
13	STANFORD UNIVERSITY	Kavanagh, L. D., Jr.	HQ-SG	Helliwell, R. A.	NGL 05-020-008	1259
13	STANFORD UNIVERSITY	Kavanagh, L. D., Jr.	HQ-SG	Crawford, F. W.	NGL 05-020-176	1263
13	STANFORD UNIVERSITY	Weldon, J. M.	HQ-SG	Sturrock, P. A.	NGL 05-020-272	1267
13	STATE UNIV NY-BUFFAL	Allen, R. E.	MSFC	Bigazzi, P. E.	NAS 8-29745	2614
13	STATE U NY-STONY BRK	Mangus, J. D.	GSFC	Stroke, G. W.	NGR 33-015-196	2635
13	STATE U NY-STONY BRK	Harris, J. W.	JSC	Papike, J. J.	NGL 33-015-130	2622
13	STATE U NY-STONY BRK	Soffen, G. A.	LARC	Owens, T.	NAS 1-10493	2619
13	STATE U NY-STONY BRK	Weldon, J. M.	HQ-SG	Stroke, G. W.	NGR 33-015-068	2624
13	STEVENS INST OF TECH	Harrison, H. H.	HQ-NS	Meissner, H.	NGL 31-003-020	2456
13	TALLADEGA COLLEGE	Dalins, I.	MSFC	Breecher, J.	NGR 01-007-009	1027
13	TALLADEGA COLLEGE	Carter, C. H.	HQ-PY	Morrison, R. A.	NGR 01-007-004	1026
13	TENNESSEE STATE UNIV	Cassidy, J. F.	LERC	Busby, M. R.	NGR 43-014-002	2902
13	TENNESSEE TECH U	Hardesty, C. A.	LARC	McLennan, W. D.	NGR 43-003-012	2905
13	TEXAS A&M UNIVERSITY	Nowakowski, M. F.	MSFC	Porter, W. A.	NAS 8-29851	2997
13	TULANE UNIVERSITY	Weinberg, I.	HQ-RW	Hermann, A. M.	NGL 19-002-027	1981
13	TUSKEGEE INSTITUTE	Bannister, T. C.	MSFC	Reams, F. M.	NGR 01-005-003	1031
13	UNION COLLEGE	McAvoy, N.	GSFC	Galantowicz, A.	NGR 33-032-004	2646
13	UNIV ALA-HUNTSVILLE	Parnell, T. A.	MSFC	Gregory, J. C.	NAS 8-24953	1037
13	UNIV ALA-HUNTSVILLE	Jones, B. P.	MSFC	Horner, J. M.	NAS 8-27181	1040
13	UNIV ALA-HUNTSVILLE	Lacy, L. L.	MSFC	Otto, G. H.	NAS 8-27809	1041
13	UNIV ALA-HUNTSVILLE	Hagyard, M. J.	MSFC	Wu, S. T.	NAS 8-28097	1042
13	UNIV ALA-HUNTSVILLE	Hodges, B.	MSFC	Polge, R. J.	NAS 8-28545	1045
13	UNIV ALA-HUNTSVILLE	Decher, R.	MSFC	Hendricks, J. B.	NAS 8-29316	1048
13	UNIV ALA-HUNTSVILLE	Smith, R. E.	MSFC	Wu, S. T.	NAS 8-29501	1049

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13	UNIV ALA-HUNTSVILLE	Swenson, G. R.	MSFC	Wu, S. T.	NAS 8-29543	1051
13	UNIV ALA-HUNTSVILLE	Davidson, M. C.	MSFC	Walter, H. U.	NAS 8-29650	1052
13	UNIV ALA-HUNTSVILLE	Urban, E. W.	MSFC	Otto, G. H.	NAS 8-30244	1054
13	UNIV ALA-TUSCALOOSA	Bannister, T. C.	MSFC	Miyagawa, I.	NAS 8-28098	1067
13	UNIV ALA-TUSCALOOSA	Schafer, C. F.	MSFC	De Smet, D. J.	NAS 8-29494	1069
13	UNIV ALA-TUSCALOOSA	Eby, P. B.	MSFC	Coulter, C. A.	NAS 8-29900	1070
13	UNIV ALA-TUSCALOOSA	Moore, W. W.	MSFC	Liu, H. K.	NAS 8-30479	1073
13	UNIV ALASKA-FAIRBANKS	Kavanagh, L. D., Jr.	HQ-SG	Akasofu, S. I.	NGR 02-001-001	1085
13	UNIV ALASKA-FAIRBANKS	Kavanagh, L. D., Jr.	HQ-SG	Davis, T. N.	NGR 02-001-087	1086
13	UNIV ALASKA-FAIRBANKS	Kavanagh, L. D., Jr.	HQ-SG	Akasofu, S. I.	NSG 7051	1090
13	UNIV OF ARIZONA	Hall, C. F.	ARC	Sonett, C. P.	NAS 2-7839	1098
13	UNIV OF ARIZONA	Meese, K. J.	GSFC	L'Heureux, J. J.	NAS 5-11444	1100
13	UNIV OF ARIZONA	Wyman, C. L.	MSFC	Shack, R. V.	NAS 8-27863	1110
13	UNIV OF ARIZONA	Moore, W. W.	MSFC	Jacobs, S. F.	NAS 8-28661	1111
13	UNIV ARKANSAS-FAYETTE	Regent, B.	ARC	Testerman, M. K.	NGL 04-001-007	1156
13	UNIV ARKANSAS-MONTICELLO	Hardee, S. N.	JSC	Delton, R. A.	NAS 9-13196	1158
13	UNIV CALIF-BERKELEY	Billman, K. W.	ARC	Gustafson, T. K.	NGR 05-003-559	1367
13	UNIV CALIF-BERKELEY	Madden, J. J.	GSFC	Anderson, R. A.	NAS 5-11038	1319
13	UNIV CALIF-BERKELEY	Davis, M. A.	GSFC	Anderson, K. A.	NAS 5-20079	1320
13	UNIV CALIF-BERKELEY	Davis, M. A.	GSFC	Mozzer, F. S.	NAS 5-20080	1321
13	UNIV CALIF-BERKELEY	Lafferty, P. E.	JSC	Anderson, K. A.	NAS 9-10509	1327
13	UNIV CALIF-BERKELEY	Harris, J. W.	JSC	Reynolds, J. H.	NGL 05-003-409	1339
13	UNIV CALIF-BERKELEY	Harris, J. W.	JSC	Burlingame, A. L.	NGR 05-003-435	1349
13	UNIV CALIF-BERKELEY	Ondrak, B. T.	MSFC	Price, P. B.	NAS 8-29603	1324
13	UNIV CALIF-BERKELEY	Kavanagh, L. D., Jr.	HQ-SG	Anderson, K. A.	NGL 05-003-017	1333
13	UNIV CALIF-BERKELEY	Kavanagh, L. D., Jr.	HQ-SG	Anderson, K. A.	NGR 05-003-239	1342
13	UNIV CALIF-BERKELEY	Kavanagh, L. D., Jr.	HQ-SG	Mozzer, F. S.	NGR 05-003-480	1360
13	UNIV CALIF-DAVIS	Unavailable	ARC	Unavailable	NAS 2-7513	1378
13	UNIV CALIF-L ANGELES	Dyal, P.	ARC	Schubert, G.	NAS 2-6791	1389
13	UNIV CALIF-L ANGELES	Hall, C. F.	ARC	Coleman, P. J., Jr.	NAS 2-7251	1390
13	UNIV CALIF-L ANGELES	Davis, M. A.	GSFC	Russell, C. T.	NAS 5-20064	1395
13	UNIV CALIF-L ANGELES	Hardee, S. N.	JSC	Kaula, W. M.	NAS 9-12757	1403
13	UNIV CALIF-L ANGELES	Harris, J. W.	JSC	Wetherill, G. W.	NGL 05-007-287	1412
13	UNIV CALIF-L ANGELES	Harris, J. W.	JSC	Warren, N.	NGL 05-007-330	1413
13	UNIV CALIF-L ANGELES	Harris, J. W.	JSC	Kaplan, I. R.	NGR 05-007-289	1421
13	UNIV CALIF-L ANGELES	Keating, G. M.	LARC	Knuth, E. L.	NGR 05-007-416	1433
13	UNIV CALIF-L ANGELES	Kavanagh, L. D., Jr.	HQ-SG	Coleman, P. J., Jr.	NGL 05-007-004	1406
13	UNIV CALIF-L ANGELES	Kavanagh, L. D., Jr.	HQ-SG	Kennel, C. F.	NGL 05-007-190	1410
13	UNIV CALIF-L ANGELES	Kavanagh, L. D., Jr.	HQ-SG	Holzer, R. E.	NGR 05-007-276	1419
13	UNIV CALIF-L ANGELES	Berks, F. W.	HQ-SG	Russell, C. T.	NSG 7008	1440
13	UNIV CALIF-L ANGELES	Mitz, M. A.	HQ-SL	Coleman, P. J., Jr.	NGR 05-007-327	1424
13	UNIV CALIF-RIVERSIDE	Temkin, A.	GSFC	Poe, R. T.	NGL 05-008-005	1443
13	UNIV CALIF-SAN DIEGO	Wales, R. O.	GSFC	McIlwain, C. E.	NAS 5-21055	1449
13	UNIV CALIF-SAN DIEGO	Carrion, W. J.	GSFC	Helstrom, C. W.	NGL 05-009-079	1458
13	UNIV CALIF-SAN DIEGO	Shulman, A. R.	GSFC	Lee, S. H.	NGR 05-009-260	1484
13	UNIV CALIF-SAN DIEGO	Harris, J. W.	JSC	Arrhenius, G. O.	NGL 05-009-154	1463
13	UNIV CALIF-SAN DIEGO	Opp, A. G.	HQ-SG	Peterson, L. E.	NGL 05-005-003	1452
13	UNIV CALIF-SAN DIEGO	Kavanagh, L. D., Jr.	HQ-SG	McIlwain, C. E.	NGL 05-005-007	1454
13	UNIV CALIF-SAN DIEGO	Schmerling, E. R.	HQ-SG	Fejer, J. A.	NGR 05-009-076	1468
13	UNIV CALIF-SAN DIEGO	Kavanagh, L. D., Jr.	HQ-SG	Axford, W. I.	NGR 05-009-081	1469
13	UNIV CALIF-SAN DIEGO	Weldon, J. M.	HQ-SG	Penner, S. S.	NGR 05-009-226	1479
13	UNIV OF CHICAGO	Meese, K. J.	GSFC	Meyer, P.	NAS 5-9096	1805
13	UNIV OF CHICAGO	Meese, K. J.	GSFC	Simpson, J. A.	NAS 5-9366	1806
13	UNIV OF CHICAGO	Ferer, B. H.	GSFC	Simpson, J. A.	NAS 5-11037	1807
13	UNIV OF CHICAGO	Davis, M. A.	GSFC	Simpson, J. A.	NAS 5-11067	1808
13	UNIV OF CHICAGO	Harris, J. W.	JSC	Anders, E.	NGL 14-001-167	1818
13	UNIV OF CHICAGO	Harris, J. W.	JSC	Smith, J. V.	NGL 14-001-171	1820
13	UNIV OF CHICAGO	Dwornik, S. E.	HQ-SL	Turkevich, A. L.	NGR 14-001-250	1833

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13	UNIV OF CINCINNATI	Brown, G. V.	LERC	Joiner, W. C.	NGR 36-004-054	2748
13	UNIV. COLORADO-BOLDR	Harris, J. W.	JSC	Larson, E. E.	NGR 06-003-181	1567
13	UNIV COLORADO-BOLDR	Hutchby, J. A.	LARC	Chernow, F.	NGR 06-003-205	1570
13	UNIV COLORADO-BOLDR	Kavanagh, L. D., Jr.	HQ-SG	Speiser, T. W.	NGR 06-003-092	1562
13	UNIV COLORADO-BOLDR	Calahan, H. D.	HQ-SG	Speiser, T. W.	NGR 06-003-215	1572
13	UNIV OF DELAWARE	Harris, J. W.	JSC	Glass, B. P.	NGR 08-001-029	1624
13	UNIV OF DENVER	Boese, R. W.	ARC	Murcraay, D. G.	NAS 2-8200	1581
13	UNIV OF DENVER	Hobbs, R. W.	GSFC	Edrich, J.	NAS 5-23190	1582
13	UNIV OF DENVER	Kavanagh, L. D., Jr.	HQ-SG	Patel, V. L.	NGR 06-004-058	1586
13	UNIV OF DENVER	Kavanagh, L. D., Jr.	HQ-SG	Roederer, J. G.	NGR 06-004-060	1587
13	UNIV OF DENVER	Calahan, H. D.	HQ-SG	Patel, V. L.	NGR 06-004-123	1588
13	UNIV OF FLORIDA	Thom, K.	HQ-RR	Schneider, R. T.	NGL 10-005-089	1697
13	UNIV OF HOUSTON	Golden, R. L.	JSC	Goodman, C.	NGL 44-005-041	3035
13	UNIV OF HOUSTON	White, D.	JSC	Hildebrandt, A. F.	NGR 44-005-137	3043
13	UNIV OF HOUSTON	Soffen, G. A.	LARC	Oro, J.	NAS 1-9685	3021
13	UNIV ILLINOIS-URBANA	Dunning, J. W., Jr.	LERC	Verdeyen, J. T.	NGR 14-005-200	1852
13	UNIV ILLINOIS-URBANA	Siewert, R. D.	LERC	Strehlow, R. A.	NSG 3008	1857
13	UNIV OF IOWA	Hall, C. F.	ARC	Van Allen, J. A.	NAS 2-6553	1904
13	UNIV OF IOWA	Davis, M. A.	GSFC	Frank, L. A.	NAS 5-11039	1905
13	UNIV OF IOWA	Limberis, B. R.	GSFC	Frank, L. A.	NAS 5-11064	1906
13	UNIV OF IOWA	Longanecker, G. W.	GSFC	Gurnett, D. A.	NAS 5-11167	1908
13	UNIV OF IOWA	Eaker, H. L.	GSFC	Frank, L. A.	NAS 5-11265	1909
13	UNIV OF IOWA	Davis, M. A.	GSFC	Gurnett, D. A.	NAS 5-20093	1912
13	UNIV OF IOWA	Davis, M.	GSFC	Frank, L. A.	NAS 5-20094	1913
13	UNIV OF IOWA	Coffee, C. W., Jr.	LARC	Van Allen, J. A.	NAS 1-11257	1902
13	UNIV OF IOWA	Coffee, C. W., Jr.	LARC	Van Allen, J. A.	NAS 1-13129	1903
13	UNIV OF IOWA	Kavanagh, L. D., Jr.	HQ-SG	Van Allen, J. A.	NGL 16-001-002	1917
13	UNIV OF IOWA	Schmerling, E. R.	HQ-SG	Montgomery, D. C.	NGL 16-001-043	1918
13	UNIV OF KENTUCKY	Harris, J. W.	JSC	Ehmann, W. D.	NGR 18-001-058	1948
13	UNIV OF KENTUCKY	Haggard, J. B.	LERC	Lienhard, J. H.	NGR 18-001-083	1950
13	UNIV MARYLAND-COL PK	Davis, M. A.	GSFC	Gloeckler, G.	NAS 5-11063	2012
13	UNIV MARYLAND-COL PK	Davis, M. A.	GSFC	Gloeckler, G.	NAS 5-20062	2013
13	UNIV MARYLAND-COL PK	Ogilvie, K. W.	GSFC	Rosenberg, T. J.	NGR 21-002-291	2033
13	UNIV MARYLAND-COL PK	Teegarden, B. J.	GSFC	Gloeckler, G.	NGR 21-002-316	2037
13	UNIV MARYLAND-COL PK	Rosenbaum, B.	GSFC	Richard, J. P.	NGR 21-002-412	2052
13	UNIV MARYLAND-COL PK	Buften, J. L.	GSFC	Currie, D. G.	NGR 21-002-444	2056
13	UNIV MARYLAND-COL PK	Patch, R. W.	LERC	Miller, M. H.	NGL 21-002-167	2019
13	UNIV MARYLAND-COL PK	Simoneau, R. J.	LERC	Sengers, J. V.	NGR 21-002-344	2039
13	UNIV MARYLAND-COL PK	Stephens, J. R.	LERC	Arsenault, R. J.	NSG 3001	2062
13	UNIV MARYLAND-COL PK	Hoge, F. E.	WFC	Alley, C. O.	NGR 21-002-435	2055
13	UNIV MARYLAND-COL PK	Redfield, M.	HQ-MT	Alley, C. O.	NGR 21-002-285	2032
13	UNIV MARYLAND-COL PK	Gessow, A.	HQ-RA	Melnik, W. L.	NGR 21-002-303	2036
13	UNIV MARYLAND-COL PK	Strickland, A. T.	HQ-SM	Currie, D. G.	NGR 21-002-267	2030
13	UNIV OF MASS-AMHERST	Harris, J. W.	JSC	Haggerty, S. E.	NGL 22-010-089	2227
13	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-11073	2246
13	UNIV MICH-ANN ARBOR	Madden, J. J.	GSFC	Haddock, F. T.	NAS 5-11174	2248
13	UNIV MICH-ANN ARBOR	Trainor, J. H.	GSFC	MacNee, A. B.	NAS 5-23267	2257
13	UNIV MICH-ANN ARBOR	Devries, L. L.	MSFC	Cicerone, R. J.	NAS 8-28294	2260
13	UNIV MICH-ANN ARBOR	Kavanagh, L. D., Jr.	HQ-SG	Samir, U.	NGR 23-005-320	2270
13	UNIV MICH-ANN ARBOR	Kavanagh, L. D., Jr.	HQ-SG	Sharp, W. E.	NGR 23-005-360	2271
13	U MINN-MNPLS-ST PAUL	Staff, W. O.	GSFC	Epney, O.	NAS 5-3838	2304
13	U MINN-MNPLS-ST PAUL	White, C. E.	GSFC	Kellogg, P. J.	NAS 5-11310	2306
13	U MINN-MNPLS-ST PAUL	Davis, M. A.	GSFC	Kellogg, P. J.	NAS 5-23273	2309
13	U MINN-MNPLS-ST PAUL	Harris, J. W.	JSC	Pepin, R. O.	NGL 24-005-225	2315
13	U MINN-MNPLS-ST PAUL	Harris, J. W.	JSC	Murthy, V. R.	NGR 24-005-223	2321
13	U MINN-MNPLS-ST PAUL	Kavanagh, L. D., Jr.	HQ-SG	Winckler, J. R.	NGL 24-005-008	2312
13	U MINN-MNPLS-ST PAUL	Kavanagh, L. D., Jr.	HQ-SG	Winckler, J. R.	NGR 24-005-111	2319
13	U MINN-MNPLS-ST PAUL	Kavanagh, L. D., Jr.	HQ-SG	Cahill, L. J., Jr.	NGR 24-005-253	2323

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13	U MINN-MNPLS-ST PAUL	Kavanagh, L. D., Jr.	HQ-SG	Winckler, J. R.	NSG 7005	2330
13	UNIV NEW HAMPSHIRE	Kavanagh, L. D., Jr.	HQ-SG	Arnoldy, R. L.	NGR 30-002-054	2404
13	UNIV NEW HAMPSHIRE	Calahan, H. D.	HQ-SG	Roelof, E. C.	NGR 30-002-097	2405
13	UNIV OF NEW MEXICO	Meese, K. J.	GSFC	Regener, V. H.	NAS 5-9314	2474
13	UNIV OF NEW MEXICO	Calahan, H. D.	HQ-SG	Ahluwalia, H. S.	NGR 32-004-086	2484
13	UNIV N CAR-CHPL HILL	Parnell, T. A.	MSFC	Childs, C. B.	NAS 8-26601	2685
13	UNIV OREGON-EUGENE	Whiting, E. E.	ARC	Crasemann, B.	NGR 38-003-036	2793
13	UNIV OREGON-EUGENE	Harris, J. W.	JSC	Weill, D. F.	NGL 38-003-022	2788
13	UNIV OF PENNSYLVANIA	Wilson, J. W.	LARC	Shen, B. S.	NGR 39-010-114	2851
13	UNIV OF PITTSBURGH	Temkin, A.	GSFC	Gerjuoy, E.	NGL 39-011-035	2859
13	UNIV OF PITTSBURGH	Eichelman, W. F.	JSC	Donahue, T. M.	NAS 9-13803	2855
13	UNIV OF PITTSBURGH	Harris, J. W.	JSC	Fuller, M.	NGL 39-011-160	2861
13	UNIV OF ROCHESTER	Osantowski, J. F.	GSFC	Baumeister, P.	NAS 5-20028	2648
13	UNIV SAN FRANCISCO	Taketa, S. T.	ARC	Benton, E. V.	NAS 2-7059	1495
13	UNIV SAN FRANCISCO	Bailey, J. V.	JSC	Benton, E. V.	NAS 9-12466	1497
13	UNIV SAN FRANCISCO	Parnell, T. A.	MSFC	Benton, E. V.	NAS 8-26758	1496
13	UNIV OF SO ALABAMA	Fordyce, J. S.	LERC	Weber, F. N., Jr.	NSG 3003	1080
13	UNIV OF SOUTHERN CAL	Hall, C. F.	ARC	Judge, D. L.	NAS 2-6558	1506
13	UNIV OF SOUTHERN CAL	Porter, D. L.	ARC	Intriligator, D. S.	NAS 2-7969	1507
13	UNIV OF SOUTHERN CAL	Unavailable	JSC	Unavailable	NAS 9-6164	1512
13	UNIV OF SOUTHERN CAL	Bannister, T. C.	MSFC	Wilcox, W. R.	NAS 8-29847	1511
13	UNIV OF SOUTHERN CAL	Kavanagh, L. D., Jr.	HQ-SG	Intriligator, D. S.	NGR 05-018-181	1520
13	UNIV OF SOUTHERN CAL	Kavanagh, L. D., Jr.	HQ-SG	Intriligator, D. S.	NGR 05-018-185	1521
13	UNIV TEXAS-AUSTIN	Weldon, J. M.	HQ-SG	Bengston, R. D.	NGR 44-012-258	3076
13	UNIV TEXAS-DALLAS	Harris, J. W.	JSC	Carter, J. L.	NGR 44-004-116	3102
13	UNIV TEXAS-DALLAS	Kavanagh, L. D., Jr.	HQ-SG	Hanson, W. B.	NGR 44-004-120	3103
13	UNIV TEXAS-GALVESTON	Eichelman, W. F.	JSC	Latham, G. V.	NAS 9-13143	3114
13	UNIV OF UTAH	Wasel, R. A.	HQ-RP	Williams, M. L.	NGL 45-003-029	3142
13	UNIV OF VIRGINIA	Hardee, S. N.	JSC	Junkins, J. L.	NAS 9-12752	3218
13	UNIV OF WASHINGTON	Harris, J. W.	JSC	Ghose, S.	NGR 48-002-149	3301
13	UNIV OF WASHINGTON	Soffen, G. A.	LARC	Leovy, C. B.	NAS 1-9694	3281
13	UNIV OF WASHINGTON	Thom, K.	HQ-RR	Hertzberg, A.	NGL 48-002-044	3289
13	UNIV OF WASHINGTON	Calahan, H. D.	HQ-SG	Parks, G. K.	NGR 48-002-154	3303
13	UNIV WISC-MADISON	Unavailable	ARC	Unavailable	NAS 2-7892	3318
13	UNIV WISC-MADISON	Davis, M. A.	GSFC	Scherb, F.	NAS 5-11068	3321
13	UNIV WISC-MADISON	Oberright, J. E.	GSFC	Dombroski, R. M.	NAS 5-20068	3323
13	UNIV WISC-MADISON	Kavanagh, L. D., Jr.	HQ-SG	Scherb, F.	NGR 50-002-162	3343
13	UNIV OF WYOMING	Hallenbeck, D. R.	HQ-SG	Hoffman, D. J.	NGR 51-001-033	3361
13	UNIV OF WYOMING	Opp, A. G.	HQ-SG	Tompkins, D. R., Jr.	NGR 51-001-035	3362
13	VANDERBILT UNIVERSTY	Hohl, F.	LARC	Lee, J. H.	NGR 43-002-031	2938
13	VIRGINIA POLY INST	Zorumski, W. E.	LARC	Nayfeh, A. H.	NGR 47-004-109	3262
13	VIRGINIA POLY INST	Wornom, S. F.	LARC	Inger, G. R.	NGR 47-004-119	3265
13	VIRGINIA POLY INST	Yeager, P. R.	LARC	Sanzone, G.	NSG 1020	3269
13	VIRGINIA STATE COL	Wilson, J. W.	LARC	Stronach, C. E.	NGR 47-014-006	3278
13	WASHINGTON UNIVERSTY	Harris, J. W.	JSC	Walker, R. M.	NGL 26-008-065	2376
13	WASHINGTON UNIVERSTY	Heyman, J. S.	LARC	Miller, J. G.	NSG 1016	2379
13	WASHINGTON UNIVERSTY	Jones, J. H.	MSFC	Rodin, E. Y.	NAS 8-26084	2371
13	WASHINGTON UNIVERSTY	Kavanagh, L. D., Jr.	HQ-SG	Abrahamshrauner, B.	NGL 26-008-057	2375
13	WAYNE STATE UNIV	Brandhorst, H. W., Jr.	LERC	Wang, E. Y.	NSG 3014	2300
13	WESLEYAN UNIVERSITY	Strickland, A. T.	HQ-SM	Faller, J. E.	NGR 07-006-008	1606
13	WICHITA STATE UNIV	Rice, E. J.	LERC	Eversman, W.	NGR 17-003-018	1941
19	CALIF INST OF TECH	Eichelman, W. F.	JSC	Burnett, D. S.	NAS 9-12585	1172
19	CASE WESTERN RESERVE	Rayle, W. D.	LERC	Reshotko, E.	NGL 36-003-064	2692
19	CASE WESTERN RESERVE	Kohl, F. J.	LERC	Mateescu, G. D.	NSG 3009	2709
19	CLEMSON UNIV-CLEMSON	Lynch, T. J.	GSFC	Snelsire, R.	NGR 41-001-036	2887
19	COLLEGE VIRGIN ISLND	Harris, J. W.	JSC	McCord, T. B.	NGL 52-083-009	3367
19	COLORADO STATE UNIV	Rositano, S. A.	ARC	Histand, M. B.	NSG 2009	1550
19	COLUMBIA UNIVERSITY	Donley, J. L.	GSFC	Novick, R.	NAS 5-11362	2501

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19	COLUMBIA UNIVERSITY	Thaddeus, P.	GSFC	Woltjer, L.	NGL 33-008-012	2508
19	COLUMBIA UNIVERSITY	Eichelman, W. F.	JSC	Langseth, M. G.	NAS 9-6037	2506
19	COLUMBIA UNIVERSITY	Eichelman, W. F.	JSC	Talwani, M.	NAS 9-11751	2507
19	DC TEACHERS COLLEGE	Holland, A. C.	WFC	Curtis, W. C.	NGR 09-053-002	1639
19	GEORGIA INST OF TECH	Quattrone, P. D.	ARC	Orr, C.	NSG 2004	1756
19	GEORGIA INST OF TECH	Thomas, J. M.	MSFC	Hanagud, S. V.	NAS 8-30617	1733
19	HAMPTON INSTITUTE	Kim, H. H.	WFC	Trehan, A. K.	NGR 47-020-006	3169
19	LEHIGH UNIVERSITY	Bond, J. B.	MSFC	Vanderhoff, J. W.	NAS 8-28654	2808
19	LONG ISLAND UNIV	York, L. B.	JSC	Yost, E.	NAS 9-13308	2572
19	MASS INST OF TECH	Ostaff, W.	GSFC	Clark, G. W.	NAS 5-11082	2118
19	MASS INST OF TECH	Eichelman, W. F.	JSC	Simmons, D. G.	NAS 9-11540	2134
19	MASS INST OF TECH	Hacker, P. T.	LERC	Senturia, S. D.	NAS 3-17534	2116
19	MASS INST OF TECH	Adams, W. R.	MSFC	Gatos, H. C.	NAS 8-28306	2127
19	MASS INST OF TECH	Adams, W. R.	MSFC	Gatos, H. C.	NAS 8-30576	2133
19	MICHIGAN STATE UNIV	Forbes, C. D.	JSC	Manderscheid, L. V.	NAS 9-13332	2237
19	MORGAN STATE COLLEGE	Pohly, J. G.	HQ-PY	Proctor, N. K.	NGT 21-025-006	2010
19	NEW MEX ST U-LAS CR	Van Ess, J. C.	ARC	Connell, H. L.	NGR 2-6484	2459
19	NEW MEX ST U-LAS CR	Bissell, E. E.	GSFC	Lawrence, O. H.	NAS 5-23001	2465
19	NEW YORK INST TECH	Mangus, J. D.	GSFC	Stroke, G. W.	NGR 33-230-001	2574
19	NO CAROLINA STATE U	Hohl, F.	LARC	Hassan, H. A.	NSG 1058	2683
19	OHIO STATE UNIV	Cassen, P. M.	ARC	Kulacki, F. A.	NGR 36-008-205	2739
19	OHIO STATE UNIV	Nance, R. L.	JSC	Mueller, I. I.	NAS 9-13093	2727
19	OHIO STATE UNIV	Murphy, J. P.	HQ-ES	Mueller, I. I.	NGL 36-008-093	2730
19	OLD DOMINION UNIV	Hohl, F.	LARC	Harries, W. L.	NSG 1040	3206
19	OLD DOMINION UNIV	Wilson, J. W.	LARC	Khandelwal, G. S.	NSG 1055	3210
19	PENNSYLVANIA STATE U	Schmerling, E. R.	HQ-SG	Kendall, B. R.	NGL 39-009-032	2830
19	PRINCETON UNIVERSITY	McHatton, A. D.	LARC	Gillham, J. K.	NGR 31-001-272	2441
19	PRINCETON UNIVERSITY	Dunning, J. W., Jr.	LERC	Glassman, I.	NGR 31-001-312	2446
19	PURDUE UNIVERSITY	Gordon, F., Jr.	GSFC	Baumgardner, M. F.	NAS 5-21785	1873
19	RENSSELAER POLY-NY	Wood, G. M.	LARC	White, F. A.	NSG 1052	2608
19	RENSSELAER POLY-NY	Adams, W. R.	MSFC	Wiedemeier, H.	NAS 8-28307	2598
19	RENSSELAER POLY-NY	Adams, W. R.	MSFC	Wiedemeier, H.	NAS 8-30578	2599
19	SO DAKOTA STATE UNIV	Forbes, C. D.	JSC	Myers, V. I.	NAS 9-13337	2895
19	SO UNIV-BATON ROUGE	Curry, D. M.	JSC	Chehl, S. S.	NSG 9001	1978
19	STANFORD UNIVERSITY	York, L. B.	JSC	Lyon, R. P.	NAS 9-13357	1256
19	STANFORD UNIVERSITY	Kavanagh, L. D., Jr.	HQ-SG	Croft, T. A.	NGR 05-020-407	1278
19	TEXAS A&M UNIVERSITY	Matthews, R. E.	JSC	Rouse, J. W., Jr.	NAS 9-13782	3005
19	UNIV ALA-HUNTSVILLE	Adams, W. R.	MSFC	Walter, H. U.	NAS 8-28304	1044
19	UNIV OF ARIZONA	Griner, D. B.	MSFC	Tift, W. G.	NAS 8-27804	1109
19	UNIV OF ARIZONA	Kavanagh, L. D., Jr.	HQ-SG	Fan, C. Y.	NGR 03-002-107	1126
19	UNIV ARKANSAS-FAYETV	Potter, A. E.	JSC	Waite, W. P.	NAS 9-14251	1155
19	UNIV CALIF-BERKELEY	Roman, N. G.	HQ-SG	Townes, C. H.	NGL 05-003-272	1336
19	UNIV CALIF-L ANGELES	Adams, W. R.	MSFC	Yue, A. S.	NAS 8-28310	1398
19	UNIV CALIF-L ANGELES	Adams, W. R.	MSFC	Yue, A. S.	NAS 8-30579	1401
19	UNIV CALIF-SAN DIEGO	Donley, J. L.	GSFC	Peterson, L. E.	NAS 5-11081	1448
19	UNIV CALIF-SAN DIEGO	Schmerling, E. R.	HQ-SG	Banks, P. M.	NGR 05-009-256	1482
19	UNIV OF CHICAGO	Redding, E. R.	HQ-PY	Simpson, J. A.	NGR 14-001-224	1829
19	UNIV OF CINCINNATI	Liu, D. C.	LERC	Fedder, R. C.	NGR 36-004-060	2751
19	UNIV COLORADO-BOLDR	Hutchby, J. A.	LARC	Chernow, F.	NSG 1027	1577
19	UNIV COLORADO-BOLDR	Hutchby, J. A.	LARC	Chernow, F.	NSG 1037	1578
19	UNIV OF DENVER	Quattrone, P. D.	ARC	Ross, L. W.	NGR 06-004-125	1589
19	UNIV OF HOUSTON	York, L. B.	JSC	Hayre, H. S.	NAS 9-13462	3031
19	UNIV ILLINOIS-URBANA	Slye, R. F.	ARC	Ray, R. M.	NGR 14-005-202	1853
19	UNIV ILLINOIS-URBANA	Hohl, F.	LARC	Milev, G. H.	NSG 1063	1856
19	UNIV ILLINOIS-URBANA	Unavailable	HQ-RR	Worley, W. J.	NGR 14-005-010	1842
19	UNIV ILLINOIS-URBANA	Schmerling, E. R.	HQ-SG	Bowhill, S. A.	NGR 14-005-181	1847
19	UNIV OF KANSAS	York, L. B.	JSC	Yarger, H. L.	NAS 9-13271	1925
19	UNIV OF KANSAS	Forbes, C. D.	JSC	Eagleman, J. R.	NAS 9-13273	1926

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19	UNIV OF KANSAS	York, L. B.	JSC	Moore, R. K.	NAS 9-13331	1927
19	UNIV MARYLAND-COL PK	Smith, D. E.	GSFC	Currie, D. G.	NGR 21-002-390	2047
19	UNIV MARYLAND-COL PK	Eichelman, W. F.	JSC	Weber, J.	NAS 9-5886	2015
19	UNIV MARYLAND-COL PK	Coles, W. D.	LERC	Spain, I. L.	NGR 21-002-400	2050
19	UNIV MARYLAND-COL PK	Kavanagh, L. D., Jr.	HQ-SG	Wu, C. S.	NGL 21-002-005	2016
19	UNIV MD-EASTRN SHORE	Fitzmaurice, M. W.	GSFC	Singh, G.	NGR 21-119-001	2066
19	UNIV OF SOUTHERN CAL	Adams, W. R.	MSFC	Wilcox, W. R.	NAS 8-28305	1510
19	UNIV TEXAS-DALLAS	Eichelman, W. F.	JSC	Hoffman, J. H.	NAS 9-12074	3095
19	UNIV TEXAS-DALLAS	Dubin, M.	HQ-SG	Tinsley, B. A.	NGR 44-004-142	3107
19	UNIV OF UTAH	Williams, T. S., Jr.	LARC	Shorthill, R. W.	NAS 1-12705	3131
19	UNIV WISC-MADISON	Donley, J. L.	GSFC	Kraushaar, W. L.	NAS 5-11361	3322
19	VANDERBILT UNIVERSTY	Nichols, R. L.	MSFC	Kinser, D. L.	NAS 8-30656	2935
21	APPALACHIAN STATE U	Falls, L. W.	MSFC	Carter, M. C.	NAS 8-29286	2652
21	AUBURN UNIV-AUBURN	Cummings, R. E.	MSFC	Vachon, R. I.	NAS 8-30654	1022
21	BOWIE STATE COLLEGE	Mundy, J. R.	GSFC	Kirksey, C. H.	NGT 21-027-012	1990
21	BOWIE STATE COLLEGE	Pohly, J. G.	HQ-PY	Srivastava, S.	NGR 21-027-004	1987
21	BOWIE STATE COLLEGE	Pohly, J. G.	HQ-PY	Scurry, P. J.	NGT 21-027-009	1989
21	CAL STATE U-FULLERTN	Velez, C. E.	GSFC	Pierce, S.	NGR 05-071-005	1220
21	COPPIN STATE COLLEGE	Bracken, P. A.	GSFC	Sommerfeldt, D. E.	NGR 21-122-001	1993
21	FEDERAL CITY COLLEGE	Fuchs, A. J.	GSFC	Bakshi, J.	NGR 09-050-020	1646
21	GEORGIA INST OF TECH	Leybold, H. A.	LARC	Hanagud, S. V.	NGR 11-002-169	1748
21	GEORGIA INST OF TECH	Huggins, C. T.	MSFC	Walsh, J. R.	NAS 8-30919	1736
21	HARVARD UNIVERSITY	Rosenfeld, S. A.	HQ-RE	Book, R. V.	NGR 22-007-176	2090
21	IOWA STATE UNIV	Rakich, J. V.	ARC	Tannehill, J. C.	NGR 16-002-038	1901
21	MARQUETTE UNIVERSITY	Hinton, D. E.	LARC	Nigro, N. J.	NSG 1025	3314
21	NORFOLK STATE COL	Shodsmith, J. N.	LARC	Boseman, M.	NSG 1014	3175
21	NO CAROLINA STATE U	Armstrong, E. S.	LARC	Sagan, H.	NGL 34-002-032	2666
21	NO CAROLINA STATE U	Turner, R. E.	LARC	Moore, C. J.	NGR 34-002-184	2675
21	OAKLAND UNIVERSITY	Dragg, J. L.	JSC	Haskell, R. E.	NAS 9-14195	2243
21	RICE UNIVERSITY	Baker, K.	JSC	Lynn, M. S.	NAS 9-12776	2968
21	SOUTHERN METHODIST U	Wilson, R. H., Jr.	HQ-RW	Walsh, J. E.	NGR 44-007-028	2984
21	SYRACUSE UNIVERSITY	Pease, P. B.	GSFC	Foster, G. H.	NGR 33-022-150	2644
21	TEXAS A&M UNIVERSITY	Damon, E. P.	GSFC	Simmons, D. B.	NAS 5-11988	2991
21	TEXAS A&M UNIVERSITY	Pitts, D. E.	JSC	Guseman, L. D.	NAS 9-13894	3006
21	UNIV COLORADO-BOLDR	Hirschberg, M. H.	LERC	Essenburg, F.	NGR 06-003-236	1576
21	UNIV OF GEORGIA	Falls, L. W.	MSFC	Cohen, A. C.	NAS 8-11175	1767
21	UNIV OF HOUSTON	MacDonald, R. B.	JSC	Decell, H. P., Jr.	NAS 9-12777	3028
21	UNIV OF HOUSTON	Redding, E. R.	HQ-PY	Huang, C. J.	NGL 44-005-084	3036
21	UNIV ILLINOIS-URBANA	Unavailable	ARC	Unavailable	AF306 24144	1835
21	UNIV ILLINOIS-URBANA	Hart, J. P.	ARC	Sher, M. S.	NAS 2-7722	1836
21	UNIV ILLINOIS-URBANA	Schneck, P. B.	GSFC	Slotnick, D.	NAS 5-23334	1837
21	UNIV MARYLAND-COL PK	Grunby, E. I.	GSFC	Chu, Y.	NGR 21-002-197	2026
21	UNIV MARYLAND-COL PK	Pontious, C. E.	HQ-RE	Miller, J.	NGR 21-002-270	2031
21	UNIV MARYLAND-COL PK	Thom, K.	HQ-RR	Tidman, D. A.	NGR 21-002-408	2051
21	UNIV MICH-ANN ARBOR	Bavuso, S. J.	LARC	Meyer, J. E.	NGR 23-005-622	2289
21	UNIV MO-COLUMBIA	Dawson, C. T.	JSC	Tranter, W. H.	NAS 9-13436	2362
21	UNIV TENNESSEE-KNOXV	Velez, C. E.	GSFC	Feagin, T.	NGR 43-001-144	2928
21	UNIV TENNESSEE-KNOXV	Schaefer, D. H.	GSFC	Bodenheimer, R. E.	NSG 5002	2931
21	UNIV TENNESSEE-KNOXV	Fortenberry, W. H.	MSFC	Sherman, G. R.	NAS 8-30879	2917
21	UNIV TEXAS-AUSTIN	Velez, C. E.	GSFC	Nacozy, P. E.	NGR 44-012-255	3075
21	UNIV TEXAS-AUSTIN	Velez, C. E.	GSFC	Tapley, B. D.	NGR 44-012-269	3080
21	UNIV TEXAS-AUSTIN	Harvey, G. A.	LARC	Wray, J. D.	NAS 1-12762	3048
21	UNIV TEXAS-AUSTIN	Fehlberg, E.	MSFC	Bettis, D. G.	NAS 8-30245	3051
21	UNIV TEXAS-DALLAS	Baker, K.	JSC	Odell, P. L.	NAS 9-13512	3096
21	UNIV OF UTAH	Foreman, R. G.	JSC	Folias, E. S.	NGR 45-003-093	3145
21	UNIV OF VERMONT	Anliker, J. E.	ARC	Lai, D. C.	NGR 46-001-041	3154
21	UNIV WISC-MADISON	Pontious, C. E.	HQ-RE	Parmentier, R. D.	NGR 50-002-160	3342
21	UTAH STATE UNIV	Doolin, B. F.	ARC	Gunderson, R. W.	NGR 45-002-016	3150

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
21	VIRGINIA POLY INST	Llewellyn, C. P.	LARC	Hinkelmann, K.	NSG 1071	3272
21	VIRGINIA STATE COL	Pohly, J. G.	HQ-PY	Agrawal, D. M.	NGL 47-014-009	3275
31	ALCORN STATE UNIV	Schmid, P. E.	GSFC	Paul, M. P.	NGR 25-012-001	2333
31	BOSTON COLLEGE	Haughney, L. C.	ARC	Eather, R. H.	NGR 22-003-027	2069
31	BROWN UNIVERSITY	Soffen, G. A.	LARC	Mutch, T. A.	NAS 1-9680	2874
34	CAL STATE U-CHICO	Boese, R. W.	ARC	Regas, J. L.	NGL 05-076-001	1218
31	CAL STATE U-S DIEGO	Roosen, R. G.	GSFC	Angione, R. J.	NAS 5-23249	1224
31	CAL STATE U-SAN JOSE	Gloria, H. R.	ARC	Miller, A.	NAS 2-7616	1227
31	CAL STATE U-SAN JOSE	Whitten, R. C.	ARC	Miller, A.	NGR 05-046-020	1231
31	CITY COLLEGE OF N Y	Halem, M.	GSFC	Spar, J.	NGR 33-013-086	2497
31	CLARK COLLEGE	Pollack, J. B.	ARC	Kiang, C. S.	NGR 11-010-001	1718
31	CLEVELAND STATE UNIV	Riehle, H. G., Jr.	LARC	Peters, L. K.	NSG 1030	2716
31	COLORADO STATE UNIV	Wexler, R.	GSFC	Reiter, E. R.	NGR 06-002-098	1539
31	COLORADO STATE UNIV	Wexler, R.	GSFC	Vonder Haar, T. H.	NGR 06-002-102	1540
31	COLORADO STATE UNIV	Allison, L. J.	GSFC	Grant, L. O.	NSG 5011	1552
31	COLORADO STATE UNIV	Dragg, J.	JSC	Smith, J.	NAS 9-12972	1535
31	COLORADO STATE UNIV	Sweet, G. E.	LARC	Vonder Haar, T. H.	NAS 1-12106	1528
31	COLORADO STATE UNIV	Costen, R. C.	LARC	Sinclair, P. C.	NSG 1023	1549
31	CORNELL UNIVERSITY	Fellows, R. F.	HQ-SL	Sagan, C.	NGL 33-010-082	2543
31	CORNELL UNIVERSITY	Fellows, R. F.	HQ-SL	Gierasch, P. J.	NGL 33-010-186	2545
31	DARTMOUTH COLLEGE	Schmerling, E. R.	HQ-SG	Laaspere, T.	NGR 30-001-041	2396
31	DREXEL UNIVERSITY	Sweet, G. E.	LARC	House, F. B.	NAS 1-11871	2806
31	FAIRFIELD UNIVERSITY	Heath, D. F.	GSFC	McElaney, J. H.	NGR 07-010-002	1595
31	FLORIDA STATE UNIV	Soffen, G. A.	LARC	Hess, S. K.	NAS 1-9693	1680
31	GEORGE WASHINGTON U	Callis, L. B.	LARC	Liebowitz, H.	NSG 1026	1657
31	GEORGIA INST OF TECH	Fellows, R. F.	HQ-SL	Edwards, H. D.	NGL 11-002-004	1738
31	GRAMBLING COLLEGE	Pohly, J. G.	HQ-PY	Gajendar, N.	NGR 19-011-013	1958
31	HARVARD UNIVERSITY	Poppoff, I. G.	ARC	McElroy, M. B.	NSG 2031	2104
31	HARVARD UNIVERSITY	Findlay, J. A.	GSFC	McElroy, M. B.	NAS 5-23199	2081
31	HARVARD UNIVERSITY	Theon, J. S.	GSFC	Lindzen, R. S.	NGR 22-007-275	2100
31	HARVARD UNIVERSITY	Soffen, G. A.	LARC	McElroy, M. B.	NAS 1-10492	2079
31	HARVARD UNIVERSITY	Fellows, R. F.	HQ-SL	Goody, R. M.	NGL 22-007-228	2087
31	HARVARD UNIVERSITY	Fellows, R. F.	HQ-SL	Goody, R. M.	NGR 22-007-242	2093
31	HARVARD UNIVERSITY	Fellows, R. F.	HQ-SL	McElroy, M. B.	NGR 22-007-267	2096
31	JOHNS HOPKINS UNIV	Findlay, J. A.	GSFC	Doering, J. P.	NAS 5-11415	1995
31	KANSAS STATE UNIV	Fellows, R. F.	HQ-SL	Williams, D.	NGL 17-001-026	1919
31	MASS INST OF TECH	Reynolds, R. T.	ARC	Prinn, R. G.	NSG 2010	2210
31	MASS INST OF TECH	Unavailable	GSFC	Unavailable	NAS 5-21980	2121
31	MASS INST OF TECH	Witheit, T. T.	GSFC	Barrett, A. H.	NGR 22-009-421	2166
31	MASS INST OF TECH	Halem, M.	GSFC	Charney, J.	NGR 22-009-727	2188
31	MASS INST OF TECH	Eichelman, W. F.	JSC	Press, F.	NAS 9-12334	2135
31	MASS INST OF TECH	Howell, J. Q.	LARC	Staelin, D. H.	NAS 1-10693	2111
31	MASS INST OF TECH	Roman, N. G.	HQ-SG	Shapiro, I. I.	NGR 22-009-366	2164
31	MASS INST OF TECH	Fellows, R. F.	HQ-SL	Lewis, J. S.	NGL 22-009-521	2153
31	MASS INST OF TECH	Fellows, R. F.	HQ-SL	Pettengill, G. H.	NGR 22-009-693	2182
31	MASS INST OF TECH	Fellows, R. F.	HQ-SL	Shapiro, I. I.	NGR 22-009-694	2183
31	MASS INST OF TECH	Fellows, R. F.	HQ-SL	Shapiro, I. I.	NGR 22-009-804	2202
31	NEW MEX ST U-LAS CR	Fellows, R. F.	HQ-SL	Smith, B. A.	NGR 32-003-076	2471
31	NEW YORK UNIVERSITY	Halem, M.	GSFC	Schaeffer, O. A.	NGL 33-016-013	2579
31	NEW YORK UNIVERSITY	Halem, M.	GSFC	Spar, J.	NGR 33-016-174	2583
31	NO CAROLINA STATE U	Sidney, B. D.	LARC	Hassan, H. A.	NSG 1013	2682
31	OHIO STATE UNIV	Hirschmann, E.	GSFC	Ksienski, A. A.	NAS 5-21983	2725
31	OLD DOMINION UNIV	Hulten, W. C.	LARC	Harris, F. S., Jr.	NGR 47-003-068	3191
31	OLD DOMINION UNIV	Melfi, L. T., Jr.	LARC	Clay, F. P.	NGR 47-003-082	3196
31	OLD DOMINION UNIV	Keating, G. M.	LARC	Goghia, G. L.	NSG 1028	3203
31	OLD DOMINION UNIV	Remsberg, E. E.	LARC	Kindle, E. C.	NSG 1060	3211
31	OLD DOMINION UNIV	Vitale, J. A.	HQ-PY	Kindle, E. C.	NGL 47-003-067	3186
31	PENNSYLVANIA STATE U	Fichtl, G.	MSFC	Blackadar, A. K.	NAS 8-21140	2821

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31	PENNSYLVANIA STATE U	Fichtl, G. H.	MSFC	Dutton, J. A.	NAS 8-27334	2822
31	RENSSELAER POLY-NY	Fellows, R. F.	HQ-SL	Harteck, P.	NGL 33-018-007	2601
31	RICE UNIVERSITY	Fellows, R. F.	HQ-SL	Chamberlain, J. W.	NSG 7043	2981
31	RICE UNIVERSITY	Hanley, J. B.	HQ-SM	Reasoner, D. L.	NSG 7025	2979
31	RICE UNIVERSITY	Hanley, J. B.	HQ-SM	Michel, F. C.	NSG 7032	2980
31	STANFORD UNIVERSITY	Hightower, W. D.	ARC	Croft, T. A.	NAS 2-7959	1246
31	STANFORD UNIVERSITY	Northam, G. B.	LARC	Byer, R. L.	NSG 1012	1308
31	STANFORD UNIVERSITY	Kavanagh, L. D., Jr.	HQ-SG	Darosa, A. V.	NGR 05-020-001	1273
31	STANFORD UNIVERSITY	Fellows, R. F.	HQ-SL	Howard, H. T.	NGL 05-020-014	1260
31	STATE U NY-STONY BRK	Hansen, J.	GSFC	Owen, T.	NGR 33-015-165	2630
31	STATE U NY-STONY BRK	Hansen, J. E.	GSFC	Cess, R. D.	NSG 5015	2636
31	STATE U NY-STONY BRK	Fellows, R. F.	HQ-SL	Varanasi, P.	NGR 33-015-139	2625
31	TEXAS A&M UNIVERSITY	Ehernberger, L. J.	FRC	Scoggins, J. R.	NGR 44-001-081	3011
31	TEXAS A&M UNIVERSITY	Williams, T. S.	LARC	Young, A. T.	NAS 1-12840	2987
31	TEXAS A&M UNIVERSITY	Fichtl, G. H.	MSFC	Brundidge, K. C.	NAS 8-29582	2995
31	TEXAS A&M UNIVERSITY	Fichtl, G. H.	MSFC	Scoggins, J. R.	NAS 8-29764	2996
31	TEXAS A&M UNIVERSITY	Fellows, R. F.	HQ-SL	Plass, G. N.	NGR 44-001-117	3012
31	TEXAS SOUTHERN UNIV	Shields, V. E.	JSC	Wilson, R. F.	NSG 9009	3018
31	UNIV ALA-HUNTSVILLE	Smith, R. E.	MSFC	Hung, R. J.	NAS 8-30616	1057
31	UNIV ALASKA-FAIRBNKS	Gray, J. W.	WFC	Davis, T. N.	NAS 6-1932	1082
31	UNIV ALASKA-FAIRBNKS	Dubin, M.	HQ-SG	Wescott, E. M.	NGR 02-001-088	1087
31	UNIV OF ARIZONA	Tischler, E.	ARC	Tomasko, M.	NAS 2-7883	1099
31	UNIV OF ARIZONA	Curran, R. J.	GSFC	Herman, B. M.	NGR 03-002-155	1127
31	UNIV OF ARIZONA	Heath, D. F.	GSFC	Herman, B. M.	NGR 03-002-382	1143
31	UNIV OF ARIZONA	Toft, P. D.	KSC	Krider, E. P.	NAS10-8518	1115
31	UNIV OF ARIZONA	Kavanagh, L. D., Jr.	HQ-SG	Sonett, C. P.	NSG 7024	1152
31	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Gehrels, A. M.	NASR 138	1113
31	UNIV OF ARIZONA	Fellows, R. F.	HQ-SL	Hoening, S. A.	NGL 03-002-019	1119
31	UNIV OF AUCKLAND	Schmerling, E. R.	HQ-SG	Titheridge, J. E.	NGR 52-001-001	3377
31	UNIV CALIF-BERKELEY	Craddock, W. L.	JSC	Alvarez, L. W.	NAS 9-7801	1326
31	UNIV CALIF-BERKELEY	Neuschafer, R. W.	MSFC	Alvarez, L. W.	NAS 8-29704	1325
31	UNIV CALIF-BERKELEY	Dubin, M.	HQ-SG	Cunningham, L. E.	NGR 05-003-309	1344
31	UNIV CALIF-BERKELEY	Dubin, M.	HQ-SG	Mozer, F. S.	NGR 05-003-445	1350
31	UNIV CALIF-BERKELEY	Fellows, R. F.	HQ-SL	Pimentel, G. C.	NGL 05-003-286	1337
31	UNIV CALIF-DAVIS	Wrigley, R. C.	ARC	Goldman, C. R.	NAS 2-7516	1379
31	UNIV CALIF-L ANGELES	Ehernberger, L. J.	FRC	Wurtele, M. G.	NSG 4001	1438
31	UNIV CALIF-L ANGELES	Bandeem, W. R.	GSFC	Kuriyan, J. G.	NAS 5-21968	1396
31	UNIV CALIF-L ANGELES	Wexler, R.	GSFC	Mintz, Y.	NGR 05-007-091	1416
31	UNIV CALIF-L ANGELES	Halem, M.	GSFC	Mintz, Y.	NGR 05-007-328	1425
31	UNIV CALIF-L ANGELES	Fellows, R. F.	HQ-SL	Kieffer, H. H.	NGR 05-007-437	1435
31	UNIV CALIF-RIVERSIDE	Reichle, H. G., Jr.	LARC	Behar, J. V.	NAS 1-10373	1442
31	UNIV CALIF-SAN DIEGO	Schmerling, E. R.	HQ-SG	Banks, P. M.	NGR 05-009-075	1467
31	UNIV CALIF-SAN DIEGO	Schmerling, E. R.	HQ-SG	Douppnik, J. R.	NSG 7001	1486
31	UNIV OF CHICAGO	Shenk, W. E.	GSFC	Fujita, T. T.	NGR 14-001-008	1822
31	UNIV OF CHICAGO	Fellows, R. F.	HQ-SL	Kaplan, L. D.	NGR 14-001-194	1826
31	UNIV COLORADO-BOLDR	Sinnott, D.	ARC	Stewart, I.	NAS 2-7901	1553
31	UNIV COLORADO-BOLDR	Donley, J. L.	GSFC	Brunner, E. C.	NAS 5-11363	1554
31	UNIV COLORADO-BOLDR	Findlay, J. A.	GSFC	Barth, C. A.	NAS 5-11405	1555
31	UNIV COLORADO-BOLDR	Dubin, M.	HQ-SG	Barth, C. A.	NGL 06-003-064	1559
31	UNIV COLORADO-BOLDR	Fellows, R. F.	HQ-SL	Barth, C. A.	NGL 06-003-052	1557
31	UNIV COLORADO-BOLDR	Fellows, R. F.	HQ-SL	Barth, C. A.	NGR 06-003-127	1563
31	UNIV COLORADO-BOLDR	Fellows, R. F.	HQ-SL	Thomas, G. E.	NGR 06-003-201	1569
31	UNIV OF DAYTON	Duke, J. R.	WFC	Luers, J. K.	NAS 6-2456	2761
31	UNIV OF DENVER	Russell, J. M., III	LARC	Murcraay, D. G.	NGR 06-004-128	1590
31	UNIV OF DENVER	Russell, J. M., III	LARC	Murcraay, D. G.	NGR 06-004-131	1591
31	UNIV OF FLORIDA	Michalski, J. P.	KSC	Bartholic, J. F.	NAS10-8404	1690
31	UNIV OF FLORIDA	Toft, P. D.	KSC	Uman, M. A.	NGR 10-005-169	1700
31	UNIV OF FLORIDA	Fellows, R. F.	HQ-SL	Green, A. S.	NGL 10-005-008	1692

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31	UNIV ILLINOIS-URBANA	Schmerling, E. R.	HQ-SG	Yeh, K. C.	NGR 14-005-002	1841
31	UNIV OF IOWA	Davis, M. A.	GSFC	Gurnett, D. A.	NAS 5-11431	1911
31	UNIV MARYLAND-COL PK	Abid, G. E.	GSFC	Smith, E. P.	NGL 21-002-033	2018
31	UNIV MARYLAND-COL PK	Brace, L. H.	GSFC	Matthews, D. L.	NGR 21-002-096	2025
31	UNIV MARYLAND-COL PK	Mentzer, R.	GSFC	Pai, S. I.	NGR 21-002-296	2034
31	UNIV MARYLAND-COL PK	Arking, A.	GSFC	Rosenfeld, A.	NGR 21-002-378	2045
31	UNIV MARYLAND-COL PK	Wagner, H. S.	LARC	Davis, D. D.	NSG 1035	2059
31	UNIV MARYLAND-COL PK	Northam, G. B.	LARC	Wilkerson, T. D.	NSG 1036	2060
31	UNIV MARYLAND-COL PK	Wagner, H. S.	LARC	Davis, D. D.	NSG 1075	2061
31	UNIV MARYLAND-COL PK	Dubin, M.	HQ-SG	Poultney, S. K.	NGR 21-002-219	2028
31	UNIV MD-EASTRN SHORE	Pohly, J. G.	HQ-PY	Singh, G.	NGR 21-119-003	2068
31	UNIV MICH-ANN ARBOR	Wilhelmi, A. J.	ARC	Nagy, A. F.	NAS 2-7877	2245
31	UNIV MICH-ANN ARBOR	Niemann, H. B.	GSFC	Carignan, G. R.	NAS 5-11128	2247
31	UNIV MICH-ANN ARBOR	Pelz, D. T.	GSFC	Carignan, G. R.	NAS 5-11376	2250
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-11380	2251
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-21038	2253
31	UNIV MICH-ANN ARBOR	Wright, D. U., Jr.	GSFC	Horvath, R.	NAS 5-21147	2254
31	UNIV MICH-ANN ARBOR	Findlay, J. A.	GSFC	Hays, P. B.	NAS 5-23006	2255
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-23230	2256
31	UNIV MICH-ANN ARBOR	Spencer	GSFC	Unavailable	NAS 5-23310	2258
31	UNIV MICH-ANN ARBOR	Wexler, R.	GSFC	Bartman, F. L.	NSR 23-005-376	2295
31	UNIV MICH-ANN ARBOR	Hudson, R. D.	JSC	Stolarski, R. S.	NGR 23-005-616	2287
31	UNIV MICH-ANN ARBOR	Russell, J. M., III	LARC	Bartman, F. L.	NGR 23-005-538	2277
31	UNIV MICH-ANN ARBOR	Reichle, H. G., Jr.	LARC	Drayson, S. R.	NGR 23-005-617	2288
31	UNIV MICH-ANN ARBOR	Russell, J. M., III	LARC	Drayson, S. R.	NSG 1003	2290
31	UNIV MICH-ANN ARBOR	Devries, L. L.	MSFC	Stedman, D. H.	NAS 8-30625	2261
31	UNIV MICH-ANN ARBOR	Schmerling, E. R.	HQ-SG	Nagy, A. F.	NGR 23-005-015	2267
31	UNIV MICH-ANN ARBOR	Dubin, M.	HQ-SG	Bartman, F. L.	NGR 23-005-540	2278
31	UNIV MICH-ANN ARBOR	Fellows, W. R.	HQ-SL	Liu, V. C.	NGR 23-005-094	2268
31	UNIV MICH-ANN ARBOR	Fellows, R. F.	HQ-SL	Carignan, G. R.	NGR 23-005-561	2281
31	U MINN-MNPLS-ST PAUL	Polaski, L. J.	ARC	Von Zahn, U.	NAS 2-7900	2303
31	U MINN-MNPLS-ST PAUL	Findlay, J. A.	GSFC	Nier, A. O.	NAS 5-11438	2307
31	U MINN-MNPLS-ST PAUL	Soffen, G. A.	LARC	Nier, A. O.	NAS 1-9697	2301
31	U MINN-MNPLS-ST PAUL	Melfi, L. T., Jr.	LARC	Nier, A. O.	NAS 1-11676	2302
31	U MINN-MNPLS-ST PAUL	Fellows, R. F.	HQ-SL	Nier, A. O.	NGL 24-005-009	2313
31	UNIV NEBRASKA-LINCLN	Brunk, W. E.	HQ-SL	Samson, J. A.	NGR 28-004-021	2389
31	UNIV NEW BRUNSWICK	Reichle, H. G., Jr.	LARC	Young, C.	NGR 52-163-001	3370
31	UNIV NEW HAMPSHIRE	Orwig, L. E.	GSFC	Chinburg, D. L.	NAS 5-23263	2400
31	UNIV OKLAHOMA-NORMAN	Pitts, D. E.	JSC	Sasaki, Y.	NAS 9-13360	2777
31	UNIV OKLAHOMA-NORMAN	Turner, R. E.	MSFC	Inman, R. L.	NAS 8-28659	2775
31	UNIV OREGON-EUGENE	Cameron, R. M.	ARC	Donnelly, R. J.	NGR 38-003-034	2791
31	UNIV OF PITTSBURGH	Dubin, M.	HQ-SG	Donahue, T. M.	NGR 39-011-113	2862
31	UNIV OF PITTSBURGH	Brunk, W. E.	HQ-SL	Fite, W. L.	NGL 39-011-013	2857
31	UNIV OF PITTSBURGH	Fellows, R. F.	HQ-SL	Zipf, E. C.	NGL 39-011-030	2858
31	UNIV OF PITTSBURGH	Fellows, R. F.	HQ-SL	Biondi, M. A.	NGR 39-011-137	2864
31	UNIV OF PITTSBURGH	Fellows, R. F.	HQ-SL	Donahue, T. M.	NGR 39-011-155	2867
31	UNIV OF SO CAROLINA	Fellows, R. F.	HQ-SL	Durig, J. R.	NGL 41-002-003	2891
31	UNIV OF SOUTHERN CAL	Fellows, R. F.	HQ-SL	Maxworthy, T.	NGR 05-018-178	1518
31	UNIV OF SOUTHERN CAL	Fellows, R. F.	HQ-SL	Judge, D. L.	NGR 05-018-180	1519
31	UNIV TENNESSEE-KNOXV	Broderick, J. C.	GSFC	Rehder, J. B.	NAS 5-21726	2907
31	UNIV TENNESSEE-KNOXV	Fellows, R. F.	HQ-SL	Gailar, N. M.	NGL 43-001-006	2918
31	UNIV TEXAS-DALLAS	Polaski, L. J.	ARC	Hoffman, J. H.	NAS 2-7865	3089
31	UNIV TEXAS-DALLAS	Polaski, L. J.	ARC	Hoffman, J.	NAS 2-8302	3090
31	UNIV TEXAS-DALLAS	Jackson, J. E.	GSFC	Hoffman, J. H.	NAS 5-11003	3091
31	UNIV TEXAS-DALLAS	Jackson, J. E.	GSFC	Heikkila, W. J.	NAS 5-11011	3092
31	UNIV TEXAS-DALLAS	Findlay, J. A.	GSFC	Hoffman, J. H.	NAS 5-11406	3093
31	UNIV TEXAS-DALLAS	Findlay, J. A.	GSFC	Hanson, W. B.	NAS 5-11407	3094
31	UNIV TEXAS-DALLAS	Soffen, G. A.	LARC	Hanson, W. B.	NAS 1-9699	3088

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31	UNIV TEXAS-DALLAS	Schmerling, E. R.	HQ-SG	Heikkila, W. J.	NGR 44-004-030	3101
31	UNIV TEXAS-DALLAS	Schmerling, E. R.	HQ-SG	Heikkila, W. J.	NGR 44-004-124	3105
31	UNIV TEXAS-DALLAS	Schmerling, E. R.	HQ-SG	Heikkila, W. J.	NGR 44-004-150	3108
31	UNIV TEXAS-DALLAS	Fellows, R. F.	HQ-SL	Johnson, F. S.	NGL 44-004-001	3098
31	UNIV TEXAS-DALLAS	Fellows, R. F.	HQ-SL	Johnson, F. S.	NGL 44-004-026	3099
31	UNIV TEXAS-DALLAS	Hanley, J. B.	HQ-SM	Hodges, R. R., Jr.	NSG 7034	3109
31	UNIV OF UTAH	Hardesty, C. A.	LARC	Staffanson, F. L.	NGL 45-003-025	3141
31	UNIV OF UTAH	Schmidlin, F. J.	WFC	Staffanson, F. L.	NAS 6-1908	3134
31	UNIV OF UTAH	Duke, J. R.	WFC	Kao, S. K.	NAS 6-2498	3135
31	UNIV OF WASHINGTON	Treon, S. L.	GSFC	Leovy, C. B.	NGR 48-002-125	3295
31	UNIV OF WASHINGTON	Fellows, R. F.	HQ-SL	Leovy, C. B.	NGR 48-002-073	3292
31	UNIV OF WASHINGTON	Fellows, R. F.	HQ-SL	Leovy, C. B.	NGR 48-002-162	3304
31	UNIV WISC-MADISON	Tischler, E.	ARC	Weinman, J. A.	NAS 2-7882	3317
31	UNIV WISC-MADISON	Greaves, J. R.	GSFC	Erickson, R. W.	NAS 5-21794	3325
31	UNIV WISC-MADISON	Bandeem, W. R.	GSFC	Suomi, V. E.	NAS 5-21798	3326
31	UNIV WISC-MADISON	Moody, J. C.	GSFC	Suomi, V. E.	NAS 5-21965	3327
31	UNIV WISC-MADISON	Greaves, J.	GSFC	Suomi, V. E.	NAS 5-23296	3329
31	UNIV WISC-MADISON	Halem, M.	GSFC	Suomi, V. E.	NGR 50-002-215	3348
31	UNIV WISC-MADISON	Smith, G. L.	LARC	Suomi, V. E.	NAS 1-13204	3315
31	UNIV WISC-MADISON	Reimsberg, E. E.	LARC	Weinman, J. A.	NSG 1057	3351
31	UNIV WISC-MADISON	Fellows, R. F.	HQ-SL	Weinman, J. A.	NGR 50-002-140	3341
31	UNIV WISC-MADISON	Fellows, R. F.	HQ-SL	Suomi, V. E.	NGR 50-002-189	3346
31	UNIV OF WYOMING	Mason, R. H.	ARC	Hackwell, J. A.	NGR 51-001-036	3363
31	UNIV OF WYOMING	Mauldin, L. E.	LARC	Pepin, T. J.	NAS 1-12798	3356
31	UNIV OF WYOMING	Crumbly, K. H.	LARC	Pepin, T. J.	NAS 1-13213	3357
31	UNIV OF WYOMING	McCormick, M. P.	LARC	Schroeder, D. J.	NGR 51-001-045	3364
31	UNIV OF WYOMING	Mauldin, L. E.	LARC	Pepin, T. J.	NSG 1006	3365
31	UNIV OF WYOMING	Fuller, W. H., Jr.	LARC	Rosen, J. M.	NSG 1009	3366
31	UTAH STATE UNIV	Lowenstein, M.	ARC	Available, U. N.	NAS 2-8108	3148
31	VIRGINIA POLY INST	Byvik, C. E.	LARC	Wightman, J. P.	NAS 1-10646	3240
31	VIRGINIA POLY INST	Spurling, J. F.	WFC	Tieleman, H. W.	NGL 47-004-067	3247
31	YALE UNIVERSITY	Findlay, J. A.	GSFC	Walker, J. W.	NAS 5-23004	1607
31	YALE UNIVERSITY	Schmerling, E. R.	HQ-SG	Walker, J. C.	NGR 07-004-109	1613
31	YALE UNIVERSITY	Fellows, R. F.	HQ-SL	Cross, R. J., Jr.	NGL 07-004-043	1610
31	YORK UNIVERSITY	Baker, C. E.	LERC	Schiff, H. I.	NGR 52-134-005	3371
32	ARIZONA STATE UNIV	Bryson, R. P.	HQ-SM	Veziroglu, T. N.	NGL 03-001-001	1091
32	ARIZONA STATE UNIV	Hanley, J. B.	HQ-SM	Larimer, J. W.	NSG 7040	1094
32	BOSTON UNIVERSITY	Young, R. S.	HQ-SL	Margulis, L.	NGR 22-004-025	2074
32	BOSTON UNIVERSITY	Bryson, R. P.	HQ-SM	Brewer, T.	NGR 22-004-027	2075
32	BROWN UNIVERSITY	Harris, J. W.	JSC	Rutherford, M. J.	NGR 40-002-123	2881
32	BROWN UNIVERSITY	Dwornik, S. E.	HQ-SL	Mutch, T. A.	NGR 40-002-088	2878
32	BROWN UNIVERSITY	Kosofsky, L. J.	HQ-SM	Head, J. W.	NGR 40-002-116	2880
32	CALIF INST OF TECH	Wilmarth, V. R.	JSC	Silver, L. T.	NAS 9-13960	1173
32	CALIF INST OF TECH	Bates, J. R.	JSC	Silver, L. T.	NGR 05-002-159	1196
32	CALIF INST OF TECH	Soffen, G. A.	LARC	Anderson, D. L.	NAS 1-9703	1161
32	CALIF INST OF TECH	Dwornik, S. E.	HQ-SL	Murray, B. C.	NGR 05-002-117	1192
32	CALIF INST OF TECH	Dwornik, S. E.	HQ-SL	Leighton, R. B.	NGR 05-002-181	1198
32	CALIF INST OF TECH	Dwornik, S. E.	HQ-SL	Shoemaker, E. M.	NGR 05-002-302	1206
32	CALIF INST OF TECH	Dwornik, S. E.	HQ-SL	Shoemaker, E. M.	NGR 05-002-303	1207
32	CALIF INST OF TECH	Dwornik, S. E.	HQ-SL	Murray, B. C.	NGR 05-002-305	1208
32	CALIF INST OF TECH	Young, R. S.	HQ-SL	Bonner, J.	NGR 05-002-310	1210
32	CALIF INST OF TECH	Dwornik, S. E.	HQ-SL	Anderson, D. L.	NGR 05-002-316	1211
32	CALIF INST OF TECH	Bryson, R. P.	HQ-SM	Anderson, D. L.	NGL 05-002-069	1179
32	CALIF INST OF TECH	Bryson, R. P.	HQ-SM	Ahrens, T. J.	NGL 05-002-105	1181
32	CALIF INST OF TECH	Bryson, R. P.	HQ-SM	Ingersoll, A. P.	NGR 05-002-158	1195
32	CALIF INST OF TECH	Bryson, R. P.	HQ-SM	Burnett, D. S.	NSG 7023	1216
32	CAL STATE U-S DIEGO	Bryson, R. P.	HQ-SM	Rehfuss, D. E.	NSG 7026	1225
32	CITY COLLEGE OF N Y	Rossi, L. C.	WFC	Pierson, W. J.	NAS 6-2439	2488

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32	CITY U N Y-GRAD SCHL	Kosofsky, L. J.	HQ-SM	Saxena, S. K.	NSG 7028	2499
32	COLLEGE VIRGIN ISLND	Bryson, R. P.	HQ-SM	Adams, J. B.	NGR 52-083-003	3368
32	COLORADO SCH OF MINE	Stonesifer, G. R.	GSFC	Reeves, R. G.	NAS 5-21778	1525
32	COLORADO SCH OF MINE	Miller, M. L.	JSC	Lee, K.	NAS 9-13394	1526
32	COLORADO STATE UNIV	Carpenter, L. H.	GSFC	Thompson, E. G.	NGR 06-002-191	1548
32	COLORADO STATE UNIV	Gedney, R. T.	LERC	Vickers, R. S.	NAS 3-17213	1530
32	COLUMBIA UNIVERSITY	Smith, D. E.	GSFC	Scholz, C. H.	NGR 33-008-146	2515
32	COLUMBIA UNIVERSITY	Bryson, R. P.	HQ-SM	Dalziel, I. W.	NGR 33-008-106	2513
32	CORNELL UNIVERSITY	Raring, R. H.	HQ-SL	Unavailable	NASW 2445	2535
32	CORNELL UNIVERSITY	Dwornik, S. E.	HQ-SL	Sagan, C.	NGR 33-010-220	2564
32	CORNELL UNIVERSITY	Bryson, R. P.	HQ-SM	Gold, T.	NGL 33-010-005	2537
32	CORNELL UNIVERSITY	Bryson, R. P.	HQ-SM	Turcotte, D. L.	NGR 33-010-108	2549
32	CORNELL UNIVERSITY	Bryson, R. P.	HQ-SM	Kuckes, A. F.	NGR 33-010-178	2557
32	DARTMOUTH COLLEGE	Miller, M. L.	JSC	Stoiber, R. E.	NAS 9-13311	2395
32	DE ANZA COLLEGE	Blanchard, M. B.	ARC	Cotton, W. R.	NSG 2005	1232
32	FAIRLEIGH-DICKNSON U	Bryson, R. P.	HQ-SM	Adams, J. B.	NGL 31-006-010	2407
32	FAIRLEIGH-DICKNSON U	Kosofsky, L. J.	HQ-SM	Hartung, J. B.	NSG 7047	2409
32	HAMILTON COLLEGE	Dwornik, S. E.	HQ-SL	Potter, D. B.	NGR 33-192-001	2568
32	HARVARD UNIVERSITY	Young, R. S.	HQ-SL	Barghoorn, E. S.	NGL 22-007-069	2084
32	HARVARD UNIVERSITY	Dwornik, S. E.	HQ-SL	Cameron, A. G.	NGR 22-007-269	2097
32	HARVARD UNIVERSITY	Bryson, R. P.	HQ-SM	Hays, J. F.	NGR 22-007-175	2089
32	INDIANA U-BLOOMINGTN	Gordon, F., Jr.	GSFC	Wier, C. E.	NAS 5-21795	1861
32	INDIANA U-BLOOMINGTN	Young, R. S.	HQ-SL	Hayes, J. M.	NGR 15-003-118	1869
32	JOHNS HOPKINS UNIV	Kavanagh, L. D., Jr.	HQ-SG	Krimigis, S. M.	NGR 21-001-119	2004
32	JOHNS HOPKINS UNIV	Bryson, R. P.	HQ-SM	Marcus, A. H.	NGR 21-001-080	2001
32	LEHIGH UNIVERSITY	Kosofsky, L. J.	HQ-SM	Goldstein, J. I.	NGR 39-007-043	2812
32	LONG ISLAND UNIV	Gordon, F.	GSFC	Yost, E.	NAS 5-21793	2571
32	LONG ISLAND UNIV	Jastrow, R.	GSFC	Yost, E.	NGR 33-151-006	2573
32	MASS INST OF TECH	Brunk, W. E.	HQ-SL	Barrett, A. H.	NGL 22-009-016	2143
32	MASS INST OF TECH	Dwornik, S. E.	HQ-SL	Thomas, T. B.	NGR 22-009-625	2176
32	MASS INST OF TECH	Dwornik, S. E.	HQ-SL	McGetchin, T. R.	NGR 22-009-637	2178
32	MASS INST OF TECH	Bryson, R. P.	HQ-SM	McCord, T. B.	NGR 22-009-350	2163
32	MASS INST OF TECH	Bryson, R. P.	HQ-SM	McCord, T. B.	NGR 22-009-790	2199
32	MASS INST OF TECH	Kosofsky, L. J.	HQ-SM	McCord, T. B.	NSG 7048	2216
32	MISSISSIPPI STATE U	Stonesifer, G. R.	GSFC	Ingels, F. M.	NAS 5-21817	2340
32	NEW MEX ST U-LAS CR	Dwornik, S. E.	HQ-SL	Smith, B. A.	NGR 32-003-075	2470
32	NO CAROLINA STATE U	Ensor, G. J.	GSFC	Welby, C. W.	NAS 5-21732	2663
32	NORTHWESTERN UNIV	Bryson, R. P.	HQ-SM	Hynek, J. A.	NGL 14-007-016	1791
32	OHIO STATE UNIV	Smith, D. E.	GSFC	Rapp, R. H.	NGR 36-008-161	2735
32	OHIO STATE UNIV	Stanley, H. R.	WFC	Rapp, R. H.	NAS 6-2484	2726
32	OHIO STATE UNIV	Murphy, J. P.	HQ-ES	Mueller, I. I.	NASW 2435	2728
32	OHIO STATE UNIV	Murphy, J. P.	HQ-ES	Mueller, I.	NGR 36-008-204	2738
32	OREGON STATE UNIV	Bryson, R. P.	HQ-SM	Schmitt, R. A.	NGL 38-002-020	2780
32	PAN AMERICAN UNIV	Huntress, W. T.	JPL	Glaser, F. M.	NGR 44-087-002	2956
32	PENNSYLVANIA STATE U	Miller, M. L.	JSC	McMurtry, G. J.	NAS 9-13406	2823
32	PENNSYLVANIA STATE U	Bryson, R. P.	HQ-SM	Gold, D. P.	NGL 39-009-010	2828
32	PRESCOTT COLLEGE	Miller, M. L.	JSC	Gumerman, G. J.	NAS 9-13342	1095
32	PRINCETON UNIVERSITY	Bryson, R. P.	HQ-SM	Phinney, R. A.	NGR 31-001-274	2442
32	PURDUE UNIVERSITY	Lynch, T. J.	GSFC	Wintz, P. A.	NSG 5010	1896
32	PURDUE UNIVERSITY	Bryson, R. P.	HQ-SM	Lipschutz, M. E.	NGL 15-005-140	1881
32	RICE UNIVERSITY	Meese, K. J.	GSFC	Anderson, H. R.	NAS 5-9317	2962
32	RICE UNIVERSITY	Harris, J. W.	JSC	Heymann, D.	NGL 44-006-127	2972
32	RICE UNIVERSITY	Harris, J. W.	JSC	Powell, B. N.	NGR 44-006-142	2974
32	SO DAKOTA SCHL MINES	Bryson, R. P.	HQ-SM	Rahn, P. H.	NGR 42-001-006	2893
32	STANFORD UNIVERSITY	Crump, E. W.	GSFC	Rich, E. I.	NAS 5-21775	1250
32	STANFORD UNIVERSITY	Crump, E. W.	GSFC	Lyon, R. P.	NAS 5-21884	1251
32	STANFORD UNIVERSITY	Holt, H. E.	HQ-SL	Howard, H. T.	NGR 05-020-649	1294
32	STANFORD UNIVERSITY	Bryson, R. P.	HQ-SM	Tyler, G. L.	NSG 7029	1313

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32	STATE UNIV NY-BUFFAL	Dwornik, S. E.	HQ-SL	King, J. S.	NGR 33-015-108	2618
32	ST U NY COL-GENESEO	Hardee, S. N.	JSC	Young, R. A.	NAS 9-12770	2641
32	STATE U NY-STONY BRK	Kosofsky, L. J.	HQ-SM	Hartung, J. B.	NSG 7036	2638
32	TEXAS A&M UNIVERSITY	Potter, A. E.	JSC	Toler, R. W.	NAS 9-13545	3003
32	TEXAS A&M UNIVERSITY	Turner, R. E.	MSFC	Scoggins, J. R.	NAS 8-26751	2994
32	TEXAS A&M UNIVERSITY	Bryson, R. P.	HQ-SM	Rowe, M. W.	NGR 44-001-152	3014
32	TULANE UNIVERSITY	Dwornik, S. E.	HQ-SL	Meyer, J. D.	NGR 19-002-038	1983
32	UNIV ALA-HUNTSVILLE	Morton, R. R.	MSFC	Rossing, L. M.	NAS 8-30772	1059
32	UNIV ALA-TUSCALOOSA	Bensko, J., Jr.	MSFC	Hughes, T. H.	NAS 8-29936	1071
32	UNIV ALA-TUSCALOOSA	Bensko, J., Jr.	MSFC	Stow, S. H.	NAS 8-29937	1072
32	UNIV ALASKA-FAIRBNS	Crump, E. W.	GSFC	Belon, A. E.	NAS 5-21833	1081
32	UNIV ALASKA-FAIRBNS	Leblanc, C. M.	JSC	Wescott, E. M.	NAS 9-13945	1083
32	UNIV OF ARIZONA	Young, R. S.	HQ-SL	Nagy, B.	NGR 03-002-171	1128
32	UNIV OF ARIZONA	Dwornik, S. E.	HQ-SL	Sonett, C. P.	NGR 03-002-370	1140
32	UNIV OF ARIZONA	Bryson, R. P.	HQ-SM	Strom	NGL 03-002-191	1123
32	UNIV OF ARIZONA	Bryson, R. P.	HQ-SM	Wilkening, L. L.	NSG 7011	1149
32	UNIV OF ARIZONA	Hanley, J. B.	HQ-SM	Whitaker, E. A.	NSG 7014	1150
32	UNIV OF ARIZONA	Hanley, J. B.	HQ-SM	Sonett, C. P.	NSG 7020	1151
32	U ARKANSAS-MONTICELLO	Dwornik, S. E.	HQ-SL	Dehon, R. A.	NGR 04-008-001	1159
32	UNIV CALIF-BERKELEY	Young, R. S.	HQ-SL	Calvin, M.	NGL 05-003-003	1331
32	UNIV CALIF-BERKELEY	Dwornik, S. E.	HQ-SL	Calvin, M.	NGR 05-003-302	1343
32	UNIV CALIF-BERKELEY	Bryson, R. P.	HQ-SM	Mitchell, J. K.	NGR 05-003-406	1347
32	UNIV CALIF-DAVIS	Mead, G.	HQ-SG	Mellwain, C. E.	NGR 05-004-006	1384
32	UNIV CALIF-DAVIS	Bryson, R. P.	HQ-SM	Borg, R. J.	NGR 05-004-074	1386
32	UNIV CALIF-L ANGELES	Wales, R. O.	GSFC	Coleman, P. J., Jr.	NAS 5-11674	1394
32	UNIV CALIF-L ANGELES	Young, R. S.	HQ-SL	Libby, W. F.	NGR 05-007-215	1417
32	UNIV CALIF-L ANGELES	Young, R. S.	HQ-SL	Kaplan, I. R.	NGR 05-007-221	1418
32	UNIV CALIF-L ANGELES	Dwornik, S. E.	HQ-SL	Lingenfelter, R. E.	NGR 05-007-317	1422
32	UNIV CALIF-L ANGELES	Young, R. S.	HQ-SL	Schopf, J. W.	NGR 05-007-407	1431
32	UNIV CALIF-L ANGELES	Bryson, R. P.	HQ-SM	Kaula, W. M.	NGL 05-007-002	1404
32	UNIV CALIF-L ANGELES	Bryson, R. P.	HQ-SM	Kennedy, G. C.	NGL 05-007-006	1408
32	UNIV CALIF-L ANGELES	Strickland, A. T.	HQ-SM	Kaula, W. M.	NGR 05-007-283	1420
32	UNIV CALIF-L ANGELES	Bryson, R. P.	HQ-SM	Wasson, J. T.	NGR 05-007-329	1426
32	UNIV CALIF-L ANGELES	Bryson, R. P.	HQ-SM	Coleman, P. J., Jr.	NGR 05-007-351	1429
32	UNIV CALIF-L ANGELES	Bryson, R. P.	HQ-SM	Kieffer, S. W.	NSG 7052	1441
32	UNIV CALIF-SAN DIEGO	Dwornik, S. E.	HQ-SL	Alfven, H.	NGR 05-009-110	1471
32	UNIV CALIF-SAN DIEGO	Bryson, R. P.	HQ-SM	Arrhenius, G.	NGL 05-009-002	1455
32	UNIV CALIF-SAN DIEGO	Bryson, R. P.	HQ-SM	Arnold, J. R.	NGL 05-009-004	1456
32	UNIV CALIF-SAN DIEGO	Bryson, R. P.	HQ-SM	Suess, H. E.	NGL 05-009-005	1457
32	UNIV CALIF-SAN DIEGO	Bryson, R. P.	HQ-SM	Arnold, J. R.	NGR 05-005-005	1465
32	UNIV CALIF-SAN DIEGO	Bryson, R. P.	HQ-SM	Arnold, J. R.	NSG 7027	1487
32	UNIV CALIF-S BARBARA	Harris, J. W.	JSC	Tilton, G. R.	NGR 05-010-081	1493
32	UNIV CALIF-S BARBARA	Young, R. S.	HQ-SL	Cloud, P. E.	NGR 05-010-035	1491
32	UNIV CALIF-S BARBARA	Dwornik, S. E.	HQ-SL	Peale, S. J.	NGR 05-010-062	1492
32	UNIV CALIF-S BARBARA	Bryson, R. P.	HQ-SM	Fisher, R. V.	NGL 05-010-019	1490
32	UNIV OF CHICAGO	Dwornik, S. E.	HQ-SL	Turkevich, A. L.	NGR 14-001-135	1823
32	UNIV OF CHICAGO	Young, R. S.	HQ-SL	Anders, E.	NGR 14-001-203	1827
32	UNIV OF CHICAGO	Hosterman, J. W.	HQ-SM	Anders, E.	NGL 14-001-010	1815
32	UNIV OF CHICAGO	Hosterman, J. W.	HQ-SM	Grossman, L.	NGR 14-001-249	1832
32	UNIV COLORADO-BOLDR	Dwornik, S. E.	HQ-SL	Peterson, J. E.	NGR 06-003-199	1568
32	UNIV OF GEORGIA	Dwornik, S. E.	HQ-SL	Herz, N.	NGR 11-003-033	1770
32	UNIV OF GEORGIA	Dwornik, S. E.	HQ-SL	Howard, H. T.	NGR 11-003-037	1771
32	UNIV OF HAWAII	Strickland, A. T.	HQ-SM	Jefferies, J. T.	NGR 12-001-127	1784
32	UNIV OF HOUSTON	Harris, J. W.	JSC	King, E. A., Jr.	NGL 44-005-184	3038
32	UNIV OF HOUSTON	Teegarden, D. L., Jr.	JSC	Vant-Hull, L. L.	NGR 44-005-162	3044
32	UNIV OF HOUSTON	Young, R. S.	HQ-SL	Oro, J.	NGR 44-005-002	3039
32	UNIV OF HOUSTON	Dwornik, S. E.	HQ-SL	King, E. A., Jr.	NGR 44-005-131	3041
32	UNIV OF HOUSTON	Bryson, R. P.	HQ-SM	King, E. A., Jr.	NGR 44-005-188	3045

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32	UNIV OF IDAHO	Bryson, R. P.	HQ-SM	Hall, W. B.	NGR 13-001-014	1786
32	UNIV OF IOWA	Stonesifer, G. R.	GSFC	Hoppin, R. A.	NAS 5-21852	1915
32	UNIV OF IOWA	Miller, M.	JSC	Hoppin, R. A.	NAS 9-13313	1916
32	UNIV OF KANSAS	Dwornik, S. E.	HQ-SL	Zeller, E. J.	NGR 17-002-106	1934
32	UNIV MARYLAND-COL PK	Schnetzler, C. C.	GSFC	Weidner, J. R.	NGR 21-002-368	2044
32	UNIV MARYLAND-COL PK	Kosofsky, L. J.	HQ-SM	Wasilewski, P.	NSG 7017	2063
32	UNIV MARYLAND-COL PK	Kosofsky, L. J.	HQ-SM	Adler, I.	NSG 7046	2064
32	UNIV OF MASS-AMHERST	Dwornik, S. E.	HQ-SL	Hartshorn, J. H.	NGR 22-010-054	2230
32	UNIV OF MASS-AMHERST	Dwornik, S. E.	HQ-SL	McGill, G. E.	NGR 22-010-076	2231
32	UNIV OF MASS-AMHERST	Bryson, R. P.	HQ-SM	McGill, G. E.	NGR 22-010-052	2229
32	UNIV MICH-ANN ARBOR	Dwornik, S. E.	HQ-SL	Smith, C. I.	NGR 23-005-563	2282
32	UNIV MICH-ANN ARBOR	Bryson, R. P.	HQ-SM	Evans, B. J.	NGR 23-005-537	2276
32	U MINN-MNPLS-ST PAUL	Harris, J. W.	JSC	Banerjee, S. K.	NGR 24-005-248	2322
32	UNIV OF MONTANA	Gordon, F., Jr.	GSFC	Weidman, R. M.	NAS 5-21826	2382
32	UNIV OF NEVADA-RENO	Miller, M. L.	JSC	Quade, J.	NAS 9-13274	2393
32	UNIV OF NEW MEXICO	Dwornik, S. E.	HQ-SL	Elston, W. E.	NGR 32-004-062	2482
32	UNIV OF NEW MEXICO	Bryson, R. P.	HQ-SM	Elston, W. E.	NGL 32-004-011	2477
32	UNIV OF NEW MEXICO	Bryson, R. P.	HQ-SM	Keil, K.	NGL 32-004-064	2480
32	UNIV OREGON-EUGENE	Teegarden, D. L., Jr.	JSC	Blank, H. R.	NAS 9-9690	2786
32	UNIV OREGON-EUGENE	Bryson, R. P.	HQ-SM	Goles, G. G.	NGL 38-003-010	2787
32	UNIV OREGON-EUGENE	Bryson, R. P.	HQ-SM	Weill, D. F.	NGR 38-003-020	2790
32	UNIV OF PENNSYLVANIA	Kosofsky, L. J.	HQ-SM	Friel, J. J.	NSG 7031	2853
32	UNIV OF PITTSBURGH	Dwornik, S. E.	HQ-SL	Hapke, B.	NGR 39-011-146	2865
32	UNIV OF PITTSBURGH	Bryson, R. P.	HQ-SM	Hapke, B. W.	NGL 39-011-085	2860
32	UNIV OF PITTSBURGH	Bryson, R. P.	HQ-SM	Fuller, M.	NGR 39-011-156	2868
32	UNIV OF SANTA CLARA	Dwornik, S. E.	HQ-SL	Greeley, R.	NGR 05-017-037	1504
32	UNIV OF SANTA CLARA	Bryson, R. P.	HQ-SM	Greeley, R.	NSG 7013	1505
32	UNIV TEXAS-AUSTIN	Kolenkiewicz, R.	GSFC	Tapley, B. D.	NGR 44-012-283	3083
32	UNIV TEXAS-AUSTIN	Miller, M. L.	JSC	Baker, V. R.	NAS 9-13312	3055
32	UNIV TEXAS-AUSTIN	Wilmarth, V. R.	JSC	Muehlberger, W. R.	NAS 9-13946	3058
32	UNIV TEXAS-AUSTIN	Stanley, H. R.	WFC	Tapley, B. D.	NAS 6-2454	3050
32	UNIV TEXAS-AUSTIN	Young, R. S.	HQ-SL	Parker, P. L.	NGR 44-012-225	3073
32	UNIV TEXAS-AUSTIN	Dwornik, S. E.	HQ-SL	Devaucoeurs, G. H.	NGR 44-012-279	3081
32	UNIV TEXAS-AUSTIN	Bryson, R. P.	HQ-SM	Clabaugh, S. E.	NGL 44-012-045	3062
32	UNIV TEXAS-AUSTIN	Strickland, A. T.	HQ-SM	Silverberg, E. C.	NGR 44-012-165	3066
32	UNIV OF UTAH	Szajna, E. F.	GSFC	Jensen, M. L.	NAS 5-21883	3133
32	UNIV OF UTAH	Eichelman, W. F.	JSC	Ward, S. H.	NAS 9-12168	3137
32	UNIV OF UTAH	Miller, M. L.	JSC	Jensen, M. L.	NAS 9-13322	3138
32	UNIV OF UTAH	Harris, J. W.	JSC	Ward, S. H.	NGR 45-003-090	3144
32	UNIV OF UTAH	Dwornik, S. E.	HQ-SL	Wilson, R. C.	NGR 45-003-095	3146
32	UNIV OF VERMONT	Szajna, E. F.	GSFC	Lind, A. O.	NAS 5-21753	3153
32	UNIV OF VIRGINIA	Dwornik, S. E.	HQ-SL	Dolan, R.	NGR 47-005-172	3225
32	UNIV OF VIRGINIA	Bryson, R. P.	HQ-SM	Allen, R. O.	NGR 47-005-176	3226
32	UNIV OF WASHINGTON	Horz, F.	JSC	Brownlee, D. E.	NAS 9-13743	3285
32	UNIV OF WASHINGTON	Dwornik, S. E.	HQ-SL	Vgolihi, F. C.	NGR 48-002-153	3302
32	UNIV WISC-PARKSIDE	Dwornik, S. E.	HQ-SL	Smith, E. I.	NGR 50-009-001	3355
32	UNIV OF WYOMING	Gordon, F., Jr.	GSFC	Houston, R. S.	NAS 5-21799	3358
32	UNIV OF WYOMING	Gordon, F., Jr.	GSFC	Houston, R. S.	NAS 5-21818	3359
32	UNIV OF WYOMING	Miller, M. L.	JSC	Houston, R. S.	NAS 9-13298	3360
32	UTAH STATE UNIV	Young, R. S.	HQ-SL	Smith, G. G.	NSG 7038	3152
32	VIRGINIA POLY INST	Gordon, F., Jr.	GSFC	Glover, L. III	NAS 5-21729	3242
32	VIRGINIA STATE COL	Dwornik, S. E.	HQ-SL	Gipson, M., Jr.	NGR 47-014-004	3276
32	WASHINGTON UNIVERSTY	Hosterman, J. W.	HQ-SM	Hohenberg, C. M.	NSG 7016	2380
32	WEST TEXAS ST UNIV	Dwornik, S. E.	HQ-SL	Underwood, J. R.	NGR 44-015-003	3126
32	WOODSHOLE OCEAN INST	Hardec, N.	JSC	Bowin, C.	NAS 9-12563	2232
32	WOODSHOLE OCEAN INST	Hardec, N.	JSC	Bryan, W. B.	NAS 9-12564	2233
32	YALE UNIVERSITY	Dwornik, S. E.	HQ-SL	Skinner, B. J.	NGR 07-004-157	1615
32	YALE UNIVERSITY	Bryson, R. P.	HQ-SM	Skinner, B. J.	NGL 07-004-103	1611

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32	YALE UNIVERSITY	Kosofsky, L. J.	HQ-SM	Turekian, K. K.	NGR 07-004-166	1616
33	CITY COLLEGE OF N Y	Eckerman, J.	GSFC	Pierson, W. J.	NAS 5-20041	2487
33	CITY COLLEGE OF N Y	Brown, S. C.	MSFC	Pierson, W. J.	NAS 8-29616	2489
33	COLUMBIA UNIVERSITY	Stanley, H. R.	WFC	Kuo, J. T.	NAS 6-2455	2502
33	GEORGE WASHINGTON U	Swift, C. T.	LARC	Liebowitz, H.	NGR 09-010-096	1656
33	LONG ISLAND UNIV	Szajna, E. J.	GSFC	Yost, E.	NAS 5-21792	2570
33	NEW YORK UNIVERSITY	Brown, S. C.	MSFC	Pierson, W. J.	NAS 8-29578	2578
33	OLD DOMINION UNIV	Houghton, W. M.	LARC	Bandy, A. R.	NGR 47-003-071	3193
33	UNIV CALIF-L ANGELES	Stanley, H. R.	WFC	Kaula, W. M.	NAS 6-2463	1397
33	UNIV OF DELAWARE	Gordon, F., Jr.	GSFC	Szekielda, K. H.	NAS 5-21784	1621
33	UNIV OF DELAWARE	Byrns, Z. H.	JSC	Szekielda, K. H.	NAS 9-13344	1623
33	UNIV OF FLORIDA	Deese, J. H.	KSC	O'Brien, M. P.	NAS10-8297	1689
33	UNIV MARYLAND-COL PK	Marini, J. W.	GSFC	Harger, R. O.	NGR 21-002-433	2054
33	UNIV OF SOUTHERN CAL	Wilmarth, V. R.	JSC	Stone, R. O.	NAS 9-13980	1513
39	ALABAMA A&M UNIV	Downs, S. W., Jr.	MSFC	Golden, M. S.	NGR 01-001-023	1005
39	ALABAMA A&M UNIV	McDonough, G. F.	MSFC	Manger, M. C.	NGR 01-001-025	1007
39	ALABAMA A&M UNIV	Pohly, J. G.	HQ-PY	Manger, M. C.	NGR 01-001-018	1002
39	ALCORN STATE UNIV	Wolverton, B. C.	MSFC	Naqvi, S. M.	NSG 8005	2334
39	AMERICAN UNIVERSITY	Gordon, F., Jr.	GSFC	Anderson, R. R.	NAS 5-21752	1626
39	AMERICAN UNIVERSITY	Gordon, F., Jr.	GSFC	MacLeod, N. H.	NAS 5-21892	1627
39	AMERICAN UNIVERSITY	Watter, L. S.	GSFC	MacLeod, N. H.	NAS 5-21970	1628
39	AMERICAN UNIVERSITY	Wilmarth, V. R.	JSC	MacLeod, N. H.	NAS 9-13956	1629
39	AMERICAN UNIVERSITY	Whitman, R. I.	LARC	Anderson, R. R.	NAS 1-12209	1625
39	AUBURN UNIV-AUBURN	Downs, S. W.	MSFC	Hagler, T. B.	NAS 8-29856	1019
39	BENEDICT COLLEGE	Kent, M. I.	MSFC	Kinard, J. T.	NSG 8004	2883
39	BETHUNE-COOKMAN COL	Schoenberger, F. B.	KSC	Poonai, P.	NGR 10-022-001	1675
39	BRIGHAM YOUNG UNIV	Kavanagh, L. D., Jr.	HQ-SG	Jones, D. E.	NGR 45-001-011	3128
39	CALIF INST OF TECH	Kellsall, T.	GSFC	Neugebauer, G.	NAS 5-20492	1165
39	CAL STATE U-SAN JOSE	Arvesen, J. C.	ARC	Weaver, E. C.	NGR 05-046-015	1230
39	CLEMSON UNIV-CLEMSON	Reveley, W. F.	JSC	Gaddis, J. L.	NAS 9-13669	2884
39	CLEMSON UNIV-CLEMSON	Pitts, D. E.	JSC	Haun, J. R.	NAS 9-14006	2885
39	COLORADO SCH OF MINE	Park, A. B.	HQ-ER	Lee, K.	NGL 06-001-015	1527
39	COLORADO STATE UNIV	Turner, R. E.	MSFC	Sadeh, W. Z.	NAS 8-28590	1531
39	COLORADO STATE UNIV	Sloan, J. C.	MSFC	Marschner, B. W.	NAS 8-28655	1532
39	CORNELL UNIVERSITY	Szajna, E. F.	GSFC	Dethier, B. E.	NAS 5-21781	2530
39	CORNELL UNIVERSITY	Joosten, R. E.	JSC	Hardy, E. E.	NAS 9-13364	2533
39	CORNELL UNIVERSITY	Vitale, J. A.	HQ-PY	Liang, T.	NGL 33-010-171	2544
39	DC TEACHERS COLLEGE	Westrom, J. L.	GSFC	Bever, R. S.	NGR 09-053-003	1640
39	DARTMOUTH COLLEGE	Szajna, E. F.	GSFC	Simpson, R. B.	NAS 5-21749	2394
39	DARTMOUTH COLLEGE	Jastrow, R.	GSFC	Stoiber, R. E.	NSG 5014	2397
39	DILLARD UNIVERSITY	Pohly, J. G.	HQ-PY	Rogers, R.	NGR 19-015-001	1953
39	FEDERAL CITY COLLEGE	Nava, D. F.	GSFC	Phelps, H. L.	NGR 09-050-019	1645
39	FLORIDA INST OF TECH	Lee, W. H.	KSC	Nevin, T. A.	NGR 10-015-008	1679
39	FLORIDA TECH UNIV	Lee, W. H.	KSC	Sweet, H. C.	NGR 10-019-004	1684
39	FLORIDA TECH UNIV	Lee, W. H.	KSC	Nimmo, B. G.	NGR 10-019-009	1685
39	GEORGIA INST OF TECH	Cummings, R. E.	MSFC	Spann, G. W.	NAS 8-30653	1734
39	HAMPTON INSTITUTE	Catherines, J. J.	LARC	Handy, J. W.	NSG 1011	3172
39	HOWARD UNIVERSITY	Pohly, J. G.	HQ-PY	Ferguson, G. A.	NGL 09-011-046	1664
39	ILL INST OF TECH	Bryson, R. P.	HQ-SM	Higgins, G. T.	NGR 14-004-049	1788
39	JACKSON STATE UNIV	Wolverton, B. C.	MSFC	Sekhon, B. S.	NGR 25-011-005	2337
39	JACKSON STATE UNIV	Wolverton, B. C.	MSFC	Perkins, J.	NSG 8015	2339
39	LA STATE U-BAT ROUGE	Paludán, C. T.	MSFC	Maples, D.	NAS 8-30620	1963
39	LA STATE U-BAT ROUGE	Redding, E. R.	HQ-PY	Whitehurst, C. A.	NGL 19-001-097	1967
39	LA STATE U-BAT ROUGE	Vitale, J. A.	HQ-PY	Whitehurst, C. A.	NGL 19-001-105	1968
39	LA STATE U-NEW ORLNS	McDonough, G. F.	MSFC	Saussy, G. A.	NAS 8-28955	1970
39	MICHIGAN STATE UNIV	Szajna, E. F.	GSFC	Anderson, A.	NAS 5-21834	2236
39	MICHIGAN STATE UNIV	Vitale, J. A.	HQ-PY	Boylan, M. G.	NGL 23-004-083	2238
39	MISSISSIPPI STATE U	Stonesifer, G. R.	GSFC	Bouchillon, C. W.	NAS 5-21881	2341

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39	MISSISSIPPI STATE U	McDonough, G. F.	MSFC	McKee, J. C., Jr.	NAS 8-29036	2343
39	MISSISSIPPI STATE U	Daniels, J. L., Jr.	MSFC	Miller, W. F.	NAS 8-30623	2345
39	MISSISSIPPI STATE U	Redding, E. R.	HQ-PY	Brown, L. R.	NGL 25-001-040	2348
39	MISSISSIPPI STATE U	Vitale, J. A.	HQ-PY	Bouchillon, C. W.	NGL 25-001-054	2349
39	NEW MEX ST U-LAS CR	Fenner, R. G.	JSC	Henry, D. G.	NAS 9-95435	2466
39	NEW YORK UNIVERSITY	Neustadter, H. E.	LERC	Hoydysh, W. G.	NGR 33-016-197	2588
39	NO CAROLINA STATE U	Derington, J. C.	MSFC	Welby, C.	NAS 9-13321	2664
39	OHIO STATE UNIV	Hirschmann, E.	GSFC	Founty, R. A.	NAS 5-20521	2724
39	OLD DOMINION UNIV	Gordon, F., Jr.	GSFC	Copeland, G. E.	NAS 5-21816	3180
39	OLD DOMINION UNIV	Northam, G. B.	LARC	Bandy, A. R.	NGR 47-003-087	3198
39	OLD DOMINION UNIV	Orr, H. D., III	LARC	Becher, J.	NSG 1041	3207
39	OREGON STATE UNIV	Crump, E. W.	GSFC	Smionson, G. H.	NAS 5-21831	2779
39	OREGON STATE UNIV	Vitale, J. A.	HQ-PY	Schrumpf, B. J.	NGL 38-002-053	2782
39	PAN AMERICAN UNIV	Pohly, J. G.	HQ-PY	Le Master, E. W.	NGR 44-087-001	2955
39	PENNSYLVANIA STATE U	Szajna, E. F.	GSFC	McMurtry, G. J.	NAS 5-23133	2820
39	PRAIRIE VIEW A&M U	Potter, A. E.	JSC	Sohel, M. S.	NSG 9006	2960
39	PURDUE UNIVERSITY	Gordon, F., Jr.	GSFC	McDonald, R. B.	NAS 5-21773	1872
39	PURDUE UNIVERSITY	Joosten, R. E.	JSC	Silva, L. F.	NAS 9-13301	1875
39	PURDUE UNIVERSITY	Joosten, R. E.	JSC	Hoffer, R. M.	NAS 9-13380	1876
39	PURDUE UNIVERSITY	Potter, A. E.	JSC	Landgrebe, D. A.	NAS 9-14016	1877
39	PURDUE UNIVERSITY	Pao, S. P.	LARC	Kentzer, C. P.	NGR 15-005-174	1891
39	PURDUE UNIVERSITY	Vitale, J. A.	HQ-PY	Landgrebe, D. A.	NGL 15-005-186	1883
39	RICE UNIVERSITY	Taketa, S. T.	ARC	Ward, C. H.	NAS 2-6614	2961
39	RICE UNIVERSITY	Eichelman, W. F.	JSC	Low, F. J.	NAS 9-10428	2966
39	SO DAKOTA STATE UNIV	Stonesifer, G. R.	GSFC	Meyers, V. I.	NAS 5-21774	2894
39	SO DAKOTA STATE UNIV	Vitale, J. A.	HQ-PY	Myers, V. I.	NGL 42-003-007	2896
39	STANFORD UNIVERSITY	Eichelman, W. F.	JSC	Kovach, R. L.	NAS 9-5632	1255
39	STANFORD UNIVERSITY	Bryson, R. P.	HQ-SM	Kovach, R. L.	NGL 05-020-232	1264
39	STATE U NY-STONY BRK	Belles, F. E.	LERC	Berlad, A. L.	NGR 33-015-163	2629
39	TEXAS A&M UNIVERSITY	Stonesifer, G. R.	GSFC	Rouse, J. W., Jr.	NAS 5-21857	2992
39	TEXAS A&M UNIVERSITY	Potter, A. E.	JSC	Rouse, J. W., Jr.	NAS 9-13904	3007
39	TEXAS A&M UNIVERSITY	McPherson, T. M.	JSC	Toler, R. W.	NAS 9-13905	3008
39	TEXAS A&M UNIVERSITY	Potter, A. E.	JSC	Rouse, J. L.	NAS 9-14197	3009
39	TEXAS A&M UNIVERSITY	King, R.	LERC	Kuykendahl, W.	NAS 3-17508	2990
39	TEXAS A&M UNIVERSITY	Vitale, J. A.	HQ-PY	Rouse, J. W., Jr.	NGL 44-001-001	3010
39	TEXAS TECH UNIV	Gordon, F., Jr.	GSFC	Miller, W. D.	NAS 5-21720	3019
39	TULANE UNIVERSITY	McDonough, G. F.	MSFC	Hidalgo, J. V.	NAS 8-29026	1980
39	UNIV ALA-HUNTSVILLE	Hamby, H. G.	MSFC	Doyle, F. L.	NAS 8-30216	1053
39	UNIV ALA-HUNTSVILLE	Unavailable	MSFC	Unavailable	NAS 8-30885	1060
39	UNIV ALA-TUSCALOOSA	Stonesifer, G. R.	GSFC	Henry, H. R.	NAS 5-21876	1063
39	UNIV ALA-TUSCALOOSA	Hamby, H. G.	MSFC	April, G.	NAS 8-29100	1068
39	UNIV ALASKA-FAIRBNKS	Vitale, J. A.	HQ-PY	Belon, A. E.	NGL 02-001-092	1084
39	UNIV OF ARIZONA	Hansen, J.	GSFC	Unavailable	NAS 5-20514	1102
39	UNIV OF ARIZONA	Stonesifer, G. R.	GSFC	Smith, E. L., Jr.	NAS 5-21820	1105
39	UNIV OF ARIZONA	Vitale, J. A.	HQ-PY	Johnson, J. D.	NGL 03-002-313	1124
39	U ARKANSAS-PINE BLUF	Potter, A. E.	JSC	Davis, L. A., Jr.	NSG 9002	1160
39	UNIV CALIF-BERKELEY	Poppoff, I. G.	ARC	Colwell, R. N.	NAS 2-7562	1315
39	UNIV CALIF-BERKELEY	Poppoff, I. G.	ARC	Colwell, R. N.	NAS 2-7567	1316
39	UNIV CALIF-BERKELEY	Wrigley, R. C.	ARC	Horne, A. J.	NSG 2003	1372
39	UNIV CALIF-BERKELEY	Crump, E. W.	GSFC	Colwell, R. N.	NAS 5-21827	1322
39	UNIV CALIF-BERKELEY	Wilmarth, V. R.	JSC	Colwell, R. N.	NAS 9-14088	1330
39	UNIV CALIF-BERKELEY	Vitale, J. A.	HQ-PY	Colewell, R. N.	NGL 05-003-404	1338
39	UNIV CALIF-DAVIS	Taketa, S. T.	ARC	Mazelis, M.	NAS 2-6633	1375
39	UNIV CALIF-L ANGELES	Lafferty, P. E.	JSC	Coleman, P. J., Jr.	NAS 9-12236	1402
39	UNIV CALIF-RIVERSIDE	Reinisch, R. F.	ARC	Pitts, J. N.	NGR 05-008-029	1445
39	UNIV CALIF-SAN DIEGO	Donley, J. L.	GSFC	Peterson, L. E.	NAS 5-11080	1447
39	UNIV CALIF-SAN DIEGO	Carpenter, L. H.	GSFC	Berger, J.	NGR 05-009-246	1481
39	UNIV OF CHICAGO	Wilmarth, V. R.	JSC	Fujita, T.	NAS 9-14042	1811

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39	UNIV COLORADO-BOLDR	Vitale, J. A.	HQ-PY	Ives, J. D.	NGL 06-003-200	1560
39	UNIV OF DELAWARE	Gordon, F.	GSFC	Klemas, V.	NAS 5-21837	1622
39	UNIV OF DELAWARE	Johnson, R. W.	LARC	Klemas, V.	NAS 1-12304	1620
39	UNIV OF FLORIDA	Toft, P. D.	KSC	Bartholic, J. F.	NAS10-8560	1691
39	UNIV OF HAWAII	Taketa, S. T.	ARC	Siegel, S. M.	NAS 2-6624	1772
39	UNIV OF HOUSTON	Schmerling, E. R.	HQ-SG	Sheldon, W. R.	NGR 44-005-133	3042
39	UNIV OF IDAHO	Crump, E. W.	GSFC	Tisdale, E. W.	NAS 5-21850	1785
39	UNIV OF KANSAS	Stonesifer, G. R.	GSFC	Kanemasu, E. T.	NAS 5-21822	1923
39	UNIV OF KANSAS	Potter, A. E.	JSC	Ulaby, F. T.	NAS 9-10261	1924
39	UNIV OF KANSAS	Potter, A. E.	JSC	Ulaby, F. T.	NAS 9-14052	1929
39	UNIV OF KANSAS	Vitale, J. A.	HQ-PY	Barr, B. G.	NGL 17-004-024	1931
39	UNIV MARYLAND-COL PK	Mueller, R. F.	GSFC	Weidner, J. R.	NGR 21-002-399	2049
39	UNIV OF MIAMI	Garo, J. T.	KSC	Veziroglu, T. N.	NAS10-8402	1706
39	UNIV OF MIAMI	Bland, R. A.	KSC	Veziroglu, T. N.	NAS10-8498	1707
39	UNIV OF MIAMI	Bland, R. A.	KSC	Hirschberg, J. G.	NAS10-8600	1708
39	U MINN-MNPLS-ST PAUL	Vitale, J. A.	HQ-PY	Cahill, L. J., Jr.	NGL 24-005-263	2316
39	UNIV MO-KANSAS CITY	Starr, W. L.	HQ-SS	Unavailable	NAS 2-7078	2365
39	UNIV OF MONTANA	Sebesta, P. D.	ARC	Craighead, J. J.	NSG 2030	2384
39	UNIV NEBRASKA-LINCLN	Stonesifer, G. R.	GSFC	Drew, J. V.	NAS 5-21756	2385
39	UNIV NEBRASKA-LINCLN	Vitale, J. A.	HQ-PY	Drew, J. V.	NGL 28-004-020	2388
39	UNIV OF NEVADA-RENO	Crump, E. W.	GSFC	Tueller, P. A.	NAS 5-21870	2392
39	UNIV SO MISSISSIPPI	Vitale, J. A.	HQ-PY	Pinson, J. W.	NGL 25-005-007	2353
39	UNIV TENNESSEE-KNOXV	Broderick, J. C.	GSFC	Bodenheimer, R. E.	NAS 5-21875	2909
39	UNIV TENNESSEE-KNOXV	Ensor, G. J.	GSFC	De Selm, H. R.	NAS 5-21882	2910
39	UNIV TENNESSEE-KNOXV	Unavailable	MSFC	Unavailable	NAS 8-30878	2916
39	UNIV TENNESSEE-KNOXV	Messer, C. W.	MSFC	Shahrokh, F.	NGR 43-001-115	2921
39	UNIV TEXAS-AUSTIN	Wilmarth, V. R.	JSC	Holz, R. K.	NAS 9-13957	3059
39	UNIV OF UTAH	Tuttle, F. B.	HQ-FE	Ridd, M. K.	NASW 2648	3139
39	UNIV OF WASHINGTON	Unavailable	ARC	Unavailable	NAS 2-6778	3283
39	UNIV WISC-MADISON	Taketa, S. T.	ARC	Tibbetts, T. W.	NAS 2-7314	3316
39	UNIV WISC-MADISON	Stonesifer, G. R.	GSFC	Clapp, J. L.	NAS 5-21754	3324
39	UNIV WISC-MADISON	Vitale, J. A.	HQ-PY	Suomi, V. E.	NGL 50-002-114	3337
39	UNIV WISC-MADISON	Vitale, J. A.	HQ-PY	Clapp, J. L.	NGL 50-002-127	3338
39	VIRGINIA POLY INST	Bettle, J. F.	WFC	Petry, D. E.	NAS 6-1863	3244
39	VIRGINIA POLY INST	Scott, J. H.	WFC	Petry, D. E.	NAS 6-2388	3245
39	WEST VIRGINIA UNIV	Kirby, C. E.	LARC	Steinhardt, E.	NGR 49-001-061	3312
41	ALABAMA A&M UNIV	Pohly, J. G.	HQ-PY	Lowsine, L.	NGR 01-001-013	1000
41	ALABAMA A&M UNIV	Pohly, J. G.	HQ-PY	Saha, H.	NGR 01-001-024	1006
41	AUBURN UNIV-AUBURN	Spearman, M. L.	LARC	Nichols, J. O.	NSG 1002	1025
41	AUBURN UNIV-AUBURN	Duncan, J. R., Jr.	MSFC	Bennett, A. G.	NAS 8-30248	1021
41	BOSTON UNIVERSITY	Yates, E. C., Jr.	LARC	Morino, L.	NGR 22-004-030	2076
41	CALIF INST OF TECH	Olson, L. E.	ARC	Cole, D.	NGL 05-002-229	1189
41	CALIF INST OF TECH	Sandercock, D. M.	LERC	Rannie, W. D.	NGL 05-002-136	1183
41	CALIF INST OF TECH	Roudebush, W. H.	HQ-RA	Liepmann, H. W.	NGL 05-002-002	1174
41	CAL STATE U-SACRAMEN	Priem, R. J.	LERC	Reardon, F. H.	NGR 05-058-003	1223
41	CASE WESTERN RESERVE	Stroud, W. J.	LARC	Kicher, T. P.	NGL 36-003-002	2691
41	CASE WESTERN RESERVE	Anderson, B. H.	LERC	Reshotko, E.	NGL 36-027-032	2694
41	CASE WESTERN RESERVE	Anderson, B. H.	LERC	Reshotko, E.	NGR 36-027-038	2697
41	CASE WESTERN RESERVE	Anderson, B. H.	LERC	Reshotko, E.	NGR 36-027-064	2704
41	CATHOLIC UNIVERSITY	Deissler, R. G.	LERC	Ling, S. C.	NGR 09-005-099	1635
41	CHRISTPHR NEWPRT COL	Jewel, J. W., Jr.	LARC	McMurrin, R. E.	NAS 1-12152	3156
41	CHRISTPHR NEWPRT COL	Morris, G. J.	LARC	Roby, A. B.	NAS 1-12328	3157
41	CLARKSON COL OF TECH	Stroud, W. J.	LARC	Thornton, W. A.	NGL 33-007-075	2500
41	CLEMSON UNIV-CLEMSON	Doggett, R. V., Jr.	LARC	Rudisill, C. S.	NGR 41-001-027	2886
41	COLUMBIA UNIVERSITY	Danberg, J. E.	LARC	Friedman, M. B.	NGL 33-008-098	2510
41	COLUMBIA UNIVERSITY	Mixson, J. S.	LARC	Vailaitas, R.	NSG 1059	2527
41	CORNELL UNIVERSITY	Murman, E. M.	ARC	Seebass, A. R.	NGL 33-010-057	2540
41	CORNELL UNIVERSITY	Stephens, W. B.	LARC	Gallagher, R. H.	NGL 33-010-070	2542

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41	CORNELL UNIVERSITY	Barger, R. L.	LARC	Seebass, A. R.	NGR 33-010-203	2562
41	CORNELL UNIVERSITY	Marek, C. J.	LERC	Gouldin, F. C.	NSG 3019	2566
41	GEORGE WASHINGTON U	Margolis, K.	LARC	Liebowitz, H.	NGR 09-010-064	1651
41	GEORGE WASHINGTON U	Mulac, R. W.	LARC	Liebowitz, H.	NGR 09-010-074	1652
41	GEORGE WASHINGTON U	Fulton, R. E.	LARC	Liebowitz, H.	NGR 09-010-078	1653
41	GEORGE WASHINGTON U	Hubbard, H. H.	LARC	Liebowitz, H.	NGR 09-010-085	1654
41	GEORGIA INST OF TECH	Morse, H. A.	ARC	Wu, J. C.	NAS 2-6340	1723
41	GEORGIA INST OF TECH	Peterson, J. P.	LARC	Horton, W. H.	NGL 11-002-096	1740
41	GEORGIA INST OF TECH	Evans, J. S.	LARC	Huang, A. B.	NGR 11-002-157	1744
41	GEORGIA INST OF TECH	Bushnell, D. M.	LARC	Huang, A. B.	NGR 11-002-159	1746
41	GEORGIA INST OF TECH	Boatright, W. B.	LARC	Bangert, L. H.	NGR 11-002-177	1749
41	GEORGIA INST OF TECH	Hammond, C. E.	LARC	Pierce, G. A.	NGR 11-002-185	1752
41	GEORGIA INST OF TECH	Carter, J. E.	LARC	Wu, J. C.	NSG 1004	1754
41	GEORGIA INST OF TECH	Huff, R. G.	LERC	Strahle, W. C.	NAS 3-17861	1725
41	GEORGIA INST OF TECH	Priem, R. J.	LERC	Zinn, B. T.	NGL 11-002-085	1739
41	HAMPTON INSTITUTE	Jewel, J. W., Jr.	LARC	Williams, G. K.	NAS 1-12445	3166
41	HOWARD UNIVERSITY	Fedor, J. V.	GSFC	Bainum, P. M.	NGR 09-011-039	1666
41	ISRAEL INST OF TECH	Bland, S. R.	LARC	Nissim, E.	NGR 52-012-006	3375
41	ISRAEL INST OF TECH	Bland, S. R.	LARC	Nissim, E.	NGR 52-012-006	3375
41	LOUGHBOROUGH U TECH	Cawthorn, J. M.	LARC	Lowson, M. V.	NGR 52-140-002	3374
41	LOUGHBOROUGH U TECH	Cawthorn, J. M.	LARC	Lowson, M. V.	NGR 52-140-002	3374
41	LA STATE U-BAT ROUGE	Teixeira, C.	JSC	Daniel, L. R., Jr.	NAS 9-12352	1964
41	MASS INST OF TECH	Rabbott, J. P., Jr.	ARC	Ham, N. D.	NAS 2-7262	2112
41	MASS INST OF TECH	Schmitz, F. H.	ARC	Widnall, S. E.	NAS 2-7684	2113
41	MASS INST OF TECH	Norman, S. M.	ARC	Simpson, R. W.	NAS 2-8157	2115
41	MASS INST OF TECH	Corsiglia, V. R.	ARC	Widnall, S. E.	NGR 22-009-605	2174
41	MASS INST OF TECH	Masey, A. C.	ARC	Simpson, R. W.	NSG 2024	2211
41	MASS INST OF TECH	Szalai, K. J.	FRC	Whitaker, H. P.	NGL 22-009-548	2154
41	MASS INST OF TECH	Whitten, J. B.	LARC	Young, L. R.	NGL 22-009-025	2145
41	MASS INST OF TECH	Mace, W. D.	LARC	Simpson, R. W.	NGL 22-009-640	2156
41	MASS INST OF TECH	Barger, R. L.	LARC	Toong, T. G.	NGR 22-009-618	2175
41	MASS INST OF TECH	Stone, R. W., Jr.	LARC	Young, L. R.	NGR 22-009-701	2184
41	MASS INST OF TECH	Kyser, A. C.	LARC	Mar, J. W.	NGR 22-009-781	2195
41	MASS INST OF TECH	Stewart, E. C.	LARC	Deyst, J. J., Jr.	NGR 22-009-782	2196
41	MASS INST OF TECH	Hoad, D. R.	LARC	Widnall, S. E.	NGR 22-009-818	2204
41	MASS INST OF TECH	Elliott, J. R.	LARC	Athens, M.	NSG 1018	2207
41	MASS INST OF TECH	Reed, W. H., III	LARC	Dugundji, J.	NSG 1051	2209
41	MASS INST OF TECH	McNally, W. D.	LERC	Kerrebrock, J. L.	NGL 22-009-383	2152
41	MASS INST OF TECH	Weiss, S.	LERC	Witner, E. A.	NGR 22-009-339	2162
41	MASS INST OF TECH	Baumeister, K. J.	LERC	Ingard, K. U.	NGR 22-009-805	2203
41	MASS INST OF TECH	Orange, T. W.	LERC	Kerrebrock, J. L.	NSG 3006	2213
41	MASS INST OF TECH	Hodge, K. E.	HQ-R	Unavailable	NASW 2524	2139
41	MICHIGAN STATE UNIV	Weinstein, L. M.	LARC	Krzywoblocki, M. Z.	NGR 23-004-085	2240
41	MICHIGAN STATE UNIV	Morrisette, E. L.	LARC	Foss, J. F.	NGR 23-004-089	2241
41	MISSISSIPPI STATE U	Bobbitt, P. J.	LARC	Thompson, J. F.	NGR 25-001-055	2351
41	NEW YORK UNIVERSITY	Caradonna, F. X.	ARC	Isom, M. P.	NAS 2-6813	2576
41	NEW YORK UNIVERSITY	Hicks, R. M.	ARC	Garabedian, P. R.	NGR 33-016-201	2589
41	NEW YORK UNIVERSITY	Fetterman, D. E.	LARC	Ferri, A.	NGL 33-016-119	2580
41	NEW YORK UNIVERSITY	Huber, P. W.	LARC	Ferri, A.	NGR 33-016-131	2581
41	NEW YORK UNIVERSITY	South, J. C., Jr.	LARC	Garabedian, P. R.	NGR 33-016-167	2582
41	NEW YORK UNIVERSITY	Maestrello, L.	LARC	Ferri, A.	NGR 33-016-177	2584
41	NEW YORK UNIVERSITY	Dunavant, J. C.	LARC	Zakkay, V.	NGR 33-016-179	2585
41	NEW YORK UNIVERSITY	Hefner, J. N.	LARC	Ferri, A.	NGR 33-016-193	2586
41	NEW YORK UNIVERSITY	Hefner, J. N.	LARC	Ferri, A.	NSG 1049	2590
41	NO CAROLINA STATE U	Thomson, R. G.	LARC	Chang, T. S.	NGL 34-002-084	2667
41	NO CAROLINA STATE U	Crane, H. L.	LARC	Smetana, F. O.	NGR 34-002-179	2673
41	NO CAROLINA STATE U	Imig, L. A.	LARC	Fahmy, A. A.	NGR 34-002-180	2674
41	NO CAROLINA STATE U	Hamilton, H. H., II	LARC	Dejaarnette, F. R.	NGR 34-002-193	2678

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41	NORTHEASTERN UNIV	Franklin, J. A.	ARC	Bach, R. E., Jr.	NAS 2-7397	2217
41	NORTHWESTERN UNIV	Grobman, J. S.	LERC	Kovitz, A. A.	NGR 14-007-114	1797
41	OHIO STATE UNIV	McCroskey, W. J.	ARC	Velkoff, H. R.	NAS 2-6779	2723
41	OHIO STATE UNIV	Siemers, P. M.	LARC	Petri, S. L.	NAS 1-12688	2721
41	OHIO STATE UNIV	Naumann, E. C.	LARC	Bailey, C. D.	NGL 36-008-109	2731
41	OHIO STATE UNIV	Runyan, H. L., Jr.	LARC	Bailey, C. D.	NGR 36-008-197	2737
41	OHIO UNIVERSITY	Mace, W. D.	LARC	McFarland, R. H.	NGR 36-009-017	2744
41	OLD DOMINION UNIV	Gentry, G. L., Jr.	LARC	Ousterhout, D. S.	NGL 47-003-039	3185
41	OLD DOMINION UNIV	Martin, D. J.	LARC	Roberts, A. S.	NGR 47-003-052	3190
41	OLD DOMINION UNIV	Morgan, H. L., Jr.	LARC	Baker, A. J.	NSG 1038	3204
41	OLD DOMINION UNIV	Walberg, G. D.	LARC	Goglia, G. L.	NSG 1065	3212
41	PENNSYLVANIA STATE U	Maestrello, L.	LARC	Reethof, G.	NGL 39-009-121	2831
41	PENNSYLVANIA STATE U	Heyson, H. H.	LARC	Eisenhuth, J. J.	NGL 39-009-172	2832
41	PENNSYLVANIA STATE U	Heidmann, M. F.	LERC	Lakshminarayana, B.	NAS 3-17855	2819
41	PENNSYLVANIA STATE U	Britsch, W. R.	LERC	Holl, J. W.	NGL 39-009-001	2824
41	PENNSYLVANIA STATE U	Britsch, W. R.	LERC	Lakshminarayana, B.	NGL 39-009-007	2827
41	PENNSYLVANIA STATE U	Stone, J. R.	LERC	Arndt, R. E.	NGR 39-009-270	2841
41	PENNSYLVANIA STATE U	Heidmann, M. F.	LERC	Lakshminarayana, B.	NSG 3012	2844
41	PENNSYLVANIA STATE U	Wild, J. W.	HQ-MT	Kaplan, M. H.	NGR 39-009-210	2838
41	POLY INST OF NY	Schmitz, F. H.	ARC	Isom, M. P.	NAS 2-8399	2591
41	PRINCETON UNIVERSITY	Gossett, T. D.	ARC	Durbin, E. J.	NAS 2-7187	2413
41	PRINCETON UNIVERSITY	Franklin, J. A.	ARC	Seckel, E.	NAS 2-7350	2414
41	PRINCETON UNIVERSITY	Ormiston, R. A.	ARC	Dowell, E. H.	NAS 2-7615	2415
41	PRINCETON UNIVERSITY	Gaspers, P. A., Jr.	ARC	Dowell, E. H.	NGR 31-001-197	2434
41	PRINCETON UNIVERSITY	Smith, G. A.	ARC	Durbin, E. J.	NGR 31-001-277	2443
41	PRINCETON UNIVERSITY	Strand, L.	JPL	Summerfield, M.	NGL 31-001-109	2423
41	PRINCETON UNIVERSITY	Crane, H. L.	LARC	Seckel, E.	NAS 1-11231	2411
41	PRINCETON UNIVERSITY	Hilton, D. A.	LARC	Hayes, W. D.	NGL 31-001-119	2424
41	PRINCETON UNIVERSITY	Mace, W. D.	LARC	Graham, D.	NGL 31-001-252	2427
41	PRINCETON UNIVERSITY	Chamis, C. C.	LERC	Moon, F. C.	NGR 31-001-267	2440
41	PRINCETON UNIVERSITY	Gray, V. H.	LERC	Summerfield, M.	NGR 31-001-307	2445
41	PURDUE UNIVERSITY	Margason, R. J.	LARC	Skifstad, J. G.	NGL 15-005-094	1879
41	PURDUE UNIVERSITY	Landrum, E. J.	LARC	Marshall, F. J.	NGR 15-005-119	1886
41	PURDUE UNIVERSITY	Morgan, H. L., Jr.	LARC	Marshall, F. J.	NGR 15-005-188	1893
41	PURDUE UNIVERSITY	Minner, G. L.	LERC	Vaidya, P. G.	NAS 3-18010	1871
41	PURDUE UNIVERSITY	Poferl, D. J.	LERC	Lecuyer, M. R.	NGR 15-005-147	1887
41	PURDUE UNIVERSITY	Anderson, B. H.	LERC	Hoffman, J. D.	NGR 15-005-162	1890
41	PURDUE UNIVERSITY	Bishop, A. R.	LERC	Hoffman, J. D.	NGR 15-005-191	1894
41	RENSSELAER POLY-NY	Elliott, J. R.	LARC	Kaufman, H.	NGR 33-018-183	2606
41	ST LOUIS UNIVERSITY	Fulton, R. E.	LARC	Rhodes, J. L.	NGL 26-006-021	2355
41	SOUTHERN METHODIST U	Tanner, T. A.	ARC	Starling, J. D.	NSG 2006	2986
41	STANFORD UNIVERSITY	Vause, G. R.	ARC	Karamcheti, K.	NAS 2-6158	1243
41	STANFORD UNIVERSITY	Kelley, M. W.	ARC	Bryson, A. R.	NGR 05-020-526	1283
41	STANFORD UNIVERSITY	Park, C.	ARC	Kruger, C. H.	NGR 05-020-583	1286
41	STANFORD UNIVERSITY	Thomas, C. L.	ARC	Powell, J. D.	NGR 05-020-663	1296
41	STANFORD UNIVERSITY	Hruby, R. J.	ARC	McCluskey, E. J.	NGR 05-020-699	1302
41	STANFORD UNIVERSITY	Kordes, E. E.	FRC	McIntosh, S. C., Jr.	NGL 05-020-498	1271
41	STANFORD UNIVERSITY	Doggett, R. V., Jr.	LARC	Ashley, H.	NGL 05-020-243	1266
41	STANFORD UNIVERSITY	Reed, W. H.	LARC	Herrmann, G.	NGL 05-020-397	1270
41	STANFORD UNIVERSITY	Colladay, R. S.	LERC	Kays, W. M.	NAS 3-14336	1247
41	STANFORD UNIVERSITY	Carter, C. H.	HQ-PY	Pettit, J. M.	NGT 05-020-361	1305
41	TEXAS A&M UNIVERSITY	McAlister, K. W.	ARC	Parker, A. G.	NAS 2-7917	2989
41	TEXAS A&M UNIVERSITY	Moseley, W. C., Jr.	JSC	Lowy, S. H.	NAS 9-9766	3000
41	TEXAS A&M UNIVERSITY	South, J. C., Jr.	LARC	Carlson, L. A.	NGR 44-001-157	3015
41	TEXAS A&M UNIVERSITY	Chamis, C. C.	LERC	Thornton, H. R.	NGR 44-001-149	3013
41	TUFTS UNIVERSITY	Ahtye, W. F.	ARC	Cole, J. E.	NGR 22-012-031	2222
41	TULANE UNIVERSITY	Priem, R. J.	LERC	O'Hara, J. C.	NGR 19-002-030	1982
41	TUSKEGEE INSTITUTE	Guest, S. H.	MSFC	Lenzo, C. S.	NGR 01-005-010	1032

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41	UNIV OF BRIDGEPORT	Williams, J. G.	LARC	Palazotto, A. N.	NGR 07-001-004	1597
41	UNIV CALIF-BERKELEY	Perkins, E. W.	ARC	Talbot, L.	NGR 05-003-451	1352
41	UNIV CALIF-BERKELEY	Kurzahls, P. R.	HQ-RE	Desoer, C. A.	NGL 05-003-016	1332
41	UNIV CALIF-L ANGELES	Polentz, P. P.	ARC	Britt, P.	NAS 2-7785	1392
41	UNIV CALIF-L ANGELES	Hodder, B. K.	ARC	Meecham, W. C.	NGR 05-007-323	1423
41	UNIV CALIF-L ANGELES	Carter, A. L.	FRC	Unavailable	NAS 4-1995	1393
41	UNIV CALIF-L ANGELES	Rediess, H. A.	FRC	Balakrishnan, A. V.	NGL 05-007-379	1415
41	UNIV CALIF-L ANGELES	Stroud, W. J.	LARC	Schmit, L. A.	NGR 05-007-337	1427
41	UNIV CALIF-L ANGELES	Bland, S. R.	LARC	Cole, J. D.	NGR 05-007-395	1430
41	UNIV CALIF-L ANGELES	Hammond, C. E.	LARC	Friedmand, P. P.	NGR 05-007-414	1432
41	UNIV CALIF-SAN DIEGO	Gessow, A.	LARC	Libby, P. A.	NGR 05-009-178	1473
41	UNIV OF CINCINNATI	Burke, J. A.	ARC	Tabakoff, W.	NAS 2-7850	2746
41	UNIV OF CINCINNATI	Queijo, M. J.	LARC	Wells, W. R.	NGR 36-004-061	2752
41	UNIV OF CINCINNATI	Harris, J. E.	LARC	Davis, R. T.	NGR 36-004-069	2757
41	UNIV OF CINCINNATI	Prust, H. W., Jr.	LERC	Tabakoff, W.	NGR 36-004-064	2754
41	UNIV COLORADO-BOLDR	Rainey, R. W.	LARC	Busemann, A.	NSG 1056	1579
41	UNIV COLORADO-BOLDR	Deissler, R. G.	LERC	Uberoi, M. S.	NGR 06-003-208	1571
41	UNIV OF CONNECTICUT	Kurzahls, P. R.	HQ-RE	Lindorff, D. P.	NGL 07-002-002	1602
41	UNIV OF DENVER	Redding, E. R.	HQ-PY	Blackledge, J. P.	NGL 06-004-096	1585
41	UNIV OF FLORIDA	Margason, R. J.	LARC	Fearn, R. L.	NGL 10-005-127	1698
41	UNIV ILLINOIS-URBANA	Morgan, H. L., Jr.	LARC	Ormsbee, A. I.	NGR 14-005-144	1843
41	UNIV ILLINOIS-URBANA	Stickle, J. W.	LARC	Ormsbee, A. I.	NGR 14-005-194	1851
41	UNIV ILLINOIS-URBANA	Stickle, J. W.	LARC	Ormsbee, A. I.	NGR 14-005-206	1854
41	UNIV ILLINOIS-URBANA	Anderson, B. H.	LERC	Chow, W. L.	NGL 14-005-140	1840
41	UNIV ILLINOIS-URBANA	Karchmer, A. M.	LERC	Jones, B. G.	NGR 14-005-149	1844
41	UNIV ILLINOIS-URBANA	Karchmer, A. M.	LERC	Jones, B. G.	NGR 14-005-177	1846
41	UNIV ILLINOIS-URBANA	Marek, C. J.	LERC	Strehlow, R. A.	NGR 14-005-193	1850
41	UNIV OF KANSAS	Gee, S. W.	FRC	Roskam, J.	NAS 4-2148	1922
41	UNIV OF KANSAS	Barber, M. R.	FRC	Roskam, J.	NGR 17-002-095	1933
41	UNIV OF KANSAS	Ward, J. F.	LARC	Muirhead, V. U.	NAS 1-12976	1921
41	UNIV OF KANSAS	Crane, H. L.	LARC	Kohlman, D. L.	NGR 17-002-072	1932
41	UNIV OF KANSAS	Campbell, J. F.	LARC	Lan, C. T.	NGR 17-002-107	1935
41	UNIV OF KANSAS	Pride, R. A.	LARC	Lenzen, K. H.	NGR 17-004-027	1936
41	UNIV OF KANSAS	Lamar, J. E.	LARC	Roskam, J.	NSG 1046	1939
41	UNIV OF KANSAS	Duberg, J. E.	LARC	Roskam, J.	NSG 1061	1940
41	UNIV MARYLAND-COL PK	Chyu, W. J.	ARC	Yang, J. C.	NGR 21-002-350	2041
41	UNIV MARYLAND-COL PK	Gaspers, P. A., Jr.	ARC	Weisshaar, T. A.	NGR 21-002-391	2048
41	UNIV MD-EASTRN SHORE	Pohly, J. G.	HQ-PY	Nagarajon, N.	NGR 21-119-002	2067
41	UNIV MICH-ANN ARBOR	Feistel, T. W.	ARC	Buning, H.	NSG 2018	2292
41	UNIV MICH-ANN ARBOR	McCarty, J. L.	LARC	Clark, S. R.	NGL 23-005-010	2263
41	UNIV MICH-ANN ARBOR	Czarnecki, K. R.	LARC	Adamson, T. C., Jr.	NGR 23-005-523	2273
41	UNIV MICH-ANN ARBOR	Beckwith, I. E.	LARC	Nicholls, J. A.	NGR 23-005-600	2284
41	UNIV MICH-ANN ARBOR	McCarty, J. L.	LARC	Clark, S. K.	NSG 1080	2291
41	UNIV MO-ROLLA	Mixson, J. S.	LARC	Koval, L. R.	NSG 1050	2369
41	UNIV OKLAHOMA-NORMAN	Stephens, J. B.	MSFC	Canfield, J. M.	NAS 8-30175	2776
41	UNIV OF SANTA CLARA	Marvin, J. G.	ARC	Owen, F. K.	NGR 05-017-029	1501
41	UNIV OF SANTA CLARA	Hruly, R.	ARC	Dunn, W. R.	NGR 05-017-031	1502
41	UNIV OF SANTA CLARA	Schwartz, I. R.	ARC	Cheng, D. Y.	NGR 05-017-033	1503
41	UNIV OF SOUTHERN CAL	Dorsch, R. G.	LERC	Laufer, J.	NAS 3-17857	1508
41	UNIV OF SOUTHERN CAL	Dorsch, R. G.	LERC	Laufer, J.	NSG 3025	1523
41	UNIV TENNESSEE-KNOXV	Bland, S. R.	LARC	Wu, J. M.	NGR 43-001-102	2920
41	UNIV TENNESSEE-KNOXV	Fetterman, D. E.	LARC	Chaudhuri, S. N.	NGR 43-001-124	2924
41	UNIV TENNESSEE-KNOXV	Hammond, C. E.	LARC	Lumsdaine, E.	NSG 1054	2929
41	UNIV TENNESSEE-KNOXV	Hunt, L. R.	LARC	Hodgson, J. W.	NSG 1062	2930
41	UNIV TENNESSEE-KNOXV	Dittmar, J. H.	LERC	Lunsdaine, E.	NGR 43-001-134	2926
41	UNIV TENNESSEE-KNOXV	Dorsch, R. G.	LERC	Maus, J. R.	NGR 43-001-135	2927
41	UNIV TEXAS-AUSTIN	Coe, C. F.	ARC	Panton, R. L.	NGR 44-012-221	3071
41	UNIV TEXAS-AUSTIN	Goodrich, W. D.	JSC	Bertin, J. J.	NAS 9-13680	3056

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41	UNIV TEXAS-AUSTIN	Key, J. E.	MSFC	Becker, E. B.	NAS 8-30622	3052
41	UNIV OF VIRGINIA	Yates, E. C., Jr.	LARC	Haviland, J. K.	NGL 47-005-098	3221
41	UNIV OF VIRGINIA	Rainey, A. G.	LARC	Haviland, J. K.	NGL 47-005-108	3222
41	UNIV OF VIRGINIA	Kilgore, R. A.	LARC	Zapata, R. N.	NGR 47-005-112	3223
41	UNIV OF VIRGINIA	Schoonover, W. E., Jr.	LARC	Jacobson, I. D.	NGR 47-005-181	3227
41	UNIV OF VIRGINIA	Stone, R. W., Jr.	LARC	Jacobson, I. D.	NGR 47-005-208	3230
41	UNIV OF VIRGINIA	Schoenster, J. A.	LARC	Haviland, J. K.	NGR 47-005-219	3232
41	UNIV OF VIRGINIA	Kilgore, R. A.	LARC	Zapata, R. N.	NSG 1010	3233
41	UNIV OF WASHINGTON	Watson, E. C.	ARC	Childs, M. E.	NGL 48-002-047	3290
41	UNIV OF WASHINGTON	Kurkowski, R. L.	ARC	Joppa, R. G.	NGR 48-002-085	3293
41	UNIV OF WASHINGTON	Steinle, F. W., Jr.	ARC	Russell, D. A.	NGR 48-002-107	3294
41	UNIV OF WASHINGTON	Anderson, A. E.	ARC	Kippenhan, C. J.	NGR 48-002-141	3298
41	UNIV OF WASHINGTON	Hodder, B. K.	ARC	Chalupnik, J. D.	NGR 48-002-144	3300
41	UNIV OF WASHINGTON	Heyson, H. H.	LARC	Joppa, R. G.	NGL 48-002-010	3287
41	UNIV OF WASHINGTON	Heyson, H. H.	LARC	Rae, W. H.	NGL 48-002-035	3288
41	UNIV WISC-MILWAUKEE	Ward, J. F.	LARC	Bratanow, T.	NGR 50-007-001	3354
41	VA MILITARY INSTITUT	Creedon, J. F.	LARC	Reid, G. F.	NGR 47-018-005	3238
41	VIRGINIA POLY INST	Gaspers, P. A., Jr.	ARC	Weisshaar, T. A.	NSG 2016	3274
41	VIRGINIA POLY INST	Curry, D. M.	JSC	Lewis, C. H.	NAS 9-12630	3246
41	VIRGINIA POLY INST	Russin, W. R.	LARC	Schetz, J. A.	NAS 1-10233	3239
41	VIRGINIA POLY INST	Martin, D. J.	LARC	Fabrycky, W. J.	NGR 47-004-090	3251
41	VIRGINIA POLY INST	Beckwith, I. E.	LARC	Schetz, J. A.	NGR 47-004-106	3260
41	VIRGINIA POLY INST	Montgomery, R. C.	LARC	Vanlandingham, H. F.	NGR 47-004-116	3264
41	VIRGINIA POLY INST	Montgomery, R. C.	LARC	Cliff, E. M.	NSG 1015	3268
41	VIRGINIA STATE COL	Pohly, J. G.	HQ-PY	Agrawal, K. M.	NGR 47-014-005	3277
41	WASHINGTON UNIVERSY	Morse, H. A.	ARC	Hohenemser, K. H.	NAS 2-7613	2370
41	WICHITA STATE UNIV	Noonan, K. W.	LARC	Wentz, W. H., Jr.	NGR 17-003-021	1942
42	AUBURN UNIV-AUBURN	Hethcoat, J. P.	MSFC	Bennett, A. G.	NAS 8-27664	1017
42	CARNEGIE-MELLON UNIV	Paddack, S. J.	GSFC	Renard, M. L.	NGR 39-087-001	2797
42	CARNEGIE-MELLON UNIV	Paddack, S. J.	GSFC	Renard, M. L.	NGR 39-087-026	2800
42	COLORADO STATE UNIV	Priem, R. J.	LERC	Mitchell, C. E.	NGR 06-002-095	1538
42	COLORADO STATE UNIV	Serafini, J. S.	LERC	Wilhelm, H. E.	NGR 06-002-147	1545
42	COLORADO STATE UNIV	Mirtich, M. J.	LERC	Wilbur, P. J.	NSG 3011	1551
42	CORNELL UNIVERSITY	Tarver, P.	HQ-SL	Wehe, R. L.	NASW 2366	2534
42	GEORGIA INST OF TECH	Priem, R. J.	LERC	Zinn, B. T.	NGR 11-002-179	1750
42	MASS INST OF TECH	Cambell, C. E.	GSFC	Staelin, D.	NAS 5-20091	2120
42	MASS INST OF TECH	Barbieri, R. W.	GSFC	Deyst, J. J., Jr.	NGR 22-009-207	2160
42	MASS INST OF TECH	Hovnanian	HQ-SS	Biemann, K.	NGR 22-009-102	2159
42	PENNSYLVANIA STATE U	Priem, R. J.	LERC	Faeth, G. M.	NGR 39-009-077	2834
42	PRINCETON UNIVERSITY	Barbieri, R. W.	GSFC	Lion, P. M.	NGR 31-001-152	2432
42	PRINCETON UNIVERSITY	Mixson, J. S.	LARC	Dowell, E. H.	NGL 31-001-146	2426
42	PRINCETON UNIVERSITY	Mullin, J. P.	HQ-RP	Jahn, R. G.	NGL 31-001-005	2421
42	PRINCETON UNIVERSITY	Schwenk, F. C.	HQ-NS	Kelly, A. J.	NGR 31-001-230	2437
42	PRINCETON UNIVERSITY	Tarver, P.	HQ-SL	Layton, J. P.	NSR 31-001-313	2453
42	STANFORD UNIVERSITY	Rubetin, M. W.	ARC	Reynolds, W. C.	NGR 05-020-622	1289
42	STANFORD UNIVERSITY	Lidston, J. M.	GSFC	Debra, D. B.	NAS 5-21684	1249
42	STANFORD UNIVERSITY	Lidston, J. M.	GSFC	Berra, D. B.	NAS 5-21960	1252
42	STANFORD UNIVERSITY	Barbieri, R. W.	GSFC	Breakwell, J. V.	NGR 05-020-592	1287
42	TENNESSEE TECH U	Priem, R. J.	LERC	Purdy, K. R.	NGR 43-003-015	2906
42	UNIV ALA-HUNTSVILLE	Smith, R. E.	MSFC	Hermann, R.	NAS 8-28248	1043
42	UNIV OF ARIZONA	Aucremanne, M. J.	HQ-SG	Meinel, A. B.	NASW 2283	1114
42	UNIV OF FLORIDA	Soltis, D. G.	LERC	Walker, R. D., Jr.	NGR 10-005-182	1702
42	UNIV TENNESSEE-KNOXV	Hady, W. F.	LERC	Milligan, M. W.	NGR 43-001-127	2925
42	UNIV TENNESSEE-KNOXV	Parker, J. R.	MSFC	Hung, J. C.	NAS 8-27296	2911
42	UNIV TEXAS-AUSTIN	Michaels, T. S.	HQ-RE	Tapley, B. D.	NGL 44-012-008	3061
42	VIRGINIA POLY INST	Fedor, J. V.	GSFC	Meirovitch, L.	NGR 47-004-098	3255
43	FLORIDA INST OF TECH	Franks, H. H.	KSC	Bowman, T. E.	NAS10-8399	1678
43	GRAMBLING COLLEGE	Pohly, J. G.	HQ-PY	Sabu, D. D.	NGR 19-011-012	1957

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43	ILL INST OF TECH	Kaplan, G. M.	LERC	Weinstein, H.	NGR 14-004-008	1787
43	MASS INST OF TECH	Holdeman, J. D.	LERC	Fay, J. A.	NGR 22-009-378	2165
43	PRAIRIE VIEW A&M U	Pohly, J. G.	HQ-PY	Stubblefield, C. T.	NGR 44-033-014	2958
43	PRINCETON UNIVERSITY	Cagliostro, D. E.	ARC	Sirignano, W. A.	NAS 2-6705	2412
43	PURDUE UNIVERSITY	Unavailable	HQ-RP	Zucrow, M. J.	NGR 15-005-002	1884
43	RICE UNIVERSITY	Kissinger, L. D.	JSC	Davis, S. H.	NAS 9-11827	2967
43	SO UNIV-BATON ROUGE	Pohly, J. G.	HQ-PY	Watson, M. M.	NGR 19-005-008	1975
43	UNIV CALIF-BERKELEY	Wydeven, T. J.	ARC	Bell, A. T.	NGR 05-003-462	1356
43	UNIV CALIF-BERKELEY	Wydeven, T. J.	ARC	Merrill, R. P.	NGR 05-003-478	1359
43	UNIV OF CINCINNATI	Price, H. L.	LARC	Chartoff, R. P.	NGR 36-004-063	2753
43	UNIV OF FLORIDA	Easter, R. W.	LERC	Walker, R. D., Jr.	NGL 10-005-022	1693
43	UNIV MICH-ANN ARBOR	Unavailable	GSFC	Unavailable	NAS 5-20622	2252
43	UNIV MO-COLUMBIA	Ellis, W. E.	JSC	Winnick, J.	NAS 9-12526	2361
43	UNIV OF SO CAROLINA	Jorolan, A. E.	KSC	Bonnell, R. D.	NAS10-8354	2890
44	COLORADO STATE UNIV	Camp, D. W.	MSFC	Cermak, J. E.	NAS 8-29583	1533
44	OLD DOMINION UNIV	Leland, T. J.	LARC	Cheng, R.	NGL 47-003-012	3184
44	TEXAS A&M UNIVERSITY	Chapman, A. J.	LARC	Beckwith, S. W.	NAS 1-13342	2988
44	UNIV CALIF-BERKELEY	Kourtides, D. A.	ARC	Williamson, R. B.	NSG 2026	1373
44	UNIV ILLINOIS-URBANA	Bender, M. J.	JSC	Karara, H. M.	NAS 9-12459	1838
44	VIRGINIA POLY INST	Hayduk, R. J.	LARC	Melosh, R. J.	NGR 47-004-114	3263
45	ALABAMA A&M UNIV	Lowrey, D. J.	MSFC	Weathers, G.	NSG 8013	1010
45	AMERICAN UNIVERSITY	Long, E. R., Jr.	LARC	Cullen, E.	NGR 09-003-014	1630
45	AUBURN UNIV-AUBURN	Emens, F. H.	MSFC	Irwin, J. D.	NAS 8-20765	1013
45	AUBURN UNIV-AUBURN	Lowery, D. O.	MSFC	Honnell, M. A.	NAS 8-26193	1014
45	AUBURN UNIV-AUBURN	White, J. B.	MSFC	Irwin, J. D.	NAS 8-26930	1016
45	CARNEGIE-MELLON UNIV.	Schaefer, D. H.	GSFC	Lee, S. H.	NGR 39-087-036	2801
45	CITY COLLEGE OF N Y	Brown, J. P.	GSFC	Schilling, D. L.	NGR 33-013-048	2495
45	CITY COLLEGE OF N Y	Brown, J. P.	GSFC	Schilling, D. L.	NGR 33-013-077	2496
45	CITY COLLEGE OF N Y	Miller, J. E.	GSFC	Schilling, D. L.	NSG 5013	2498
45	CITY COLLEGE OF N Y	Batson, B. H.	JSC	Schilling, D. L.	NAS 9-13940	2491
45	COLORADO STATE UNIV	Adams, G. D.	MSFC	Jones, T. B.	NAS 8-30250	1534
45	COLUMBIA UNIVERSITY	Lalli, V. R.	LERC	Stern, T.	NGL 33-008-090	2509
45	CORNELL UNIVERSITY	Brunk, W. E.	HQ-SL	Harwit, M. O.	NGR 33-010-210	2563
45	DUKE UNIVERSITY	Rodriguez, G. E.	GSFC	Wilson, T. J.	NGL 34-001-001	2656
45	GEORGIA INST OF TECH	King, J. L.	GSFC	Dees, J. W.	NSG 5012	1758
45	GEORGIA INST OF TECH	Wright, M. I.	KSC	Webb, R. P.	NAS10-8375	1737
45	GEORGIA INST OF TECH	Morris, R.	LARC	Walker, R. D., Jr.	NGR 11-002-158	1745
45	GEORGIA INST OF TECH	Unavailable	LERC	Unavailable	NAS 3-18901	1726
45	GEORGIA INST OF TECH	Kerr, J. H.	MSFC	Callor, W. R.	NAS 8-28591	1727
45	GEORGIA INST OF TECH	Kerr, J. H.	MSFC	Hart, R. K.	NAS 8-29860	1730
45	HOFSTRA UNIVERSITY	Swift, C. T.	LARC	Weissman, D. E.	NGR 33-209-002	2569
45	HOWARD UNIVERSITY	Savely, R. T.	JSC	Choudhury, A. K.	NSG 9010	1673
45	LAVAL UNIVERSITY	Major, F. G.	GSFC	Vanier, J.	NGR 52-133-001	3369
45	LOWELL TECH INST	Lalli, V. R.	LERC	Burger, P.	NGR 22-018-006	2107
45	MASS INST OF TECH	Clark, T. A.	GSFC	Shapiro, I. I.	NGR 22-009-839	2206
45	MASS INST OF TECH	Soffen, G. A.	LARC	Shapiro, I. T.	NAS 1-9702	2110
45	MASS INST OF TECH	Smolensky, S.	HQ-PA	Zannetos, Z. S.	NGL 22-009-309	2151
45	MASS INST OF TECH	Anderton, H. L.	HQ-RE	Kennedy, R. S.	NGL 22-009-013	2141
45	MEMPHIS ST UNIV	Shack, P. E.	JSC	Morris, C. F.	NAS 9-13878	2899
45	MISSISSIPPI STATE U	Pitts, E. H.	MSFC	Rogers, T. W.	NAS 8-30618	2344
45	MORGAN STATE COLLEGE	Mundy, J. R.	GSFC	Collagan, R. B.	NGR 21-025-011	2009
45	NEW MEX ST U-LAS CR	Lantz, P. A.	GSFC	Post, C. C.	NAS 5-20565	2460
45	NEW MEX ST U-LAS CR	Flowers, J.	GSFC	Snow, L. L.	NAS 5-21432	2461
45	NEW MEX ST U-LAS CR	Lantz, P. A.	GSFC	Post, C. C.	NAS 5-22203	2463
45	NEW MEX ST U-LAS CR	Schlimmer, G. E.	KSC	Bumgarner, R. A.	NAS10-7399	2467
45	NO CAR A&T STATE U	Fripp, A. L.	LARC	Williams, L.	NGR 34-012-004	2660
45	NO CAR A&T STATE U	Pohly, J. G.	HQ-PY	Madan, R. N.	NGR 34-012-003	2659
45	NO CAROLINA STATE U	Lussiter, W. S.	LARC	Monteith, L. K.	NAS 1-12833	2662

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45	NO CAROLINA STATE U	Hendricks, H. D.	LARC	Monteith, L. K.	NGR 34-002-172	2670
45	NO CAROLINA STATE U	Croswell, W. F.	LARC	Kauffman, J. F.	NGR 34-002-188	2676
45	NO CAROLINA STATE U	Godlewski, M. P.	LERC	Hauser, J. R.	NGR 34-002-195	2679
45	NORTHEASTERN UNIV	Myers, I.	LERC	Radinodici, B.	NAS12-2053	2218
45	NORTHWESTERN UNIV	Painter, J. H.	LARC	Schaefer, B. M.	NGR 14-007-129	1799
45	OHIO STATE UNIV	Hirschmann, E.	GSFC	Ksienski, A. A.	NGR 36-008-080	2733
45	OHIO STATE UNIV	Cockrell, C. R.	LARC	Richmond, J. H.	NGL 36-008-138	2732
45	OHIO STATE UNIV	Croswell, W. F.	LARC	Peters, L., Jr.	NGR 36-008-144	2734
45	OHIO STATE UNIV	Painter, J. H.	LARC	Peake, W. H.	NGR 36-008-169	2736
45	OHIO STATE UNIV	Gedney, R. T.	LERC	Peake, W. H.	NSG 3005	2742
45	OKLAHOMA STATE UNIV	Moul, M. T.	LARC	Rhoten, R. P.	NGR 37-002-096	2771
45	PRINCETON UNIVERSITY	Bordelon, C. S.	MSFC	Danielson, R. E.	NAS 8-29239	2420
45	PURDUE UNIVERSITY	Lynch, T. J.	GSFC	Wintz, P. A.	NGR 15-005-152	1888
45	RENSSELAER POLY-NY	Grant, T. L.	ARC	Modestino, J. W.	NGR 33-018-188	2607
45	SOUTHERN METHODIST U	Painter, J. H.	LARC	Gupta, S. C.	NGR 44-007-049	2985
45	STANFORD UNIVERSITY	Grant, T. L.	ARC	Croft, T. A.	NSG 2017	1311
45	STANFORD UNIVERSITY	Baker, J.	GSFC	Villard, O. G.	NAS 5-10102	1248
45	STANFORD UNIVERSITY	Soffen, G. A.	LARC	Tyler, G. L.	NAS 1-9701	1240
45	STANFORD UNIVERSITY	Anderton, H. L.	HQ-RE	Harris, S. E.	NGL 05-020-103	1261
45	STATE U NY-STONY BRK	Weldon, J. M.	HQ-SG	Stroke, G. W.	NSG 7003	2637
45	TEXAS A&M UNIVERSITY	Arndt, G. D.	JSC	Haden, C. R.	NAS 9-9285	2999
45	TEXAS TECH UNIV	Day, J. L.	JSC	Portnoy, W. M.	NAS 9-11162	3020
45	TUSKEGEE INSTITUTE	Clark, E. E., Jr.	MSFC	Doreswamy, C. V.	NSG 8003	1034
45	TUSKEGEE INSTITUTE	Pohly, J. G.	HQ-PY	Terrill, G. R.	NGR 01-005-012	1033
45	UNIV ALA-TUSCALOOSA	Emens, F. H.	MSFC	Houts, R. C.	NAS 8-20172	1064
45	UNIV ALA-TUSCALOOSA	Randall, J. L.	MSFC	Webb, W. E.	NAS 8-25562	1065
45	UNIV OF ARIZONA	Schwenk, F. C.	HQ-NS	Schultz, D. G.	NGL 03-002-006	1117
45	UNIV CALIF-BERKELEY	Lynch, T. J.	GSFC	Algazi, V. R.	NGR 05-003-538	1365
45	UNIV OF CINCINNATI	Sundberg, G. R.	LERC	Henderson, H. T.	NSG 3022	2759
45	UNIV OF CINCINNATI	Grier, N. T.	LERC	Nevin, J. H.	NSG 3024	2760
45	UNIV COLORADO-BOLDR	Lehmann, J.	HQ-ER	Baird, J. R.	NGR 06-003-160	1564
45	UNIV OF FLORIDA	Godlewski, M. P.	LERC	Lindholm, F. A.	NSG 3018	1705
45	UNIV OF HOUSTON	Arndt, G. D.	JSC	Simpson, R. S.	NAS 9-11845	3024
45	UNIV ILLINOIS-URBANA	Golden, T. S.	GSFC	Yeh, K. C.	NGR 14-005-189	1849
45	UNIV MARYLAND-COL PK	Hurt, C. R.	GSFC	Hochuli, U. E.	NGR 21-002-345	2040
45	UNIV MARYLAND-COL PK	Pease, P. B.	GSFC	Pugsley, J. H.	NGR 21-002-355	2043
45	UNIV OF MASS-AMHERST	Rolinski, A. J.	GSFC	Monopoli, R. V.	NGL 22-010-018	2224
45	UNIV MICH-ANN ARBOR	Hughes, W. E.	GSFC	Haddad, G. I.	NGL 23-005-183	2264
45	UNIV OF NOTRE DAME	Lynch, T. J.	GSFC	Massey, J. L.	NGL 15-004-026	1900
45	UNIV OF NOTRE DAME	Fripp, A. L.	LARC	Gajda, W. J., Jr.	NAS 1-12468	1899
45	UNIV OF SO CAROLINA	Lowrey, D. O.	MSFC	Fellers, R. G.	NAS 8-28660	2889
45	UNIV OF SOUTHERN CAL	Kutz, R. L.	GSFC	Davisson, L. D.	NAS 5-21505	1509
45	UNIV OF SOUTHERN CAL	Premo, D. A.	GSFC	Gagliardi, R. M.	NGL 05-018-104	1516
45	UNIV OF SOUTHERN CAL	Kutz, R. L.	GSFC	Davisson, L. D.	NGL 05-018-118	1517
45	UNIV TENNESSEE-KNOXV	Borelli, M. T.	MSFC	Gonzalez, R. C.	NAS 8-29271	2912
45	UNIV TENNESSEE-KNOXV	Thompson, Z.	MSFC	Liu, T. C.	NAS 8-30256	2915
45	UNIV TEXAS-AUSTIN	Hirschman, H.	GSFC	Straiton, A. W.	NAS 5-21982	3049
45	UNIV OF VIRGINIA	Kelly, W. L.	LARC	White, E. J.	NAS 1-10210	3213
45	UNIV OF VIRGINIA	Wells, J. G., Jr.	LARC	Parrish, E. A.	NSG 1067	3234
45	UNIV WISC-MADISON	Unavailable	ARC	Unavailable	NAS 2-8015	3319
45	VIRGINIA POLY INST	Hirschmann, E.	GSFC	Bostian, C. W.	NAS 5-21984	3243
45	VIRGINIA POLY INST	Hirschmann, E.	GSFC	Bostian, C. W.	NGR 47-004-091	3252
45	VIRGINIA POLY INST	Dod, L. R.	GSFC	Galindo, V.	NGR 47-004-102	3258
45	VIRGINIA POLY INST	Dod, L. R.	GSFC	Stutzman, W. L.	NGR 47-004-103	3259
45	WASHINGTON TECH INST	Ehrmann, C. H.	GSFC	Brach, P.	NGR 09-059-002	1674
45	WAYNE STATE UNIV	Brandhorst, H. W., Jr.	LERC	Wang, E. Y.	NGR 23-006-057	2297
45	WAYNE STATE UNIV	Dunning, J. W., Jr.	LERC	Wang, E. Y.	NGR 23-006-063	2298
45	WEST VIRGINIA UNIV	Johnson, J. W.	LARC	Balanis, C. A.	NGR 49-001-056	3311

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45	YALE UNIVERSITY	Schaefer, D. H.	GSFC	Barker, R. C.	NGL 07-004-005	1608
46	ALABAMA A&M UNIV	Pohly, J. G.	HQ-PY	Weathers, G. D.	NGR 01-001-021	1004
46	BROWN UNIVERSITY	Misencik, J. A.	LERC	Mylonas, C.	NGL 40-002-080	2877
46	CALIF INST OF TECH	Gross, L. A.	MSFC	Acosta, A. J.	NAS 8-29313	1171
46	CAL STATE U-NRTHRIDGE	Coe, H. H.	LERC	Nypan, L. J.	NGR 05-062-002	1222
46	CARNEGIE-MELLON UNIV	Ludwig, L. P.	LERC	Hughes, W. F.	NSG 3023	2805
46	COLORADO STATE UNIV	Kirkpatrick, J. P.	ARC	Jones, T. B.	NGR 06-002-127	1543
46	COLORADO STATE UNIV	Misencik, J. A.	LERC	Smith, F. W.	NGL 06-002-063	1536
46	CORNELL UNIVERSITY	Evvard, J. C.	LERC	Moore, F. K.	NGL 33-010-042	2538
46	DREXEL UNIVERSITY	Howlett, J. T.	LARC	Mortimer, R. C.	NGR 39-004-051	2807
46	GEORGIA INST OF TECH	Posey, J. W.	LARC	Pierce, A. D.	NSG 1047	1755
46	GEORGIA INST OF TECH	Jones, W. R., Jr.	LERC	Winer, W. O.	NGR 11-002-133	1742
46	HARVARD UNIVERSITY	Leonard, H. W.	LARC	Budiansky, B.	NSG 1019	2103
46	HOWARD UNIVERSITY	Huff, V. N.	HQ-MT	Bainum, P. M.	NGR 09-011-053	1668
46	LEHIGH UNIVERSITY	Fichter, W. B.	LARC	Sih, G. C.	NGR 39-007-066	2816
46	MASS INST OF TECH	Poorman, R. M.	MSFC	Masubuchi, K.	NAS 8-24365	2123
46	MASS INST OF TECH	Borelli, M. T.	MSFC	Whitney, D. E.	NAS 8-28055	2126
46	MASS INST OF TECH	Hoppes, R. V.	MSFC	Masubuchi, K.	NAS 8-28732	2128
46	MASS INST OF TECH	Fikes, E. H.	MSFC	Ovellette, G.	NAS 8-29849	2129
46	MASS INST OF TECH	Miller, D. J.	HQ-NS	Sheridan, T. B.	NGR 22-009-658	2180
46	MISSISSIPPI STATE U	Fleming, D. P.	LERC	Stiffler, A. K.	NGR 25-001-050	2350
46	NORTHWESTERN UNIV	Zaretsky, E. V.	LERC	Ching, H. S.	NGR 14-007-084	1796
46	OLD DOMINION UNIV	French, B. O.	JSC	Keshock, E. G.	NAS 9-13410	3181
46	OLD DOMINION UNIV	Hellbaum, R. F.	LARC	Goglia, G. L.	NGL 47-003-007	3182
46	PENNSYLVANIA STATE U	Schoonover, W. E., Jr.	LARC	Park, W. H.	NGR 39-009-256	2840
46	PENNSYLVANIA STATE U	Dittmar, J. H.	LERC	Henderson, R. E.	NGR 39-009-275	2842
46	PRAIRIE VIEW A&M U	Pohly, J. G.	HQ-PY	Yeh, H. Y.	NGR 44-033-016	2959
46	PURDUE UNIVERSITY	Minner, G. L.	LERC	Vaidya, P. G.	NSG 3029	1895
46	ROSE-HULMAN INST TEC	Dietrich, M. W.	LERC	Coy, J. J.	NAS 3-17357	1898
46	STANFORD UNIVERSITY	Graham, R. W.	LERC	Kays, W. M.	NGL 05-020-134	1262
46	TENNESSEE STATE UNIV	Holder, R. C.	MSFC	Houghton, J. R.	NSG 8012	2904
46	TUSKEGEE INSTITUTE	French, B. O.	JSC	Sellers, J. P.	NAS 9-13844	1030
46	UNIV ALA-HUNTSVILLE	Jones, J. H.	MSFC	Pao, S. P.	NAS 8-28588	1046
46	UNIV ALA-HUNTSVILLE	Allums, S. L.	MSFC	Shih, C. C.	NAS 8-28736	1047
46	UNIV ALA-HUNTSVILLE	Smith, R. E.	MSFC	Hung, R. J.	NAS 8-30247	1055
46	UNIV ALA-TUSCALOOSA	Schutzenhofer, L. A.	MSFC	Doughty, J. O.	NAS 8-30624	1074
46	UNIV CALIF-BERKELEY	Marek, C. J.	LERC	Branch, M. C.	NSG 3028	1374
46	UNIV OF CINCINNATI	Haas, J. E.	LERC	Tabakoff, W.	NGR 36-004-055	2749
46	UNIV OF KENTUCKY	Jackson, M. M.	JSC	Carter, W. M.	NAS 9-12749	1945
46	UNIV OF MASS-AMHERST	Patterson, J. W.	MSFC	Crossley, F. R.	NAS 8-29073	2223
46	UNIV OF MIAMI	Housner, J. M.	LARC	Plass, H. J., Jr.	NSG 1044	1717
46	UNIV MICH-ANN ARBOR	Fichter, W. B.	LARC	Atkins, A. G.	NGR 23-005-528	2274
46	UNIV MICH-ANN ARBOR	Priem, R. J.	LERC	Nicholls, J. A.	NGL 23-005-336	2266
46	UNIV MICH-ANN ARBOR	Priem, R. J.	LERC	Nicholls, J. A.	NGR 23-005-536	2275
46	UNIV MO-ROLLA	Chambers, A. B.	ARC	Miles, J. B.	NGR 26-004-097	2368
46	UNIV OF NEW MEXICO	Hellbaum, R. F.	LARC	Richards, C. G.	NGR 32-004-026	2481
46	UNIV OF SO ALABAMA	Larson, P. A.	MSFC	Elliott, J. M.	NAS 8-28722	1079
46	UNIV TENNESSEE-KNOXV	Fichtl, G. H.	MSFC	Frost, W.	NAS 8-29584	2913
46	UNIV TENNESSEE-KNOXV	Ellsworth, D. J.	MSFC	Hung, J. C.	NAS 8-29632	2914
46	UNIV TEXAS-AUSTIN	Boyd, W. C.	JSC	Hickox, C. E.	NAS 9-13865	3057
46	UNIV OF UTAH	Wasel, R. A.	HQ-RP	Devires, K. L.	NGL 45-003-037	3143
46	UNIV OF VIRGINIA	Sewall, J. L.	LARC	Pilkey, W. D.	NGR 47-005-145	3224
46	UNIV OF VIRGINIA	Cunningham, R. E.	LERC	Gunter, E. J.	NGL 47-005-050	3219
46	VIRGINIA POLY INST	Newman, J. C., Jr.	LARC	Smith, C. W.	NGR 47-004-076	3249
46	VIRGINIA POLY INST	Newman, J. C., Jr.	LARC	Smith, C. W.	NSG 1024	3270
47	ALFRED UNIVERSITY	Gangler, J. J.	HQ-RW	Frechette, V. D.	NASW 2504	2486
47	CARNEGIE-MELLON UNIV	Misencik, J. A.	LERC	Low, J. R., Jr.	NGR 39-087-003	2798
47	CARNEGIE-MELLON UNIV	Klopp, W. D.	LERC	Low, J. R., Jr.	NGR 39-087-047	2803

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47	CASE WESTERN RESERVE	Quatinetz, M.	LERC	Ebert, L. J.	NGL 36-003-094	2693
47	CASE WESTERN RESERVE	Ashbrook, R. L.	LERC	Wallace, J. F.	NGR 36-027-035	2696
47	CASE WESTERN RESERVE	Gray, H. R.	LERC	Troiano, A. R.	NGR 36-027-040	2698
47	CASE WESTERN RESERVE	Gray, H. R.	LERC	Hehemann, R. H.	NGR 36-027-051	2701
47	CASE WESTERN RESERVE	Probst, H. B.	LERC	Mitchell, T. E.	NSG 3027	2710
47	CASE WESTERN RESERVE	Maltz, J.	HQ-RW	Manson, S. S.	NSG 7035	2711
47	CORNELL UNIVERSITY	Laurence, J. C.	LERC	Ruoff, A. L.	NGR 33-010-189	2561
47	GEORGETOWN UNIV	Allen, R. E.	MSFC	Leise, E. M.	NAS 8-29778	1659
47	GEORGIA INST OF TECH	Hasemeyer, E. A.	MSFC	Brown, J. L.	NAS 8-28735	1728
47	HIRAM COLLEGE	Buckley, D. H.	LERC	Wheeler, D. R.	NSG 3026	2718
47	LEHIGH UNIVERSITY	Newman, J. C., Jr.	LARC	Wei, R. P.	NGL 39-007-040	2810
47	LEHIGH UNIVERSITY	Illg, W.	LARC	Erdogan, F.	NGR 39-007-011	2811
47	LEHIGH UNIVERSITY	Ashbrook, R. L.	LERC	Kraft, R. W.	NGL 39-007-007	2809
47	LEHIGH UNIVERSITY	Misencik, J. A.	LERC	Wei, R. P.	NGR 39-007-067	2817
47	MASS INST OF TECH	Harris, J. W.	JSC	Uhlmann, D. R.	NGR 22-009-646	2179
47	MASS INST OF TECH	Quatinetz, M.	LERC	Grant, N. J.	NGL 22-009-003	2140
47	NORFOLK STATE COL	Mehrens, H. E.	LARC	Jacobs, J. A.	NSG 1073	3176
47	NO CAR A&T STATE U	Mounihan, P. I.	JPL	Craft, W. J.	NGR 34-012-013	2661
47	NO CAROLINA STATE U	Williams, D. P.	ARC	Benson, R. B., Jr.	NGR 34-002-175	2671
47	NO CAROLINA STATE U	Hagginbotham, W. K., Jr.	LARC	Manning, C. R., Jr.	NGR 34-002-108	2669
47	OHIO STATE UNIV	Gray, H. R.	LERC	Beck, F. H.	NGL 36-008-051	2729
47	PENNSYLVANIA STATE U	Hirschberg, M. H.	LERC	Zamrik, S. Y.	NGR 39-009-034	2833
47	PENNSYLVANIA STATE U	Sanders, W. A.	LERC	Bradt, R. C.	NSG 3016	2845
47	PURDUE UNIVERSITY	Gilstad, D. A.	HQ-RW	Dewitt, D. P.	NSR 15-005-037	1897
47	RENSSELAER POLY-NY	Lad, R. A.	LERC	Wiberly, S. E.	NGL 33-018-003	2600
47	RENSSELAER POLY-NY	Miller, C. D.	LERC	Ling, F. F.	NGR 33-018-152	2605
47	RENSSELAER POLY-NY	Grimes, H. H.	LERC	Diefendorf, R. J.	NSG 3007	2609
47	SOUTHERN METHODIST U	Breckenridge, R. A.	LARC	Chu, T. L.	NGL 44-007-042	2983
47	STANFORD UNIVERSITY	Williams, D. P.	ARC	Barnett, D. M.	NGR 05-020-662	1295
47	STANFORD UNIVERSITY	Goldstein, H. E.	ARC	Shyne, J. C.	NGR 05-020-710	1304
47	STANFORD UNIVERSITY	Whittenberger, J. D.	LERC	Sherby, O. D.	NGR 05-020-671	1298
47	STATE U NY-STONY BRK	Lad, R. A.	LERC	Seigle, L. L.	NGL 33-015-035	2620
47	STATE U NY-STONY BRK	Levine, S. R.	LERC	Seigle, L. L.	NGR 33-015-160	2628
47	SYRACUSE UNIVERSITY	Hirschberg, M. H.	LERC	Liu, H. W.	NGR 33-022-157	2645
47	TALLADEGA COLLEGE	McKannan, E. C.	MSFC	Morrison, R. A.	NSG 8010	1029
47	TENNESSEE STATE UNIV	Buckley, D. H.	LERC	Sutherland, C. W.	NGR 43-014-003	2903
47	TEXAS A&M UNIVERSITY	Holladay, A. M.	MSFC	Porter, W. A.	NAS 8-26379	2993
47	UNIV ALA-HUNTSVILLE	Davidson, M. C.	MSFC	Castle, J. G.	NAS 8-29542	1050
47	UNIV CALIF-BERKELEY	Stephens, J. R.	LERC	Zackay, V. F.	NGR 05-003-562	1368
47	UNIV CALIF-L ANGELES	Poppa, H. R.	ARC	Douglass, D. L.	NSG 2025	1437
47	UNIV CALIF-L ANGELES	Johnson, R. L.	LERC	Amstutz, H. C.	NGR 05-007-338	1428
47	UNIV OF CINCINNATI	Olson, W. T.	LERC	Harness, D.	NGR 36-004-056	2750
47	UNIV OF CONNECTICUT	Hasemeyer, E. A.	MSFC	Katahis, T. Z.	NAS 8-28734	1598
47	UNIV OF FLORIDA	Lad, R. A.	LERC	Hren, J. J.	NGL 10-005-039	1694
47	UNIV OF FLORIDA	Lad, R. A.	LERC	Hummel, R. E.	NGL 10-005-080	1696
47	UNIV OF KENTUCKY	Sanders, W. A.	LERC	Leipold, M. H.	NGL 18-001-042	1947
47	UNIV OF KENTUCKY	Brown, W. F., Jr.	LERC	Conrad, H.	NSG 3013	1952
47	UNIV OF MIAMI	Shannon, J. L., Jr.	LERC	Craig, H. L., Jr.	NGR 10-007-118	1716
47	UNIV MICH-ANN ARBOR	Freche, J. C.	LERC	Wilson, D. J.	NGL 23-005-005	2262
47	UNIV MICH-ANN ARBOR	Buckley, D. H.	LERC	Ludema, K. C.	NGR 23-005-603	2286
47	UNIV NEBRASKA-LINCLN	Nelson, H. G.	ARC	Johnson, D. L.	NGR 28-004-025	2390
47	UNIV OF PITTSBURGH	Stephens, J. R.	LERC	Meier, G. H.	NGR 39-011-164	2870
47	UNIV OF TULSA	Nachtsheim, P. R.	ARC	Weston, K. C.	NGR 37-008-003	2778
47	UNIV OF WASHINGTON	Goldstein, H. E.	ARC	Mueller, J. I.	NAS 2-6541	3282
47	UNIV OF WASHINGTON	Dicus, D. L.	LARC	Fischbach, D. B.	NGR 48-002-129	3296
47	UNIV OF WASHINGTON	Lad, R. A.	LERC	Mueller, J. I.	NGL 48-002-004	3286
47	UNIV WISC-MADISON	Williams, J. R.	MSFC	Heine, R. W.	NAS 8-28733	3331
47	VANDERBILT UNIVERSTY	Allen, R. V.	MSFC	Kinser, D. L.	NAS 8-29460	2934

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47	VANDERBILT UNIVERSITY	Unavailable	MSFC	Unavailable	NAS 8-30883	2936
47	VIRGINIA POLY INST	Stein, B. A.	LARC	Tenney, D. R.	NGR 47-004-082	3250
47	VIRGINIA POLY INST	Stein, B. A.	LARC	Tenney, D. R.	NGR 47-004-097	3254
47	VIRGINIA POLY INST	Davis, J. G., Jr.	LARC	Herakovich, C. T.	NGR 47-004-101	3257
47	VIRGINIA POLY INST	Stein, B. A.	LARC	Lytton, J. L.	NGR 47-004-108	3261
47	WASHINGTON ST UNIV	Yates, I. C., Jr.	MSFC	Johnson, A. A.	NAS 8-29725	3307
47	WAYNE STATE UNIV	Allen, R. E.	MSFC	Brown, R. K.	NAS 8-29823	2296
49	AUBURN UNIV-AUBURN	Ellsworth, D. J.	MSFC	Boland, J. S., III	NAS 8-29852	1018
49	AUBURN UNIV-AUBURN	Carter, C. H.	HQ-PY	Vachon, R. I.	NGT 01-003-044	1023
49	AUBURN UNIV-AUBURN	Carter, C. H.	HQ-PY	O'Brien, J. F.	NGT 01-003-045	1024
49	BUCKNELL UNIVERSITY	Seasholtz, R. G.	LERC	Maxwell, B. R.	NGR 39-027-002	2795
49	BUCKNELL UNIVERSITY	Seasholtz, R. G.	LERC	Maxwell, B. R.	NGR 39-027-003	2796
49	CALIF INST OF TECH	Davis, R. C.	LARC	Babcock, C. D., Jr.	NSG 1005	1215
49	CALIF INST OF TECH	Pontious, C. E.	HQ-RE	McCann, G. D.	NGR 05-002-340	1213
49	CARNEGIE-MELLON UNIV	Srawley, J. E.	LERC	Swedlow, J. L.	NGR 39-087-053	2804
49	CASE WESTERN RESERVE	Usher, R. J.	LERC	Boltz, R. E.	NGR 36-027-047	2699
49	CASE WESTERN RESERVE	Carter, C. H.	HQ-PY	Prahl, J. M.	NGT 36-027-011	2707
49	CATHOLIC UNIVERSITY	Carter, C. H.	HQ-PY	Fang, B. T.	NGT 09-005-093	1637
49	COLORADO STATE UNIV	Kerslake, W. R.	LERC	Wilbur, P. J.	NGR 06-002-112	1541
49	CORNELL UNIVERSITY	Hrastar, J. A.	GSFC	Alfriend, K. T.	NGR 33-010-169	2555
49	CORNELL UNIVERSITY	Vitale, J. A.	HQ-PY	McHanus, H. N.	NGR 33-010-071	2546
49	CORNELL UNIVERSITY	Tarver, P.	HQ-SL	Wehe, R. L.	NASW 2573	2536
49	GEORGE WASHINGTON U	Maltz, J.	HQ-RW	Unavailable	NASW 2587	1648
49	GEORGE WASHINGTON U	Moore, J. V.	GSFC	Kahn, W. K.	NGR 09-010-090	1655
49	GEORGE WASHINGTON U	Martin, D. J.	LARC	Liebowitz, H.	NGL 09-010-053	1650
49	GEORGIA INST OF TECH	Unavailable	LERC	Unavailable	NAS 3-17827	1724
49	GEORGIA INST OF TECH	Masser, C. C.	LERC	Williams, J. R.	NGR 11-002-146	1743
49	GEORGIA INST OF TECH	Kascak, A. F.	LERC	Clement, J. D.	NGR 11-002-166	1747
49	GEORGIA INST OF TECH	Kaplan, G. M.	LERC	Clement, J. D.	NGR 11-002-181	1751
49	GEORGIA INST OF TECH	Smith, O. E.	MSFC	Justus, C. G.	NAS 8-30657	1735
49	HAMPTON INSTITUTE	Cox, J. J.	LARC	Trehan, A.	NSG 1053	3173
49	JACKSON STATE UNIV	Zuk, J.	LERC	Chu, C. S.	NSG 3004	2338
49	LA STATE U-BAT ROUGE	Moss, J. N.	LARC	Pike, R. W.	NGL 19-001-059	1965
49	LA STATE U-BAT ROUGE	Johnson, D. L.	LARC	Whitehurst, C. A.	NGL 19-001-068	1966
49	MASS INST OF TECH	Unavailable	ARC	Unavailable	NAS 2-7994	2114
49	MASS INST OF TECH	Doolin, B. F.	ARC	Athens, M.	NGL 22-009-124	2146
49	MASS INST OF TECH	Hasemeyer, E. A.	MSFC	Masubuchi, K.	NAS 8-24364	2122
49	MISSISSIPPI STATE U	Hollis, B. R., Jr.	MSFC	Gassaway, J. D.	NAS 8-26749	2342
49	NAT POLYTECHNIC INST	McKeehan, H. B.	GSFC	Orellana, J. R.	NAS 5-21224	3373
49	NEW MEX ST U-LAS CR	Oosterhout, J. D.	GSFC	Sayles, A., Jr.	NAS 5-22219	2464
49	NO CAROLINA STATE U	Carter, C. H.	HQ-PY	Hart, F. D.	NGT 34-002-097	2681
49	OLD DOMINION UNIV	Martin, D. J.	LARC	Oosterhout, D. S.	NAS 1-11707	3179
49	OLD DOMINION UNIV	Holmes, H. K.	LARC	Zuckerwar, A. J.	NSG 1039	3205
49	OLD DOMINION UNIV	Davis, J. G., Jr.	LARC	Thornton, E. A.	NSG 1043	3209
49	OLD DOMINION UNIV	Carter, C. H.	HQ-PY	Goglia, G. L.	NGT 47-003-028	3200
49	OLD DOMINION UNIV	Carter, C. H.	HQ-PY	Goglia, G. L.	NGT 47-003-029	3201
49	PENNSYLVANIA STATE U	Janow, C.	HQ-RE	Shearer, J. L.	NGL 39-009-023	2829
49	PRAIRIE VIEW A&M U	Rozas, P.	JSC	Sohel, M. S.	NGL 44-033-017	2957
49	PRINCETON UNIVERSITY	Kelsall, T.	GSFC	Lowrance, J. L.	NAS 5-20507	2418
49	PRINCETON UNIVERSITY	Schwenk, F. C.	HQ-RD	Layton, J. P.	NGR 31-001-185	2433
49	PURDUE UNIVERSITY	Gregory, T. J.	ARC	Garrett, R. E.	NGR 15-005-180	1892
49	PURDUE UNIVERSITY	Vitale, J. A.	HQ-PY	Modrey, J.	NGR 15-005-069	1885
49	RENSSELAER POLY-NY	Tarver, P.	HQ-SL	Yerazunis, S. W.	NGL 33-018-091	2603
49	STANFORD UNIVERSITY	Kenyon, G. C.	ARC	Shevill, R. S.	NAS 2-7199	1245
49	STANFORD UNIVERSITY	Doolin, B. F.	ARC	Bryson, A. E.	NGL 05-020-007	1258
49	STANFORD UNIVERSITY	Carter, C. H.	HQ-PY	Adams, J. L.	NGT 05-020-409	1306
49	STANFORD UNIVERSITY	Carter, C. H.	HQ-PY	Bershadler, D.	NGT 05-020-412	1307
49	UNIV ALA-HUNTSVILLE	Swenson, G. R.	MSFC	Wu, S. T.	NAS 8-25750	1038

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49	UNIV ALA-HUNTSVILLE	Fields, S. A.	MSFC	Walters, H. U.	NAS 8-30286	1056
49	UNIV ALA-TUSCALOOSA	Clarke, W. D.	MSFC	Hill, J. L.	NAS 8-28019	1066
49	UNIV ALA-TUSCALOOSA	Carter, C. H.	HQ-PY	Raney, D. C.	NGT 01-002-080	1076
49	UNIV OF ARIZONA	Kaplan, G. M.	LERC	Perkins, H. C.	NGR 03-002-213	1130
49	UNIV CALIF-L ANGELES	Seltzer, S. M.	MSFC	Likins, P. W.	NAS 8-28358	1399
49	UNIV CALIF-SAN DIEGO	Schaefer, D. H.	GSFC	Lee, S. H.	NGR 05-009-264	1485
49	UNIV OF CINCINNATI	Williams, J. G.	LARC	Sobel, L. H.	NGR 36-004-065	2755
49	UNIV OF FLORIDA	Deese, J. H.	KSC	Farber, E. A.	NAS10-1255	1687
49	UNIV OF FLORIDA	Oertel, G. K.	HQ-SG	Schneider, R. T.	NGL 10-005-049	1695
49	UNIV OF GEORGIA	Folds, D.	MSFC	Burkhard, D. G.	NAS 8-29939	1768
49	UNIV OF HOUSTON	Eandi, B. K.	JSC	Huang, C. J.	NGL 44-005-090	3037
49	UNIV OF HOUSTON	Carter, C. H.	HQ-PY	Huang, C. J.	NGT 44-005-114	3046
49	UNIV OF HOUSTON	Carter, C. H.	HQ-PY	Huang, C. J.	NGT 44-005-115	3047
49	UNIV OF KANSAS	Dell, M. E.	JSC	Moore, R. K.	NAS 9-13347	1928
49	UNIV OF KANSAS	Martin, D. J.	LARC	Lenzen, K. H.	NSG 1045	1938
49	UNIV MARYLAND-COL PK	Alford, W. A.	GSFC	Rosenfeld, A.	NGR 21-002-351	2042
49	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-PY	Emad, F. P.	NGT 21-002-254	2057
49	UNIV MICH-ANN ARBOR	Tripp, J. S.	LARC	Zeigler, B. P.	NGR 23-005-602	2285
49	UNIV MICH-ANN ARBOR	Littles, J. W.	MSFC	Merte, H., Jr.	NAS 8-20228	2259
49	U MINN-MNPLS-ST PAUL	Sizemore, K. O.	GSFC	Cahill, L. J., Jr.	NAS 5-11173	2305
49	U MINN-MNPLS-ST PAUL	Wainscott, F. H.	GSFC	Winckler, J. R.	NAS 5-11687	2308
49	UNIV MO-ROLLA	Flatley, T. W.	GSFC	Taylor, J. M.	NGR 26-003-069	2367
49	UNIV OF NEW MEXICO	Hyland, R. F.	LERC	Long, W. W.	NAS 3-18522	2473
49	UNIV OF PERU	Christie, C.	GSFC	Unavailable	NASW 7	3378
49	UNIV OF RHODE ISLAND	Suttles, J. T.	LARC	Spaulding, M. L.	NSG 1008	2882
49	UNIV OF SANTA CLARA	Doolin, B. F.	ARC	Siljak, D. D.	NGR 05-017-010	1499
49	UNIV OF SANTA CLARA	Seltzer, S. M.	MSFC	Siljak, D. D.	NAS 8-27799	1498
49	UNIV OF SOUTHERN CAL	Carter, C. H.	HQ-PY	Kaprielian, Z. A.	NGT 05-018-127	1522
49	UNIV TEXAS-AUSTIN	Eandi, B. K.	JSC	McKetta, J. J.	NGL 44-012-133	3064
49	UNIV TEXAS-AUSTIN	Pinson, L. D.	LARC	Craig, R. R.	NSG 1001	3085
49	UNIV OF TOLEDO	Unavailable	LERC	Unavailable	NAS 3-17826	2762
49	UNIV OF TOLEDO	Willoh, R. G.	LERC	Leininger, G. G.	NGR 36-010-024	2764
49	UTAH STATE UNIV	Doolin, B. F.	ARC	Martin, C.	NSG 2022	3151
49	VIRGINIA POLY INST	Hrastar, J. A.	GSFC	Meirovitch, L.	NGR 47-004-100	3256
49	VIRGINIA POLY INST	Martin, D. J.	LARC	Robertson, R. M.	NAS 1-13175	3241
49	VIRGINIA POLY INST	Davis, J. G., Jr.	LARC	Herakovich, C. T.	NGR 47-004-129	3267
49	VIRGINIA STATE COL	Mehrens, H. E.	LARC	Van Dyke, A.	NGR 47-014-007	3279
49	YOUNGSTOWN STATE U	Gray, D. L.	LARC	Zuckerwar, A. J.	NGR 36-028-006	2768
51	BISHOP COLLEGE	Danellis, J. V.	ARC	Kutsky, R. J.	NGR 44-032-013	2950
51	BOSTON UNIVERSITY	Jacobs, G. J.	HQ-ER	MacKay, R. S.	NGR 22-004-024	2073
51	BOWLING GRN STATE U	Miquel, J.	ARC	Oster, I. I.	NGR 36-017-004	2688
51	CALIF INST OF TECH	Soffen, G. A.	LARC	Horowitz, N. H.	NAS 1-12311	1162
51	CALIF INST OF TECH	Young, R. S.	HQ-SL	Horowitz, N. H.	NGR 05-002-121	1193
51	CATHOLIC UNIVERSITY	Saunders, J. F.	HQ-MM	Decicco, B. T.	NGR 09-005-022	1631
51	CENTRAL ST UNIV-OHIO	Raquet, C. A.	LERC	Rubin, D.	NGR 36-033-002	2713
51	CENTRAL ST UNIV-OHIO	Pohly, J. G.	HQ-PY	Craft, T. J.	NGR 36-033-003	2714
51	COLLEGE OF WM & MARY	Hoffman, R. A.	JSC	Aceto, H., Jr.	NGR 47-006-054	3162
51	COLORADO STATE UNIV	Tremor, J. W.	ARC	Baker, R.	NAS 2-6615	1529
51	COLORADO STATE UNIV	Holton, E. M.	ARC	Jordan, J. P.	NGR 06-002-075	1537
51	COLORADO STATE UNIV	Winter, D. L.	ARC	Ogg, J. E.	NGR 06-002-166	1547
51	COLORADO STATE UNIV	Hoffman, R. A.	JSC	Lett, J. T.	NGR 06-002-128	1544
51	CORNELL UNIVERSITY	Tremor, J. W.	ARC	Steward, F. C.	NAS 2-7846	2529
51	CORNELL UNIVERSITY	Geib, D. S.	HQ-SL	Duxbury, J. M.	NGR 33-010-127	2550
51	DELAWARE STATE COL	Picciolo, G. L.	GSFC	Bush, V. N.	NGR 08-002-003	1618
51	EMORY UNIVERSITY	Holton, E. M.	ARC	Popovic, V. P.	NGL 11-001-009	1719
51	EMORY UNIVERSITY	Winter, D. L.	ARC	Bourne, G. H.	NGR 11-001-016	1721
51	EMORY UNIVERSITY	Anliker, J. E.	ARC	Perachio, A. A.	NGR 11-001-045	1722
51	FLORIDA STATE UNIV	Young, R. S.	HQ-SL	Larock, P. A.	NGR 10-004-041	1681

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51	GRAMBLING COLLEGE	Pohly, J. G.	HQ-PY	Foster, B. R.	NGR 19-011-008	1955
51	HARDIN-SIMMONS UNIV	Hall, L. B.	HQ-SL	Foster, T. L.	NGR 44-095-001	2951
51	INDIANA U-BLOOMINGTN	Weisoman, N. W.	ARC	Neff, W. D.	NGR 15-003-007	1867
51	INDIANA U-INDIANAPLS	Haymaker, W. E.	ARC	Zeman, W.	NAS 2-7927	1870
51	JACKSON STATE UNIV	Pohly, J. G.	HQ-PY	Nelson, F.	NGR 25-011-001	2335
51	LA STATE U-NEW ORLNS	Rummel, J. A.	JSC	Laseter, J. L.	NAS 9-12941	1971
51	MASS INST OF TECH	Billingham, J.	ARC	Schmitt, F. O.	NGR 22-009-726	2187
51	MASS INST OF TECH	Daunton, N. G.	ARC	Bizzi, E.	NGR 22-009-798	2200
51	MASS INST OF TECH	Daunton, N. G.	ARC	Nauta, W. J.	NGR 22-009-826	2205
51	MASS INST OF TECH	Soffen, G. A.	LARC	Rich, A.	NAS 1-9691	2109
51	MASS INST OF TECH	Young, R. S.	HQ-SL	Biemann, K.	NGR 22-009-005	2157
51	MICHIGAN STATE UNIV	Young, R. S.	HQ-SL	Erickson, A. E.	NGR 23-004-069	2239
51	MISS VALLEY ST UNIV	Wolverton, B. C.	MSFC	Sethi, S. L.	NSG 8009	2352
51	NORTH GEORGIA COL	Downs, S. W.	MSFC	Biesbrock, J. A.	NAS 8-30619	1764
51	OREGON STATE UNIV	Geib, D. S.	HQ-SL	Curl, C. H.	NGR 38-002-013	2783
51	PENNSYLVANIA STATE U	Young, R. S.	HQ-SL	Casida, L. E., Jr.	NGR 39-009-180	2835
51	RENSSELAER POLY-NY	Young, R. S.	HQ-SL	Wedler, F. C.	NSG 7065	2610
51	RICE UNIVERSITY	Scheld, H. W.	JSC	Ward, C. H.	NAS 9-12912	2969
51	ROCKEFELLER UNIV	Daunton, N. G.	ARC	Eisenberg, L.	NAS 2-8179	2611
51	SO ILL UNIV-CARBONDL	Young, R. S.	HQ-SL	Yopp, J. H.	NGR 14-008-026	1803
51	STANFORD UNIVERSITY	Tremor, J. W.	ARC	Pittendrigh, C. S.	NAS 2-5587	1242
51	STANFORD UNIVERSITY	Miquel, J.	ARC	Bensch, K. G.	NAS 2-6706	1244
51	STANFORD UNIVERSITY	Soffen, G. A.	LARC	Lederberg, J.	NAS 1-9692	1239
51	STANFORD UNIVERSITY	Young, R. S.	HQ-SL	Lederberg, J.	NGR 05-020-004	1274
51	STATE UNIV NY-BUFFAL	Vaughn, C. R.	WFC	Williams, T. C.	NGL 33-183-012	2615
51	TEXAS A&M UNIVERSITY	Geib, D. S.	HQ-SL	Nagyvary, J.	NSG 7037	3016
51	TEXAS A&M UNIVERSITY	Hoffman, R. A.	JSC	Hightower, D.	NAS 9-9053	2998
51	TEXAS A&M UNIVERSITY	Walkinshaw, C. H.	JSC	Kuykendall, W. E., Jr.	NAS 9-13374	3002
51	TEXAS A&M UNIVERSITY	Simmonds, R. C.	JSC	Dehon, R. A.	NAS 9-13647	3004
51	UNIV OF ARIZONA	Snyder, R. S.	MSFC	Bier, M.	NAS 8-29566	1112
51	UNIV ARKANSAS-FAYETV	Belleville, R. E.	HQ-MM	Pauly, J. E.	NGR 04-001-039	1157
51	UNIV CALIF-BERKELEY	Newsom, B. D.	ARC	Pace, N.	NGL 05-003-024	1334
51	UNIV CALIF-BERKELEY	Young, R. S.	HQ-SL	McLaron, A. D.	NGL 05-003-079	1335
51	UNIV CALIF-DAVIS	Oyama, J.	ARC	Smith, A. H.	NGL 05-004-008	1383
51	UNIV CALIF-DAVIS	Holton, E. M.	ARC	Horwitz, B. A.	NGR 05-004-099	1387
51	UNIV CALIF-DAVIS	Holton, E. M.	WFC	Smith, R. E.	NGR 05-004-035	1385
51	UNIV CALIF-L ANGELES	Winter, D. L.	ARC	French, J. D.	NGL 05-007-195	1411
51	UNIV CALIF-SAN DIEGO	Saunders, J. F.	HQ-MM	Baily, N. A.	NGL 05-009-103	1459
51	UNIV CALIF-SAN DIEGO	Young, R. S.	HQ-SL	Yayanos, A. A.	NGR 05-009-213	1477
51	UNIV OF CHICAGO	Daunton, N. G.	ARC	Fernandez, C.	NGR 14-001-225	1830
51	UNIV OF FLORIDA	Williams, B. A.	ARC	Heath, J. E.	NSG 2028	1704
51	UNIV OF HAWAII	Young, R. S.	HQ-SL	Siegel, S. M.	NGL 12-001-042	1778
51	UNIV OF HOUSTON	Miquel, J.	ARC	Oro, J.	NAS 2-7435	3022
51	UNIV OF HOUSTON	Scheld, H. W.	JSC	Venketeswaran, S.	NAS 9-13262	3029
51	UNIV ILLINOIS-URBANA	Mehler, W. R.	ARC	Ades, H. W.	NGR 14-005-221	1855
51	U MINN-MNPLS-ST PAUL	Hall, L. B.	HQ-SL	Pflug, I. J.	NGL 24-005-160	2314
51	UNIV MO-COLUMBIA	Holton, E. M.	ARC	Musacchia, X. J.	NGL 26-004-021	2363
51	UNIV OF MONTANA	Jacobs, G. J.	HQ-ER	Craighead, J. J.	NGR 27-002-006	2383
51	UNIV OF PENNSYLVANIA	Zill, L. P.	ARC	Brown, A. H.	NAS 2-7730	2848
51	UNIV OF PENNSYLVANIA	Zill, L. P.	ARC	Brown, A. H.	NGR 39-010-104	2850
51	UNIV OF PENNSYLVANIA	Zill, L. P.	ARC	Brown, A. H.	NGR 39-010-149	2852
51	UNIV OF ROCHESTER	Soffen, G. A.	LARC	Vishniac, W. V.	NAS 1-9689	2647
51	UNIV OF ROCHESTER	Geib, D. S.	HQ-SL	Vishniac, W. V.	NGR 33-019-002	2649
51	UNIV TEX-DENTAL BRCH	Buchanan, P.	JSC	Shannon, I. L.	NAS 9-10566	3110
51	UNIV TEX-DENTAL BRCH	Buchanan, P.	JSC	Brown, L. R.	NAS 9-11118	3111
51	UNIV TEXAS-GALVESTON	Harris, J. W.	JSC	Lindsay, J. F.	NGR 44-088-008	3117
51	U TEX HEALTH CTR-SA	Leach, C. S.	JSC	Morgan, W. W.	NGR 44-094-001	3120
51	U TEX HEALTH CTR-DAL	Unavailable	ARC	Unavailable	NAS 2-3082	3118

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51	UNIV OF VIRGINIA	Oyama, J.	ARC	Pitts, G. C.	NAS 2-1554	3215
51	UNIV OF VIRGINIA	Oyama, J.	ARC	Pitts, G. C.	NGR 47-005-213	3231
51	UNIV OF WASHINGTON	Young, R. S.	HQ-SL	Gordon, M. P.	NGR 48-002-130	3297
51	UNIV WISC-MADISON	Mandel, A. D.	ARC	Dick, E. C.	NGL 50-002-078	3336
51	UTAH STATE UNIV	Geib, D. S.	HQ-SL	Salisbury, F. B.	NGR 45-002-008	3149
51	VIRGINIA COMNWLTH U	Wilkins, J. R.	LARC	Dalton, H. P.	NGL 47-002-020	3236
51	VIRGINIA COMNWLTH U	Saunders, J. F.	HQ-MM	Ham, W. T.	NGL 47-002-005	3235
51	XAVIER UNIV-LA	Winget, C. M.	ARC	Ashman, P. U.	NGR 19-007-004	1985
51	YALE UNIVERSITY	Young, R. S.	HQ-SL	Morowitz, H. J.	NGR 07-004-009	1612
52	BAYLOR UNIV-MED COL	Alexander, W. C.	JSC	Johnson, P. C.	NAS 9-7280	2940
52	BAYLOR UNIV-MED COL	Leach, C. S.	JSC	Campbell, B. O.	NAS 9-10537	2942
52	BAYLOR UNIV-MED COL	Kimzey, S. L.	JSC	Nichols, B. L.	NGR 44-003-053	2948
52	BOSTON UNIVERSITY	Arnoldi, L. B.	HQ-JG	Hershberg, P. I.	NSG 7063	2078
52	BOSTON UNIVERSITY	Hoffler, G. W.	JSC	Chobanion, A. V.	NGR 22-004-021	2072
52	FEDERAL CITY COLLEGE	Alterescu, S.	GSFC	Friedman, C.	NGR 09-050-013	1644
52	HARDING COLLEGE	Rummel, J. A.	JSC	Olree, H.	NAS 9-14134	1154
52	HARVARD UNIVERSITY	Arnoldi, L. B.	HQ-JG	Hershberg, P. I.	NGR 22-007-203	2092
52	INDIANA U-BLOOMINGTN	Vinograd, S. P.	HQ-MM	Maickel, R. P.	NGL 15-003-117	1866
52	MASS INST OF TECH	Belleville, R. E.	HQ-MM	Schmitt, F. O.	NGR 22-009-018	2158
52	OHIO STATE UNIV	Brownstein, H. S.	HQ-MM	Ellingson, H. V.	NGT 36-008-007	2741
52	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NGL 05-020-305	1269
52	STANFORD UNIVERSITY	Feller, D. D.	ARC	Degrazia, J. A.	NGR 05-020-578	1285
52	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NGR 05-020-634	1292
52	STANFORD UNIVERSITY	Sandler, H.	ARC	Popp, R.	NSG 2020	1312
52	ST U NY-DNST MED CTR	Chen, W. T.	GSFC	Fealey, R. D.	NAS 5-22277	2639
52	UNIV CALIF-DAVIS	Leach, C. S.	JSC	Beljan, J. R.	NAS 9-13504	1381
52	UNIV CALIF-IRVINE	Mandel, A. D.	ARC	Tilles, J. G.	NGR 05-041-012	1388
52	UNIV CALIF-SAN DIEGO	Sandler, H.	ARC	Baily, N. A.	NGR 05-009-257	1483
52	UNIV CALIF-SAN FRAN	Mandel, A. D.	ARC	Maibach, H. I.	NGR 05-025-008	1489
52	UNIV OF HOUSTON	Schneider, H. J.	JSC	Zlatkis, A.	NAS 9-13457	3030
52	UNIV ILLINOIS-URBANA	Jones, W. L.	HQ-MM	Ades, H. W.	NGL 14-005-074	1839
52	UNIV OF MIAMI	Leach, C. S.	JSC	Epstein, M.	NGR 10-007-097	1714
52	UNIV OF MIAMI	Zimmerman, R.	HQ-KT	Kline, J.	NGR 10-007-113	1715
52	UNIV MO-COLUMBIA	Sandler, H.	ARC	Millich, F.	NGR 26-004-099	2364
52	UNIV TEXAS-GALVESTON	Sandler, H.	ARC	Stone, H. L.	NGR 44-088-002	3116
52	UNIV TEXAS-GALVESTON	Leach, C. S.	JSC	Ritzmann, S. E.	NAS 9-13605	3115
52	UNIV WISC-MADISON	Mandel, A. D.	ARC	Dick, E. C.	NGR 50-002-174	3344
52	UNIV WISC-MADISON	Young, D. R.	ARC	Mazess, R. B.	NGR 50-002-183	3345
52	UNIV WISC-MADISON	Mandel, A. D.	ARC	Balish, E.	NGR 50-002-191	3347
52	UNIV WISC-MADISON	Mandel, A. D.	ARC	Dick, E. C.	NSG 2002	3352
52	WASHINGTON UNIVERSTY	Leach, C. S.	JSC	Lowry, O.	NAS 9-13741	2373
52	WEST VIRGINIA UNIV	Dancellis, J. V.	ARC	Moran, W. H.	NGL 49-001-019	3309
52	WEST VIRGINIA UNIV	Harrison, G. A.	ARC	Leovy, C. B.	NGR 49-001-048	3310
52	YALE UNIVERSITY	Mandel, A. D.	ARC	Evans, A. S.	NGR 07-004-146	1614
53	BAYLOR UNIV-MED COL	Haines, R. F.	ARC	Decker, T. A.	NGR 44-003-057	2949
53	BAYLOR UNIV-MED COL	Smith, M. C., Jr.	JSC	Nichols, B. L.	NAS 9-12728	2944
53	BAYLOR UNIV-MED COL	Kimzey, S. L.	JSC	Criswell, B. S.	NAS 9-13139	2945
53	BAYLOR UNIV-MED COL	Shumate, W. H.	JSC	Roessler, R.	NAS 9-13452	2946
53	BAYLOR UNIV-MED COL	Smith, M. C., Jr.	JSC	Johnson, P. C.	NAS 9-13737	2947
53	CASE WESTERN RESERVE	Sandler, H.	ARC	Ko, W. H.	NGR 36-027-053	2703
53	CORNELL UNIVERSITY	Sandler, H.	ARC	Reis, D. J.	NGR 33-010-179	2558
53	DUKE UNIVERSITY	Harmaker, W. E.	ARC	Vogel, F. S.	NAS 2-7655	2655
53	HARVARD UNIVERSITY	Young, D. R.	ARC	Tashjian, A. H., Jr.	NGR 22-007-256	2094
53	HOWARD UNIVERSITY	Sandler, H.	ARC	Hawthorne, E. W.	NGL 09-011-017	1663
53	HOWARD UNIVERSITY	Chen, W. T.	GSFC	DeLoatch, E. M.	NASW 2386	1661
53	JOHNS HOPKINS UNIV	Gross, F. C.	GSFC	Rubin, R. J.	NAS 5-22071	1996
53	MASS INST OF TECH	Winget, C. M.	ARC	Wurtman, R. J.	NGR 22-009-627	2177

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53	MASS INST OF TECH	Heidelbaugh, N. D.	JSC	Flink, J. M.	NAS 9-12485	2136
53	OHIO STATE UNIV	Oyama, J.	ARC	Clarke, D. L.	NAS 2-6634	2722
53	ST LOUIS UNIVERSITY	Greenleaf, J. E.	ARC	Van Beaumont, W.	NGR 26-006-039	2356
53	ST LOUIS UNIVERSITY	Anliker, J. E.	ARC	Van Beaumont, W.	NSG 2023	2358
53	STANFORD UNIVERSITY	Greenleaf, J. E.	ARC	Luetscher, J. A.	NGR 05-020-456	1281
53	STANFORD UNIVERSITY	Sandler, H.	ARC	Meindl, J. D.	NGR 05-020-615	1288
53	STANFORD UNIVERSITY	Sandler, H.	ARC	Angell, J.	NGR 05-020-690	1300
53	STANFORD UNIVERSITY	Dolkas, C. B.	ARC	Reaven, G. M.	NSG 2012	1310
53	STANFORD UNIVERSITY	Rummel, J. A.	JSC	Lederberg, J.	NGR 05-020-632	1290
53	TUFTS UNIVERSITY	Jackson, M. M.	JSC	Spodick, D. H.	NGR 22-012-026	2221
53	UNIV CALIF-DAVIS	Winget, C. M.	ARC	Beljan, J. R.	NAS 2-7152	1376
53	UNIV CALIF-DAVIS	Winget, C. M.	ARC	Chapman, L. F.	NAS 2-7519	1380
53	UNIV CALIF-SAN DIEGO	Billingham, J.	ARC	West, J. B.	NGL 05-009-109	1460
53	UNIV OF HOUSTON	Jackson, J. T.	JSC	Sheer, D. H.	NAS 9-11885	3025
53	UNIV ILLINOIS-CHICGO	Kimzey, S. L.	JSC	Guttman, H. N.	NGR 14-012-026	1834
53	UNIV MICH-ANN ARBOR	Arnoldi, L. B.	HQ-JG	French, J. R., Jr.	NGR 23-005-185	2269
53	UNIV OF PENNSYLVANIA	Michel, E. L.	JSC	Lambertsen, C. J.	NGL 39-010-097	2849
53	U TENNESSEE-MEMPHIS	Kaplan, H.	JSC	Autian, J.	NAS 9-13617	2933
53	UNIV TEXAS-DALLAS	Bergman, S. A.	JSC	Mitchell, J. H.	NAS 9-14190	3097
53	UNIV TEXAS-GALVESTON	Kimzey, S. L.	JSC	Ritzmann, S. E.	NAS 9-11088	3112
53	UNIV TEXAS-GALVESTON	Kimzey, S. L.	JSC	Lockhart, L. H.	NAS 9-13102	3113
53	U TEX HEALTH CTR-SA	Jackson, M. M.	JSC	Earley, L. E.	NGR 44-094-003	3121
53	UNIV TEX-PUB HEALTH	Ferguson, J. K.	JSC	Downs, J. D.	NAS 9-12783	3123
53	U TEX HEALTH CTR-DAL	Hoffler, G. W.	JSC	Mitchell, J. H.	NGR 44-012-151	3119
53	UNIV WISC-MADISON	Young, D. R.	ARC	Cameron, J. R.	NGR 50-002-051	3340
53	UPPSALA UNIVERSITY	Mehler, W. R.	ARC	Engstrom, H.	NGR 52-028-004	3379
53	WAYNE STATE UNIV	Young, D. R.	ARC	Orne, D.	NSG-2008	2299
59	ALBANY MED COLLEGE	Carter, V. L.	JSC	Coulston, F.	NAS 9-9964	2485
59	BAYLOR UNIV-MED COL	Kaplan, H.	JSC	Duncan, W. C.	NAS 9-8109	2941
59	BAYLOR UNIV-MED COL	Leach, C. S.	JSC	Johnson, P. C.	NAS 9-11201	2943
59	BOSTON UNIVERSITY	Jones, W. L.	HQ-MM	Fulton, G. P.	NGR 22-004-018	2071
59	CATHOLIC UNIVERSITY	Newsom, B. D.	ARC	Lih, M. M.	NSG 2019	1638
59	COLLEGE OF WM & MARY	Oberholtzer, J. D.	WFC	Aceto, H., Jr.	NGR 47-006-064	3163
59	CORNELL UNIVERSITY	Szajna, E. F.	GSFC	McNair, A. J.	NAS 5-21844	2531
59	FLORIDA A&M UNIV	Pohly, J. G.	HQ-PY	Cottrell, P. T.	NGR 10-010-002	1676
59	GEORGE WASHINGTON U	Baker, C. E.	LERC	Schiff, H. I.	NSR 09-010-027	1658
59	HARVARD UNIVERSITY	Smith, M. C., Jr.	JSC	Hegsted, D. M.	NAS 9-13370	2082
59	HOWARD UNIVERSITY	Chen, W. T.	HQ-PY	Deloatch, E. M.	NGT 09-011-051	1671
59	INDIANA U-BLOOMINGTN	Mehler, W. R.	ARC	Neff, W. D.	NGL 15-003-077	1865
59	KENTUCKY STATE UNIV	Morrison, J. D.	KSC	Kloek, G.	NSG 801	1943
59	MASS INST OF TECH	Wempe, T. E.	ARC	Curry, R. E.	NGR 22-009-733	2190
59	MASS INST OF TECH	Billingham, J.	ARC	Young, L. R.	NSG 2032	2212
59	MASS INST OF TECH	Lang, R. H.	HQ-MM	Young, L. R.	NGL 22-009-156	2148
59	NORFOLK STATE COL	Stone, R. W., Jr.	LARC	Colegate, R. L.	NSG 1074	3177
59	NO CAROLINA STATE U	Leatherwood, J. D.	LARC	Suggs, C. W.	NGR 34-002-189	2677
59	OHIO STATE UNIV	Mehler, W. R.	ARC	Lim, D.	NGR 36-008-211	2740
59	OHIO STATE UNIV	Brownstein, H. S.	HQ-MM	Ellingson, H. V.	NSR 36-008-108	2743
59	PENNSYLVANIA STATE U	Homick, J. L.	JSC	Kales, A.	NGR 39-009-204	2837
59	STANFORD UNIVERSITY	Kvenvolden, K. A.	ARC	Bonner, W. A.	NGL 05-020-582	1272
59	STANFORD UNIVERSITY	Mehler, W. R.	ARC	Chow, K. L.	NGR 05-020-435	1279
59	ST U NY-UPST MED CTR	Leach, C. S.	JSC	Miller, M.	NAS 9-11846	2640
59	TEXAS A&M UNIVERSITY	Smith, M. C., Jr.	JSC	Burns, E. E.	NAS 9-12434	3001
59	TULANE UNIVERSITY	Haymaker, W. E.	ARC	Ordy, J. M.	NAS 2-7916	1979
59	UNIV OF ARIZONA	Stonesifer, G. R.	GSFC	McGinnies, W. G.	NAS 5-21812	1103
59	UNIV OF ARIZONA	Stonesifer, G. R.	GSFC	Lowe, C. H.	NAS 5-21819	1104
59	UNIV CALIF-BERKELEY	Newsom, B. D.	ARC	Pace, N.	NGR 05-003-470	1357
59	UNIV CALIF-DAVIS	Winget, C. M.	ARC	Evans, J. W.	NAS 2-7503	1377
59	UNIV CALIF-DAVIS	Smith, M. C., Jr.	JSC	Vogel, J. M.	NAS 9-13589	1382

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
59	UNIV CALIF-L ANGELES	Daunton, N. G.	ARC	Markham, C. H.	NGR 05-007-418	1434
59	UNIV CALIF-SAN DIEGO	Haines, R. F.	ARC	Harris, J. L.	NGR 05-009-192	1475
59	UNIV CALIF-SAN DIEGO	Anliker, J. E.	ARC	Hillyard, S. A.	NGR 05-009-198	1476
59	UNIV CALIF-SAN FRAN	Zill, L. P.	ARC	Stolckenucus, W.	NGL 05-025-014	1488
59	UNIV OF CHICAGO	Jacobs, G. J.	HQ-SB	Moran, H. F.	NGL 14-001-012	1816
59	UNIV OF CONNECTICUT	Mieszkuc, B. J.	JSC	Kenyon, A. J.	NAS 9-11941	1599
59	UNIV OF HOUSTON	Smith, M. C., Jr.	JSC	Cox, J. E.	NAS 9-11676	3023
59	UNIV OF HOUSTON	Allen, J. P.	JSC	Eisner, M. E.	NAS 9-12692	3027
59	U MINN-MNPLS-ST PAUL	Heidelbaugh, N. D.	JSC	Labuza, T. P.	NAS 9-12560	2311
59	UNIV MO-COLUMBIA	Kimzey, S. L.	JSC	Mengel, C. E.	NAS 9-9209	2359
59	UNIV MO-COLUMBIA	Smith, M. C., Jr.	JSC	Rambaut, P. C.	NAS 9-12369	2360
59	UNIV NEBRASKA-LINCLN	Heidelbaugh, N. D.	JSC	Hartung, T. E.	NAS 9-11045	2387
59	UNIV OF SOUTHERN CAL	Saunders, J. F.	HQ-MM	Meehan, J. P.	NSR 05-018-087	1524
59	UNIV TENNESSEE-KNOXV	Ensor, G. J.	GSFC	Parks, W. L.	NAS 5-21873	2908
59	UNIV TEX-PUB HEALTH	Heidelbaugh, N. D.	JSC	Chambers, L. A.	NAS 9-11701	3122
59	UNIV TEX-PUB HEALTH	Barnes, C. M.	JSC	Steele, J. H.	NAS 9-12823	3124
59	UNIV TEX-PUB HEALTH	Vitale, J. A.	HQ-PY	Rush, M.	NGL 44-084-003	3125
59	UNIV OF VIRGINIA	Mehler, W. R.	ARC	Ebbesson, S. O.	NGR 47-005-186	3228
59	UNIV OF VIRGINIA	Wolf, T. D.	FRC	Jacobson, I. D.	NGR 47-005-202	3229
59	UNIV OF WASHINGTON	Smith, M. C., Jr.	JSC	Nelp, W. B.	NAS 9-13029	3284
59	VANDERBILT UNIVERSTY	Hoffler, G. W.	JSC	Smith, R. F.	NAS 9-12889	2937
61	EMORY UNIVERSITY	Winter, D. L.	ARC	Perachio, A. A.	NGR 11-001-012	1720
61	JACKSON STATE UNIV	Pohly, J. G.	HQ-PY	Perkins, J.	NGR 25-011-002	2336
61	NORTHEASTERN UNIV	Anliker, J. E.	ARC	Teyman, M.	NGR 22-011-070	2219
61	UNIV CALIF-SAN DIEGO	Winter, D. L.	ARC	Galambos, R.	NGR 05-009-083	1470
61	UNIV OF KENTUCKY	Oyama, J.	ARC	Lange, K. O.	NGL 18-001-003	1946
61	UNIV OF KENTUCKY	Anliker, J. E.	ARC	McCoy, D. F.	NGR 18-001-068	1949
61	UNIV MICH-ANN ARBOR	Schillinger, G.	ARC	Von Baumgarten A, R. J.	NAS 2-6057	2244
61	U MINN-MNPLS-ST PAUL	Winget, C. M.	ARC	Halberg, F.	NGR 24-005-006	2317
61	U TEX CANCER CENTER	Moseley, E. C.	JSC	Mitchell, B. A., Jr.	NAS 9-13042	3087
62	COLUMBIA UNIVERSITY	Shepherd, W. T.	LARC	Borsky, P. N.	NGL 33-008-118	2511
62	HAMPTON INSTITUTE	Anderson, A. F.	LARC	Bell, J. A.	NGR 47-020-007	3170
62	NORFOLK STATE COL	Pohly, J. G.	HQ-PY	Colegate, R. L.	NGR 47-025-001	3174
69	CAL STATE U-SAN JOSE	Stewart, J. D.	ARC	Clark, W. B.	NGL 05-046-002	1228
69	FORDHAM UNIVERSITY	Fedderson, W. E.	JSC	Kubis, J. F.	NSR 33-012-006	2567
69	HAMPTON INSTITUTE	Pohly, J. G.	HQ-PY	Handy, J. W.	NGR 47-020-004	3167
69	JOHNS HOPKINS UNIV	Patton, R. M.	ARC	Brady, J. V.	NGR 21-001-111	2003
69	MASS INST OF TECH	Daunton, N. G.	ARC	Teuber, H. L.	NGL 22-009-308	2150
69	MEMPHIS ST UNIV	Gunn, W. J.	LARC	Fletcher, J. L.	NGR 43-008-007	2900
69	MEMPHIS ST UNIV	Gunn, W. J.	LARC	Fletcher, J. L.	NGR 43-008-008	2901
69	NO CAROLINA STATE U	Gunn, W. J.	LARC	Levere, T. E.	NGL 34-002-095	2668
69	OLD DOMINION UNIV	Mixson, J. S.	LARC	Kirby, R. H.	NGR 47-003-083	3197
69	OLD DOMINION UNIV	Mixson, J. S.	LARC	Kirby, R. H.	NSG 1042	3208
69	U COLORADO-DENV MEDL	Anliker, J. E.	ARC	Rock, K. C.	NAS 2-7794	1580
69	UNIV OF FLORIDA	Anliker, J. E.	ARC	Webb, W. B.	NGR 10-005-057	1699
69	UNIV TEXAS-AUSTIN	Fedderson, W. E.	JSC	Helmreich, A. L.	NGR 44-012-224	3072
69	UNIV OF UTAH	Coler, C. R.	ARC	Plummer, R. P.	NGR 45-003-108	3147
72	AUBURN UNIV-AUBURN	McKannan, E. C.	MSFC	Vachon, R. I.	NAS 8-29881	1020
72	AUSTIN STATE UNIV	Dornbach, J. E.	JSC	Baker, R. D.	NAS 9-13089	2939
72	COLUMBIA UNIVERSITY	Hansing, F. D.	HQ-PY	Ginzberg, E.	NGR 33-008-168	2517
73	JOHNS HOPKINS UNIV	Emme, E. M.	HQ-AA	Berthel, J. H.	NSR 21-001-077	2008
73	UNIV ALA-HUNTSVILLE	Sorensen, V. C.	MSFC	Beltz, J. S.	NAS 8-26055	1039
73	UNIV OF FLORIDA	Schnoor, R. H.	KSC	Benson, C. D.	NAS10-7791	1688
73	UNIV OF HOUSTON	Emme, E. M.	HQ-AA	Unavailable	NASW 2691	3033
75	BOSTON COLLEGE	Morris, J. D.	HQ-PY	Bruce, B. N.	NGR 22-003-028	2070
75	UNIV CALIF-BERKELEY	Kenyon, G.	ARC	Horonjeff, R.	NAS 2-7879	1317
75	UNIV OF DENVER	Ault, L. A.	HQ-KT	Unavailable	NASW 2607	1584
75	UNIV OF MIAMI	Frutkin, A. W.	HQ-I	Harvey, M. L.	NGR 10-007-089	1713

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
75	UNIV OF NEW MEXICO	Holley, H. L.	HQ-KT	Shinnick, W. A.	NASW 2534	2476
75	UNIV OF NEW MEXICO	Morris, J. D.	HQ-PY	Rosenthal, A. H.	NGL 32-004-042	2478
76	XAVIER UNIV-LA	Pohly, J. G.	HQ-PY	Fulwiler, J. H.	NGR 19-007-002	1984
79	GEORGE WASHINGTON U	Redding, E. R.	HQ-PY	Mayo, A. L.	NGL 09-010-030	1649
79	NORTHWESTERN UNIV	Morris, J. D.	HQ-PY	Radnor, M.	NGL 14-007-058	1793
79	SYRACUSE UNIVERSITY	Morris, J. D.	HQ-PY	Barzelay, M. E.	NGL 33-022-090	2643
79	UNIV CALIF-BERKELEY	Tanner, T. A.	ARC	Laporte, T. R.	NGR 05-003-471	1358
79	UNIV OF HOUSTON	Teegarden, D. L., Jr.	JSC	Holland, W. E.	NAS 9-12650	3026
99	BENNETT COLLEGE-NC	Pohly, J. G.	HQ-PY	Sayles, J. H.	NGT 34-017-001	2653
99	CAL STATE U-SAN FRAN	Middaugh, C. W.	ARC	Duckworth, E. L.	NSG 2033	1226
99	CASE WESTERN RESERVE	Smith, R. E.	LARC	Lynch, W. C.	NSG 1069	2708
99	CASE WESTERN RESERVE	Carter, C. H.	HQ-PY	Thomas, R. H.	NGT 36-003-007	2706
99	COLLEGE OF WM & MARY	Martin, D. J.	LARC	Aceto, H., Jr.	NAS 1-11958	3159
99	COLLEGE OF WM & MARY	Martin, D. J.	LARC	Sher, A.	NGL 47-006-058	3161
99	COLLEGE OF WM & MARY	Redding, E. R.	HQ-PY	Sher, A.	NGL 47-006-055	3160
99	COLUMBIA UNIVERSITY	Carter, C. H.	HQ-PY	Robey, R. C.	NGT 33-008-013	2526
99	CORNELL UNIVERSITY	Carter, C. H.	HQ-PY	Schultz, A., Jr.	NGT 33-010-052	2565
99	GEORGE WASHINGTON U	Ault, L. A.	HQ-KT	Talbot, J. M.	NASW 2444	1647
99	GEORGIA INST OF TECH	Kerr, J. H.	MSFC	Shackelford, R. G.	NAS 8-30534	1732
99	GEORGIA INST OF TECH	Vitale, J. A.	HQ-PY	Hansen, A. G.	NGR 11-002-081	1741
99	GEORGIA INST OF TECH	Vitale, J. A.	HQ-PY	Hansen, A. G.	NGT 11-002-064	1753
99	GOUCHER COLLEGE	Pohly, J. G.	HQ-PY	Walker, K.	NGT 21-123-001	1994
99	HARVARD UNIVERSITY	Carter, C. H.	HQ-PY	McFarland, R. A.	NGT 22-007-008	2102
99	HOWARD UNIVERSITY	Pohly, J. G.	HQ-PY	Cox, E. L.	NGT 09-011-058	1672
99	INDIANA U-BLOOMINGTN	Holley, H. L.	HQ-KT	Shriner, H.	NASW 2353	1862
99	INDIANA U-BLOOMINGTN	Holley, H. L.	HQ-KT	Shriner, H.	NASW 2467	1863
99	LEHIGH UNIVERSITY	Carter, C. H.	HQ-PY	Stout, R. D.	NGT 39-007-003	2818
99	MASS INST OF TECH	Silverman, D.	HQ-EC	Harrington, J. V.	NASW 2197	2137
99	MASS INST OF TECH	Redding, E. R.	HQ-PY	Harrington, J. V.	NGL 22-009-019	2144
99	MASS INST OF TECH	Redding, E. R.	HQ-PY	Bridge, H. S.	NGL 22-009-638	2155
99	MASS INST OF TECH	Rosenfeld, R. A.	HQ-RE	Guzman-Arenas, A.	NGR 22-009-535	2170
99	MASS INST OF TECH	Enders, J. H.	HQ-RO	Simpon, R.	NASW 2412	2138
99	MISSISSIPPI STATE U	Kent, M. I.	MSFC	Bouchillon, C. W.	NGL 25-001-032	2347
99	MISSISSIPPI STATE U	Mooneyhan, D. W.	MTF	Bouchillon, C. W.	NAS 9-13363	2346
99	MOREHOUSE COLLEGE	Pohly, J. G.	HQ-PY	Gayles, J. N.	NGT 11-008-004	1762
99	NM HIGHLANDS UNIV	Pohly, J. G.	HQ-PY	Maestas, S.	NGT 32-010-001	2457
99	NEW YORK UNIVERSITY	Jones, W. L.	LARC	Pierson, W. J., Jr.	NAS 1-10090	2575
99	NORTHWESTERN UNIV	Myers, B. C.	HQ-D	Radnor, M.	NGR 14-007-136	1801
99	NORTHWESTERN UNIV	Morris, J. D.	HQ-PY	Rubenstein, A. H.	NGL 14-007-062	1794
99	NORTHWESTERN UNIV	Brandon, F. D.	HQ-RM	Radnor, M.	NSR 14-007-103	1802
99	OKLAHOMA STATE UNIV	Miller, S. A.	ARC	Wiggins, K. E.	NAS 2-7273	2769
99	OKLAHOMA STATE UNIV	Collin, E. E.	HQ-FE	Wiggins, K. E.	NASW 1964	2770
99	OLD DOMINION UNIV	Martin, D. J.	LARC	Ousterhout, D. S.	NAS 1-9434	3178
99	PENNSYLVANIA STATE U	Carter, C. H.	HQ-PY	Reethof, G.	NGT 39-009-141	2843
99	POLY INST OF NY	Carter, C. H.	HQ-PY	Giordano, A. B.	NGT 33-006-003	2595
99	PURDUE UNIVERSITY	Gordon, F., Jr.	GSFC	Bouchillon, C. W.	NAS 5-21880	1874
99	SOUTHEASTN STATE COL	Holley, H. L.	HQ-KT	Unavailable	NASW 2629	2773
99	SOUTHEASTN STATE COL	Holley, H. L.	HQ-KT	Gold, H.	NASW 2512	2772
99	SOUTHEASTN STATE COL	Pohly, J. G.	HQ-PY	Robinson, J. L.	NGT 37-004-010	2774
99	SOUTHERN METHODIST U	Redding, E. R.	HQ-PY	Denton, J. C.	NGL 44-007-006	2982
99	SPELMAN COLLEGE	Pohly, J. G.	HQ-PY	McBay, S. M.	NGT 11-013-001	1766
99	STANFORD UNIVERSITY	Jones, J. L.	ARC	Adams, J. L.	NGR 05-020-345	1276
99	STANFORD UNIVERSITY	Zimmerman, R. R.	HQ-KT	Harrison	NASW 2216	1257
99	TEXAS SOUTHERN UNIV	Gardner, S.	JSC	Dixon, H. W.	NGR 44-016-016	3017
99	UNIV ALA-HUNTSVILLE	Johnson, C.	MSFC	Engle, H. A.	NAS 8-30737	1058
99	UNIV ALA-HUNTSVILLE	Redding, E. R.	HQ-PY	Rush, J. E.	NGL 01-008-001	1061
99	UNIV ALA-TUSCALOOSA	Redding, E. R.	HQ-PY	Whitehurst, R.	NGL 01-002-064	1075
99	UNIV OF ARIZONA	Stonesifer, G. R.	GSFC	Slater, P. N.	NAS 5-21849	1106

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99	UNIV CALIF-BERKELEY	Redding, E. R.	HQ-PY	Anderson, K. A.	NGL 05-003-497	1341
99	UNIV CALIF-L ANGELES	Murphy, J. P.	HQ-ES	Kaula, W. M.	NSG 7002	1439
99	UNIV CALIF-L ANGELES	Redding, E. R.	HQ-PY	Libby, W. F.	NGL 05-007-003	1405
99	UNIV OF CHICAGO	Redding, E. R.	HQ-PY	Simpson, J. A.	NGL 14-001-258	1821
99	UNIV OF CHILE	Christie, C. J.	GSFC	Danyau, C. R.	NAS 5-1925	3372
99	UNIV OF CINCINNATI	Redding, E. R.	HQ-PY	Guston, R. L.	NGL 36-004-014	2747
99	UNIV OF CONNECTICUT	Holley, H. L.	HQ-KT	Wilde, D.	NASW 2307	1600
99	UNIV OF CONNECTICUT	Holley, H. L.	HQ-KT	Wilde, D.	NASW 2516	1601
99	UNIV OF DENVER	Orrick, D. W.	HQ-KT	Kottenstette, J. P.	NASW 2362	1583
99	UNIV OF DENVER	Carter, C. H.	HQ-PY	Evers, N. H.	NGT 06-004-008	1593
99	UNIV OF GEORGIA	Holley, H. L.	HQ-KT	Carmon, J. L.	NASW 2401	1769
99	UNIV OF HAWAII	Pirtle, M. W.	ARC	Litchenberger, W.	NAS 2-6700	1773
99	UNIV OF HOUSTON	Redding, E. R.	HQ-PY	Allred, J. C.	NGL 44-005-021	3034
99	UNIV OF KANSAS	Jones, W. L.	LARC	Moore, R. K.	NAS 1-10048	1920
99	UNIV OF KANSAS	Redding, E. R.	HQ-PY	Barr, B. G.	NGL 17-002-001	1930
99	UNIV OF KANSAS	Carter, C. H.	HQ-PY	Smith, W. P.	NGT 17-002-044	1937
99	UNIV MD-EASTRN SHORE	Floyd, J. C.	WFC	Unavailable	NAS 6-2067	2065
99	UNIV OF MIAMI	Redding, E. R.	HQ-PY	Man, E. H.	NGL 10-007-010	1709
99	UNIV MICH-ANN ARBOR	Adams, J. A.	LARC	Howe, R. M.	NSR 23-005-364	2294
99	U MINN-MNPLS-ST PAUL	Carter, C. H.	HQ-PY	Crawford, B., Jr.	NGT 24-005-012	2327
99	U MINN-MNPLS-ST PAUL	Carter, C. H.	HQ-PY	Anderson, G. W.	NGT 24-005-078	2328
99	UNIV OF NEW MEXICO	Holley, H. L.	HQ-KT	Shinnick, W. A.	NASW 2399	2475
99	UNIV N CAR-CHPL HILL	Carter, C. H.	HQ-PY	Ingram, J. C.	NGT 34-003-001	2686
99	UNIV OF PITTSBURGH	Holley, H. L.	HQ-KT	Holley, E.	NASW 2425	2856
99	UNIV OF PITTSBURGH	Carter, C. H.	HQ-PY	Bonn, R.	NGT 39-011-003	2871
99	UNIV OF SOUTHERN CAL	Holley, H. L.	HQ-KT	Unavailable	NASW 2592	1515
99	UNIV OF SOUTHERN CAL	Holley, H. L.	HQ-KT	Oulie, A. K.	NASW 2360	1514
99	UNIV TENNESSEE-KNOXV	Allen, R. E.	MSFC	Helvey, T. C.	NGR 43-001-117	2923
99	UNIV TENNESSEE-KNOXV	Morris, J. D.	HQ-PY	James, L. B.	NGR 43-001-116	2922
99	UNIV TEXAS-AUSTIN	Carter, C. H.	HQ-PY	Ellison, F. P.	NGT 44-012-009	3084
99	UNIV TEXAS-DALLAS	Redding, E. R.	HQ-PY	Johnson, F. S.	NGL 44-004-130	3100
99	UNIV OF VIRGINIA	Martin, D. J.	LARC	Barnes, D.	NAS 1-12754	3214
99	UNIV OF WASHINGTON	Carter, C. H.	HQ-PY	McCarthy, J. L.	NGT 48-002-007	3306
99	VIRGINIA STATE COL	Mehrens, H. E.	LARC	Crawley, L. F.	NSG 1007	3280
99	WASHINGTON UNIVERSTY	Silverman, D.	HQ-EC	Morgan, R. P.	NGL 26-008-054	2374

NASA'S UNIVERSITY PROGRAM
APPENDIX C
CROSS INDEX BY FIRST TECHNICAL OFFICER LOCATION

Technical Officers are usually located at the NASA installation funding a particular grant or contract. 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; FRC, 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; WFC, Wallops Flight Center and HQ, Headquarters. The HQ designator carries suffixed letters identifying individual Headquarters offices; and 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	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
ARC	Haines, R. F.	BAYLOR UNIV-MED COL	NGR 44-003-057	Decker, T. A.	53	2949
ARC	Danellis, J. V.	BISHOP COLLEGE	NGR 44-032-013	Kutsky, R. J.	51	2950
ARC	Haughney, L. C.	BOSTON COLLEGE	NGR 22-003-027	Eather, R. H.	31	2069
ARC	Miquel, J.	BOWLING GRN STATE U	NGR 36-017-004	Oster, I. I.	51	2688
ARC	Hall, C. F.	BRIGHAM YOUNG UNIV	NAS 2-7358	Jones, D. E.	13	3127
ARC	Dyal, P.	BRIGHAM YOUNG UNIV	NGR 45-001-040	Jones, D. E.	13	3130
ARC	Howe, J. T.	BROWN UNIVERSITY	NGL 40-002-059	Mason, E. A.	12	2876
ARC	Hall, C. F.	CALIF INST OF TECH	NAS 2-6556	Munch, G.	11	1163
ARC	Olson, L. E.	CALIF INST OF TECH	NGL 05-002-229	Cole, D.	41	1189
ARC	Cameron, R. M.	CALIF INST OF TECH	NGR 05-002-281	Werner, M. W.	11	1202
ARC	Johnson, R. D.	CALIF INST OF TECH	NGR 05-002-308	Horowitz, N. H.	11	1209
ARC	Boese, R. W.	CAL STATE U-CHICO	NGL 05-076-001	Regas, J. L.	31	1218
ARC	Middaugh, C. W.	CAL STATE U-SAN FRAN	NSG 2033	Duckworth, E. L.	99	1226
ARC	Gloria, H. R.	CAL STATE U-SAN JOSE	NAS 2-7616	Miller, A.	31	1227
ARC	Stewart, J. D.	CAL STATE U-SAN JOSE	NGL 05-046-002	Clark, W. B.	69	1228
ARC	Wydeven, T. J.	CAL STATE U-SAN JOSE	NGR 05-046-011	Spitze, L. A.	12	1229
ARC	Arvesen, J. C.	CAL STATE U-SAN JOSE	NGR 05-046-015	Weaver, E. C.	39	1230
ARC	Whitten, R. C.	CAL STATE U-SAN JOSE	NGR 05-046-020	Miller, A.	31	1231
ARC	Quattrone, P. D.	CASE WESTERN RESERVE	NGR 36-027-050	Yeager, E.	12	2700
ARC	Quattrone, P. D.	CASE WESTERN RESERVE	NGR 36-027-052	Yeager, E.	12	2702
ARC	Sandler, H.	CASE WESTERN RESERVE	NGR 36-027-053	Ko, W. H.	53	2703
ARC	Newsom, B. D.	CATHOLIC UNIVERSITY	NSG 2019	Lih, M. M.	59	1638
ARC	Pollack, J. B.	CLARK COLLEGE	NGR 11-010-001	Kiang, C. S.	31	1718
ARC	Tremor, J. W.	COLORADO STATE UNIV	NAS 2-6615	Baker, R.	51	1529
ARC	Holton, E. M.	COLORADO STATE UNIV	NGR 06-002-075	Jordan, J. P.	51	1537
ARC	Kirkpatrick, J. P.	COLORADO STATE UNIV	NGR 06-002-127	Jones, T. B.	46	1543
ARC	Winter, D. L.	COLORADO STATE UNIV	NGR 06-002-166	Ogg, J. E.	51	1547
ARC	Rositano, S. A.	COLORADO STATE UNIV	NSG 2009	Histand, M. B.	19	1550
ARC	Tremor, J. W.	CORNELL UNIVERSITY	NAS 2-7846	Steward, F. C.	51	2529
ARC	Murman, E. M.	CORNELL UNIVERSITY	NGL 33-010-057	Seebass, A. R.	41	2540
ARC	Cameron, R. M.	CORNELL UNIVERSITY	NGR 33-010-081	Houck, J. R.	11	2547
ARC	Cameron, R. M.	CORNELL UNIVERSITY	NGR 33-010-146	Harwit, M. O.	11	2553
ARC	Sandler, H.	CORNELL UNIVERSITY	NGR 33-010-179	Reis, D. J.	53	2558
ARC	Mason, R. H.	CORNELL UNIVERSITY	NGR 33-010-182	Houck, J. R.	11	2559
ARC	Blanchard, M. B.	DE ANZA COLLEGE	NSG 2005	Cotton, W. R.	32	1232
ARC	Harmaker, W. E.	DUKE UNIVERSITY	NAS 2-7655	Vogel, F. S.	53	2655
ARC	Holton, E. M.	EMORY UNIVERSITY	NGL 11-001-009	Popovic, V. P.	51	1719
ARC	Winter, D. L.	EMORY UNIVERSITY	NGR 11-001-012	Perachio, A. A.	61	1720
ARC	Winter, D. L.	EMORY UNIVERSITY	NGR 11-001-016	Bourne, G. H.	51	1721
ARC	Anliker, J. E.	EMORY UNIVERSITY	NGR 11-001-045	Perachio, A. A.	51	1722

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
ARC	Reynolds, R. T.	FOOTHILL COLLEGE	NSG 2001	Kellman, S. A.	11	1233
ARC	Morse, H. A.	GEORGIA INST OF TECH	NAS 2-6340	Wu, J. C.	41	1723
ARC	Quattrone, P. D.	GEORGIA INST OF TECH	NSG 2004	Orr, C.	19	1756
ARC	Young, D. R.	HARVARD UNIVERSITY	NGR 22-007-256	Tashjian, A. H., Jr.	53	2094
ARC	Poppoff, I. G.	HARVARD UNIVERSITY	NSG 2031	McElroy, M. B.	31	2104
ARC	Unavailable	HARVEY MUDD COLLEGE	NAS 2-8143	Unavailable	12	1234
ARC	Sandler, H.	HOWARD UNIVERSITY	NGL 09-011-017	Hawthorne, E. W.	53	1663
ARC	Mehler, W. R.	INDIANA U-BLOOMINGTN	NGL 15-003-077	Neff, W. D.	59	1865
ARC	Weisman, N. W.	INDIANA U-BLOOMINGTN	NGR 15-003-007	Neff, W. D.	51	1867
ARC	Haymaker, W. E.	INDIANA U-INDIANAPLS	NAS 2-7927	Zeman, W.	51	1870
ARC	Rakich, J. V.	IOWA STATE UNIV	NGR 16-002-038	Tannehill, J. C.	21	1901
ARC	Patton, R. M.	JOHNS HOPKINS UNIV	NGR 21-001-111	Brady, J. V.	69	2003
ARC	Quattrone, P. D.	KENT STATE UNIV	NSG 2013	Madex, R.	12	2720
ARC	Rabbott, J. P., Jr.	MASS INST OF TECH	NAS 2-7262	Ham, N. D.	41	2112
ARC	Schmitz, F. H.	MASS INST OF TECH	NAS 2-7684	Widnall, S. E.	41	2113
ARC	Unavailable	MASS INST OF TECH	NAS 2-7994	Unavailable	49	2114
ARC	Norman, S. M.	MASS INST OF TECH	NAS 2-8157	Simpson, R. W.	41	2115
ARC	Doolin, B. F.	MASS INST OF TECH	NGL 22-009-124	Athens, M.	49	2146
ARC	Daunton, N. G.	MASS INST OF TECH	NGL 22-009-308	Teuber, H. L.	69	2150
ARC	Corsiglia, V. R.	MASS INST OF TECH	NGR 22-009-605	Widnall, S. E.	41	2174
ARC	Winget, C. M.	MASS INST OF TECH	NGR 22-009-627	Wurtman, R. J.	53	2177
ARC	Cameron, R. M.	MASS INST OF TECH	NGR 22-009-718	McCord, T. B.	11	2185
ARC	Quattrone, P. D.	MASS INST OF TECH	NGR 22-009-723	Quattrone, P. D.	12	2186
ARC	Billingham, J.	MASS INST OF TECH	NGR 22-009-726	Schmitt, F. O.	51	2187
ARC	Wempe, T. E.	MASS INST OF TECH	NGR 22-009-733	Curry, R. E.	59	2190
ARC	Quattrone, P. D.	MASS INST OF TECH	NGR 22-009-766	Steinfeld, J. I.	12	2193
ARC	Daunton, N. G.	MASS INST OF TECH	NGR 22-009-798	Bizzi, E.	51	2200
ARC	Quattrone, P. D.	MASS INST OF TECH	NGR 22-009-799	Modell, M.	12	2201
ARC	Daunton, N. G.	MASS INST OF TECH	NGR 22-009-826	Nauta, W. J.	51	2205
ARC	Reynolds, R. T.	MASS INST OF TECH	NSG 2010	Prinn, R. G.	31	2210
ARC	Mascy, A. C.	MASS INST OF TECH	NSG 2024	Simpson, R. W.	41	2211
ARC	Billingham, J.	MASS INST OF TECH	NSG 2032	Young, L. R.	59	2212
ARC	Van Ess, J. C.	NEW MEX ST U-LAS CR	NAS 2-6484	Connell, H. L.	19	2459
ARC	Caradonna, F. X.	NEW YORK UNIVERSITY	NAS 2-6813	Isom, M. P.	41	2576
ARC	Unavailable	NEW YORK UNIVERSITY	NAS 2-7963	Unavailable	11	2577
ARC	Hicks, R. M.	NEW YORK UNIVERSITY	NGR 33-016-201	Garabedian, P. R.	41	2589
ARC	Williams, D. P.	NO CAROLINA STATE U	NGR 34-002-175	Benson, R. B., Jr.	47	2671
ARC	Franklin, J. A.	NORTHEASTERN UNIV	NAS 2-7397	Bach, R. E., Jr.	41	2217
ARC	Anliker, J. E.	NORTHEASTERN UNIV	NGR 22-011-070	Terman, M.	61	2219
ARC	Oyama, J.	OHIO STATE UNIV	NAS 2-6634	Clarke, D. L.	53	2722
ARC	McCroskey, W. J.	OHIO STATE UNIV	NAS 2-6779	Velkoff, H. R.	41	2723
ARC	Cassen, P. M.	OHIO STATE UNIV	NGR 36-008-205	Kulacki, F. A.	19	2739
ARC	Mehler, W. R.	OHIO STATE UNIV	NGR 36-008-211	Lim, D.	59	2740
ARC	Miller, S. A.	OKLAHOMA STATE UNIV	NAS 2-7273	Wiggins, K. E.	99	2769
ARC	Schmitz, F. H.	POLY INST OF NY	NAS 2-8399	Isom, M. P.	41	2591
ARC	Cameron, R. M.	POMONA COLLEGE	NSG 2011	Webb, W.	11	1236
ARC	Cagliostro, D. E.	PRINCETON UNIVERSITY	NAS 2-6705	Sirignano, W. A.	43	2412
ARC	Gossett, T. D.	PRINCETON UNIVERSITY	NAS 2-7187	Durbin, E. J.	41	2413
ARC	Franklin, J. A.	PRINCETON UNIVERSITY	NAS 2-7350	Seckel, E.	41	2414
ARC	Ormiston, R. A.	PRINCETON UNIVERSITY	NAS 2-7615	Dowell, E. H.	41	2415
ARC	Gaspers, P. A., Jr.	PRINCETON UNIVERSITY	NGR 31-001-197	Dowell, E. H.	41	2434
ARC	Smith, G. A.	PRINCETON UNIVERSITY	NGR 31-001-277	Durbin, E. J.	41	2443
ARC	Gregory, T. J.	PURDUE UNIVERSITY	NGR 15-005-180	Garrett, R. E.	49	1892
ARC	Grant, T. L.	RENSELAER POLY-NY	NGR 33-018-188	Modestino, J. W.	45	2607
ARC	Taketa, S. T.	RICE UNIVERSITY	NAS 2-6614	Ward, C. H.	39	2961
ARC	Daunton, N. G.	ROCKEFELLER UNIV	NAS 2-8179	Eisenberg, L.	51	2611
ARC	Greenleaf, J. E.	ST LOUIS UNIVERSITY	NGR 26-006-039	Van Beaumont, W.	53	2356
ARC	Anliker, J. E.	ST LOUIS UNIVERSITY	NSG 2023	Van Beaumont, W.	53	2358

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ARC	Tanner, T. A.	SOUTHERN METHODIST U	NSG 2006	Starling, J. D.	41	2986
ARC	Hall, C. F.	STANFORD UNIVERSITY	NAS 2-4671	Von Eshleman, V. R.	13	1241
ARC	Tremor, J. W.	STANFORD UNIVERSITY	NAS 2-5587	Pittendrigh, C. S.	51	1242
ARC	Vause, G. R.	STANFORD UNIVERSITY	NAS 2-6158	Karamcheti, K.	41	1243
ARC	Miquel, J.	STANFORD UNIVERSITY	NAS 2-6706	Bensch, K. G.	51	1244
ARC	Kenyon, G. C.	STANFORD UNIVERSITY	NAS 2-7199	Shevill, R. S.	49	1245
ARC	Hightower, W. D.	STANFORD UNIVERSITY	NAS 2-7959	Croft, T. A.	31	1246
ARC	Doolin, B. F.	STANFORD UNIVERSITY	NGL 05-020-007	Bryson, A. E.	49	1258
ARC	Sandler, H.	STANFORD UNIVERSITY	NGL 05-020-305	Harrison, D. C.	52	1269
ARC	Kvenvolden, K. A.	STANFORD UNIVERSITY	NGL 05-020-582	Bonner, W. A.	59	1272
ARC	Jones, J. L.	STANFORD UNIVERSITY	NGR 05-020-345	Adams, J. L.	99	1276
ARC	Chang, S.	STANFORD UNIVERSITY	NGR 05-020-405	Loew, G. H.	12	1277
ARC	Mehler, W. R.	STANFORD UNIVERSITY	NGR 05-020-435	Chow, K. L.	59	1279
ARC	Greenleaf, J. E.	STANFORD UNIVERSITY	NGR 05-020-456	Luetscher, J. A.	53	1281
ARC	Kelley, M. W.	STANFORD UNIVERSITY	NGR 05-020-526	Bryson, A. R.	41	1283
ARC	Feller, D. D.	STANFORD UNIVERSITY	NGR 05-020-578	Degrazia, J. A.	52	1285
ARC	Park, C.	STANFORD UNIVERSITY	NGR 05-020-583	Kruger, C. H.	41	1286
ARC	Sandler, H.	STANFORD UNIVERSITY	NGR 05-020-615	Meindl, J. D.	53	1288
ARC	Rubesin, M. W.	STANFORD UNIVERSITY	NGR 05-020-622	Reynolds, W. C.	42	1289
ARC	Sandler, H.	STANFORD UNIVERSITY	NGR 05-020-634	Harrison, D. C.	52	1292
ARC	Williams, D. P.	STANFORD UNIVERSITY	NGR 05-020-662	Barnett, D. M.	47	1295
ARC	Thomas, C. L.	STANFORD UNIVERSITY	NGR 05-020-663	Powell, J. D.	41	1296
ARC	Hickey, D. H.	STANFORD UNIVERSITY	NGR 05-020-676	Karamcheti, K.	13	1299
ARC	Sandler, H.	STANFORD UNIVERSITY	NGR 05-020-690	Angell, J.	53	1300
ARC	Hruby, R. J.	STANFORD UNIVERSITY	NGR 05-020-699	McCluskey, E. J.	41	1302
ARC	Quattrone, P. D.	STANFORD UNIVERSITY	NGR 05-020-706	Manning, J. R.	12	1303
ARC	Goldstein, H. E.	STANFORD UNIVERSITY	NGR 05-020-710	Shyne, J. C.	47	1304
ARC	Hickey, D. H.	STANFORD UNIVERSITY	NSG 2007	Karamcheti, K.	13	1309
ARC	Dolkas, C. B.	STANFORD UNIVERSITY	NSG 2012	Reaven, G. M.	53	1310
ARC	Grant, T. L.	STANFORD UNIVERSITY	NSG 2017	Croft, T. A.	45	1311
ARC	Sandler, H.	STANFORD UNIVERSITY	NSG 2020	Popp, R.	52	1312
ARC	Mason, R. H.	STATE U NY-STONY BRK	NGR 33-015-140	Knacke, R. E.	11	2626
ARC	Cameron, R. M.	STATE U NY-STONY BRK	NGR 33-015-166	Gebel, W.	11	2631
ARC	Rosser, R. W.	TALLADEGA COLLEGE	NGR 01-007-010	Kray, W. O.	12	1028
ARC	McAlister, K. W.	TEXAS A&M UNIVERSITY	NAS 2-7917	Parker, A. G.	41	2989
ARC	Ahtye, W. F.	TUFTS UNIVERSITY	NGR 22-012-031	Cole, J. E.	41	2222
ARC	Haymaker, W. E.	TULANE UNIVERSITY	NAS 2-7916	Ordy, J. M.	59	1979
ARC	Haughney, L. C.	UNIV ALASKA-FAIRBANKS	NGR 02-001-099	Sivjee, C. G.	11	1088
ARC	Haughney, L. C.	UNIV ALASKA-FAIRBANKS	NGR 02-001-106	Sivjee, C. G.	11	1089
ARC	Hall, C. F.	UNIV OF ARIZONA	NAS 2-6265	Gehrels, A. M.	11	1096
ARC	Wirth, M. N.	UNIV OF ARIZONA	NAS 2-7476	Baker, L. R.	11	1097
ARC	Hall, C. F.	UNIV OF ARIZONA	NAS 2-7839	Soñett, C. P.	13	1098
ARC	Tischler, E.	UNIV OF ARIZONA	NAS 2-7883	Tomasko, M.	31	1099
ARC	Cameron, R. M.	UNIV OF ARIZONA	NGR 03-002-331	Johnson, H. L.	11	1135
ARC	Cameron, R. M.	UNIV OF ARIZONA	NGR 03-002-332	Larson, H. P.	11	1136
ARC	Cameron, R. M.	UNIV OF ARIZONA	NGR 03-002-333	Johnson, H. L.	11	1137
ARC	Cameron, R. M.	UNIV OF ARIZONA	NGR 03-002-390	Hoffman, W. F.	11	1145
ARC	Ragent, B.	UNIV ARKANSAS-FAYETTE	NGL 04-001-007	Testerman, M. K.	13	1156
ARC	Poppoff, I. G.	UNIV CALIF-BERKELEY	NAS 2-7562	Colwell, R. N.	39	1315
ARC	Poppoff, I. G.	UNIV CALIF-BERKELEY	NAS 2-7567	Colwell, R. N.	39	1316
ARC	Kenyon, G.	UNIV CALIF-BERKELEY	NAS 2-7879	Horonjeff, R.	75	1317
ARC	Riccitiello, S. R.	UNIV CALIF-BERKELEY	NAS 2-8288	Williamson, R. B.	12	1318
ARC	Newsom, B. D.	UNIV CALIF-BERKELEY	NGL 05-003-024	Pace, N.	51	1334
ARC	Cameron, R. M.	UNIV CALIF-BERKELEY	NGR 05-003-432	Townes, C. H.	11	1348
ARC	Perkins, E. W.	UNIV CALIF-BERKELEY	NGR 05-003-451	Talbot, L.	41	1352
ARC	Wydeven, T. J.	UNIV CALIF-BERKELEY	NGR 05-003-462	Bell, A. T.	43	1356
ARC	Newsom, B. D.	UNIV CALIF-BERKELEY	NGR 05-003-470	Pace, N.	59	1357
ARC	Tanner, T. A.	UNIV CALIF-BERKELEY	NGR 05-003-471	Laporte, T. R.	79	1358

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ARC	Wydeven, T. J.	UNIV CALIF-BERKELEY	NGR 05-003-478	Merrill, R. P.	43	1359
ARC	Cameron, R. M.	UNIV CALIF-BERKELEY	NGR 05-003-511	Townes, C. H.	11	1363
ARC	Billman, K. W.	UNIV CALIF-BERKELEY	NGR 05-003-559	Gustafson, T. K.	13	1367
ARC	Wrigley, R. C.	UNIV CALIF-BERKELEY	NSG 2003	Horne, A. J.	39	1372
ARC	Kourtides, D. A.	UNIV CALIF-BERKELEY	NSG 2026	Williamson, R. B.	44	1373
ARC	Taketa, S. T.	UNIV CALIF-DAVIS	NAS 2-6633	Mazelis, M.	39	1375
ARC	Winget, C. M.	UNIV CALIF-DAVIS	NAS 2-7152	Beljan, J. R.	53	1376
ARC	Winget, C. M.	UNIV CALIF-DAVIS	NAS 2-7503	Evans, J. W.	59	1377
ARC	Unavailable	UNIV CALIF-DAVIS	NAS 2-7513	Unavailable	13	1378
ARC	Wrigley, R. C.	UNIV CALIF-DAVIS	NAS 2-7516	Goldman, C. R.	31	1379
ARC	Winget, C. M.	UNIV CALIF-DAVIS	NAS 2-7519	Chapman, L. F.	53	1380
ARC	Oyama, J.	UNIV CALIF-DAVIS	NGL 05-004-008	Smith, A. H.	51	1383
ARC	Holton, E. M.	UNIV CALIF-DAVIS	NGR 05-004-099	Horwitz, B. A.	51	1387
ARC	Mandel, A. D.	UNIV CALIF-IRVINE	NGR 05-041-012	Tilles, J. G.	52	1388
ARC	Dyal, P.	UNIV CALIF-L ANGELES	NAS 2-6791	Schubert, G.	13	1389
ARC	Hall, C. F.	UNIV CALIF-L ANGELES	NAS 2-7251	Coleman, P. J., Jr.	13	1390
ARC	Chang, S.	UNIV CALIF-L ANGELES	NAS 2-7440	Kaplan, I. R.	12	1391
ARC	Polentz, P. P.	UNIV CALIF-L ANGELES	NAS 2-7785	Britt, P.	41	1392
ARC	Winter, D. L.	UNIV CALIF-L ANGELES	NGL 05-007-195	French, J. D.	51	1411
ARC	Hodder, B. K.	UNIV CALIF-L ANGELES	NGR 05-007-323	Meecham, W. C.	41	1423
ARC	Daunton, N. G.	UNIV CALIF-L ANGELES	NGR 05-007-418	Markham, C. H.	59	1434
ARC	Poppa, H. R.	UNIV CALIF-L ANGELES	NSG 2025	Douglass, D. L.	47	1437
ARC	Reinisch, R. F.	UNIV CALIF-RIVERSIDE	NGR 05-008-029	Pitts, J. N.	39	1445
ARC	Hall, C. F.	UNIV CALIF-SAN DIEGO	NAS 2-6552	Fillius, R. W.	11	1446
ARC	Billingham, J.	UNIV CALIF-SAN DIEGO	NGL 05-009-109	West, J. B.	53	1460
ARC	Cameron, R. M.	UNIV CALIF-SAN DIEGO	NGR 05-005-055	Stein, W. A.	11	1466
ARC	Winter, D. L.	UNIV CALIF-SAN DIEGO	NGR 05-009-083	Galambos, R.	61	1470
ARC	Haines, R. F.	UNIV CALIF-SAN DIEGO	NGR 05-009-192	Harris, J. L.	59	1475
ARC	Anliker, J. E.	UNIV CALIF-SAN DIEGO	NGR 05-009-198	Hillyard, S. A.	59	1476
ARC	Sandler, H.	UNIV CALIF-SAN DIEGO	NGR 05-009-257	Baily, N. A.	52	1483
ARC	Zill, L. P.	UNIV CALIF-SAN FRAN	NGL 05-025-014	Stolckenucus, W.	59	1488
ARC	Mandel, A. D.	UNIV CALIF-SAN FRAN	NGR 05-025-008	Maibach, H. I.	52	1489
ARC	Hall, C. F.	UNIV OF CHICAGO	NAS 2-6551	Simpson, J. A.	11	1804
ARC	Cameron, R. M.	UNIV OF CHICAGO	NGR 14-001-211	Harper, D. A.	11	1828
ARC	Daunton, N. G.	UNIV OF CHICAGO	NGR 14-001-225	Fernandez, C.	51	1830
ARC	Cameron, R. M.	UNIV OF CHICAGO	NGR 14-001-227	Harper, D. A.	11	1831
ARC	Burke, J. A.	UNIV OF CINCINNATI	NAS 2-7850	Tabakoff, W.	41	2746
ARC	Sinnott, D.	UNIV COLORADO-BOLDR	NAS 2-7901	Stewart, J.	31	1553
ARC	Anliker, J. E.	U COLORADO-DENV MEDL	NAS 2-7794	Rock, K. C.	69	1580
ARC	Boese, R. W.	UNIV OF DENVER	NAS 2-8200	Murcra, D. G.	13	1581
ARC	Quattrone, P. D.	UNIV OF DENVER	NGR 06-004-125	Ross, L. W.	19	1589
ARC	Anliker, J. E.	UNIV OF FLORIDA	NGR 10-005-057	Webb, W. B.	69	1699
ARC	Williams, B. A.	UNIV OF FLORIDA	NSG 2028	Heath, J. E.	51	1704
ARC	Taketa, S. T.	UNIV OF HAWAII	NAS 2-6624	Siegel, S. M.	39	1772
ARC	Pirtle, M. W.	UNIV OF HAWAII	NAS 2-6700	Litchenberger, W.	99	1773
ARC	Miquel, J.	UNIV OF HOUSTON	NAS 2-7435	Oro, J.	51	3022
ARC	Unavailable	UNIV ILLINOIS-URBANA	AF306 24144	Unavailable	21	1835
ARC	Hart, J. P.	UNIV ILLINOIS-URBANA	NAS 2-7722	Sher, M. S.	21	1836
ARC	Slye, R. F.	UNIV ILLINOIS-URBANA	NGR 14-005-202	Ray, R. M.	19	1853
ARC	Mehler, W. R.	UNIV ILLINOIS-URBANA	NGR 14-005-221	Ades, H. W.	51	1855
ARC	Hall, C. F.	UNIV OF IOWA	NAS 2-6553	Van Allen, J. A.	13	1904
ARC	Oyama, J.	UNIV OF KENTUCKY	NGL 18-001-003	Lange, K. O.	61	1946
ARC	Anliker, J. E.	UNIV OF KENTUCKY	NGR 18-001-068	McCoy, D. F.	61	1949
ARC	Chyu, W. J.	UNIV MARYLAND-COL PK	NGR 21-002-350	Yang, J. C.	41	2041
ARC	Gaspers, P. A., Jr.	UNIV MARYLAND-COL PK	NGR 21-002-391	Weisshaar, T. A.	41	2048
ARC	Schillinger, G.	UNIV MICH-ANN ARBOR	NAS 2-6057	Von Baumgarten A, R. J.	61	2244
ARC	Wilhelmi, A. J.	UNIV MICH-ANN ARBOR	NAS 2-7877	Nagy, A. F.	31	2245
ARC	Feistel, T. W.	UNIV MICH-ANN ARBOR	NSG 2018	Buning, H.	41	2292

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
ARC	Polaski, L. J.	U MINN-MNPLS-ST PAUL	NAS 2-7900	Von Zahn, U.	31	2303
ARC	Winget, C. M.	U MINN-MNPLS-ST PAUL	NGR 24-005-006	Halberg, F.	61	2317
ARC	Cameron, R. M.	U MINN-MNPLS-ST PAUL	NGR 24-005-265	Woolf, N. J.	11	2324
ARC	Cameron, R. M.	U MINN-MNPLS-ST PAUL	NGR 24-005-267	Ney, E. P.	11	2325
ARC	Cameron, R. M.	U MINN-MNPLS-ST PAUL	NSG 2014	Ney, E. P.	11	2329
ARC	Cameron, R. M.	U MINN-MNPLS-ST PAUL	NSR 24-005-238	Ney, E. P.	11	2331
ARC	Holton, E. M.	UNIV MO-COLUMBIA	NGL 26-004-021	Musacchia, X. J.	51	2363
ARC	Sandler, H.	UNIV MO-COLUMBIA	NGR 26-004-099	Millich, F.	52	2364
ARC	Ginoza, H. S.	UNIV MO-ROLLA	NGR 26-001-018	Millich, F.	12	2366
ARC	Chambers, A. B.	UNIV MO-ROLLA	NGR 26-004-097	Miles, J. B.	46	2368
ARC	Sebesta, P. D.	UNIV OF MONTANA	NSG 2030	Craighead, J. J.	39	2384
ARC	Nelson, H. G.	UNIV NEBRASKA-LINCLN	NGR 28-004-025	Johnson, D. L.	47	2390
ARC	Cameron, R. M.	UNIV OREGON-EUGENE	NGR 38-003-034	Donnelly, R. J.	31	2791
ARC	Cameron, R. M.	UNIV OREGON-EUGENE	NGR 38-003-035	Donnelly, R. J.	11	2792
ARC	Whiting, E. E.	UNIV OREGON-EUGENE	NGR 38-003-036	Crasemann, B.	13	2793
ARC	Zill, L. P.	UNIV OF PENNSYLVANIA	NAS 2-7730	Brown, A. H.	51	2848
ARC	Zill, L. P.	UNIV OF PENNSYLVANIA	NGR 39-010-104	Brown, A. H.	51	2850
ARC	Zill, L. P.	UNIV OF PENNSYLVANIA	NGR 39-010-149	Brown, A. H.	51	2852
ARC	Cameron, R. M.	UNIV OF ROCHESTER	NGR 33-019-127	Pipher, J. L.	11	2651
ARC	Taketa, S. T.	UNIV SAN FRANCISCO	NAS 2-7059	Benton, E. V.	13	1495
ARC	Doolin, B. F.	UNIV OF SANTA CLARA	NGR 05-017-010	Siljak, D. D.	49	1499
ARC	Poppoff, I. G.	UNIV OF SANTA CLARA	NGR 05-017-027	Barker, W. A.	11	1500
ARC	Marvin, J. G.	UNIV OF SANTA CLARA	NGR 05-017-029	Owen, F. K.	41	1501
ARC	Hruly, R.	UNIV OF SANTA CLARA	NGR 05-017-031	Dunn, W. R.	41	1502
ARC	Schwartz, I. R.	UNIV OF SANTA CLARA	NGR 05-017-033	Cheng, D. Y.	41	1503
ARC	Hall, C. F.	UNIV OF SOUTHERN CAL	NAS 2-6558	Judge, D. L.	13	1506
ARC	Porter, D. L.	UNIV OF SOUTHERN CAL	NAS 2-7969	Intriligator, D. S.	13	1507
ARC	Coe, C. F.	UNIV TEXAS-AUSTIN	NGR 44-012-221	Panton, R. L.	41	3071
ARC	Mason, R. H.	UNIV TEXAS-AUSTIN	NGR 44-012-240	Ulrich, B. T.	11	3074
ARC	Polaski, L. J.	UNIV TEXAS-DALLAS	NAS 2-7865	Hoffman, J. H.	31	3089
ARC	Polaski, L. J.	UNIV TEXAS-DALLAS	NAS 2-8302	Hoffman, J.	31	3090
ARC	Sandler, H.	UNIV TEXAS-GALVESTON	NGR 44-088-002	Stone, H. L.	52	3116
ARC	Unavailable	U TEX HEALTH CTR-DAL	NAS 2-3082	Unavailable	51	3118
ARC	Nachtsheim, P. R.	UNIV OF TULSA	NGR 37-008-003	Weston, K. C.	47	2778
ARC	Kourtides, D. A.	UNIV OF UTAH	NAS 2-8244	Einhorn, I. N.	12	3132
ARC	Coler, C. R.	UNIV OF UTAH	NGR 45-003-108	Plummer, R. P.	69	3147
ARC	Anliker, J. E.	UNIV OF VERMONT	NGR 46-001-041	Lai, D. C.	21	3154
ARC	Oyama, J.	UNIV OF VIRGINIA	NAS 2-1554	Pitts, G. C.	51	3215
ARC	Mehler, W. R.	UNIV OF VIRGINIA	NGR 47-005-186	Ebbesson, S. O.	59	3228
ARC	Oyama, J.	UNIV OF VIRGINIA	NGR 47-005-213	Pitts, G. C.	51	3231
ARC	Goldstein, H. E.	UNIV OF WASHINGTON	NAS 2-6541	Mueller, J. I.	47	3282
ARC	Unavailable	UNIV OF WASHINGTON	NAS 2-6778	Unavailable	39	3283
ARC	Watson, E. C.	UNIV OF WASHINGTON	NGL 48-002-047	Childs, M. E.	41	3290
ARC	Kurkowski, R. L.	UNIV OF WASHINGTON	NGR 48-002-085	Joppa, R. G.	41	3293
ARC	Steinle, F. W., Jr.	UNIV OF WASHINGTON	NGR 48-002-107	Russell, D. A.	41	3294
ARC	Anderson, A. E.	UNIV OF WASHINGTON	NGR 48-002-141	Kippenhan, C. J.	41	3298
ARC	Hodder, B. K.	UNIV OF WASHINGTON	NGR 48-002-144	Chalupnik, J. D.	41	3300
ARC	Taketa, S. T.	UNIV WISC-MADISON	NAS 2-7314	Tibbetts, T. W.	39	3316
ARC	Tischler, E.	UNIV WISC-MADISON	NAS 2-7882	Weinman, J. A.	31	3317
ARC	Unavailable	UNIV WISC-MADISON	NAS 2-7892	Unavailable	13	3318
ARC	Unavailable	UNIV WISC-MADISON	NAS 2-8015	Unavailable	45	3319
ARC	Mandel, A. D.	UNIV WISC-MADISON	NGL 50-002-078	Dick, E. C.	51	3336
ARC	Young, D. R.	UNIV WISC-MADISON	NGR 50-002-051	Cameron, J. R.	53	3340
ARC	Mandel, A. D.	UNIV WISC-MADISON	NGR 50-002-174	Dick, E. C.	52	3344
ARC	Young, D. R.	UNIV WISC-MADISON	NGR 50-002-183	Mazess, R. B.	52	3345
ARC	Mandel, A. D.	UNIV WISC-MADISON	NGR 50-002-191	Balish, E.	52	3347
ARC	Mandel, A. D.	UNIV WISC-MADISON	NSG 2002	Dick, E. C.	52	3352
ARC	Mason, R. H.	UNIV OF WYOMING	NGR 51-001-036	Hackwell, J. A.	31	3363

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ARC	Mehler, W. R.	UPPSALA UNIVERSITY	NGR 52-028-004	Engstrom, H.	53	3379
ARC	Lowenstein, M.	UTAH STATE UNIV	NAS 2-8108	Available, U. N.	31	3148
ARC	Doolin, B. F.	UTAH STATE UNIV	NGR 45-002-016	Gunderson, R. W.	21	3150
ARC	Doolin, B. F.	UTAH STATE UNIV	NSG 2022	Martin, C.	49	3151
ARC	Gaspers, P. A., Jr.	VIRGINIA POLY INST	NSG 2016	Weisshaar, T. A.	41	3274
ARC	Kirkpatrick, J. P.	WASHINGTON ST UNIV	NSG 2015	Saaski, E. W.	12	3308
ARC	Morse, H. A.	WASHINGTON UNIVERSTY	NAS 2-7613	Hohenemser, K. H.	41	2370
ARC	Young, D. R.	WAYNE STATE UNIV	NSG 2008	Orne, D.	53	2299
ARC	Danellis, J. V.	WEST VIRGINIA UNIV	NGL 49-001-019	Moran, W. H.	52	3309
ARC	Harrison, G. A.	WEST VIRGINIA UNIV	NGR 49-001-048	Leovy, C. B.	52	3310
ARC	Quattrone, P. D.	WORCESTER POLY INST	NGR 22-017-024	Weiss, A. H.	12	2234
ARC	Winget, C. M.	XAVIER UNIV-LA	NGR 19-007-004	Ashman, P. U.	51	1985
ARC	Mandel, A. D.	YALE UNIVERSITY	NGR 07-004-146	Evans, A. S.	52	1614
FRC	Szalai, K. J.	MASS INST OF TECH	NGL 22-009-548	Whitaker, H. P.	41	2154
FRC	Kordes, E. E.	STANFORD UNIVERSITY	NGL 05-020-498	McIntosh, S. C., Jr.	41	1271
FRC	Ehernberger, L. J.	TEXAS A&M UNIVERSITY	NGR 44-001-081	Scoggins, J. R.	31	3011
FRC	Carter, A. L.	UNIV CALIF-L ANGELES	NAS 4-1995	Unavailable	41	1393
FRC	Rediess, H. A.	UNIV CALIF-L ANGELES	NGL 05-007-379	Balakrishnan, A. V.	41	1415
FRC	Ehernberger, L. J.	UNIV CALIF-L ANGELES	NSG 4001	Wurtele, M. G.	31	1438
FRC	Gez, S. W.	UNIV OF KANSAS	NAS 4-2148	Roskam, J.	41	1922
FRC	Barber, M. R.	UNIV OF KANSAS	NGR 17-002-095	Roskam, J.	41	1933
FRC	Wolf, T. D.	UNIV OF VIRGINIA	NGR 47-005-202	Jacobson, I. D.	59	3229
GSFC	Schmid, P. E.	ALCORN STATE UNIV	NGR 25-012-001	Paul, M. P.	31	2333
GSFC	Gordon, F., Jr.	AMERICAN UNIVERSITY	NAS 5-21752	Anderson, R. R.	39	1626
GSFC	Gordon, F., Jr.	AMERICAN UNIVERSITY	NAS 5-21892	MacLeod, N. H.	39	1627
GSFC	Waiter, L. S.	AMERICAN UNIVERSITY	NAS 5-21970	MacLeod, N. H.	39	1628
GSFC	Sobieski, S.	BELOIT COLLEGE	NGR 50-010-001	Schroeder, D. J.	11	3313
GSFC	Boldt, E. A.	BOWIE STATE COLLEGE	NGR 21-027-001	Tornabene, H. S.	11	1986
GSFC	Caruso, A. J.	BOWIE STATE COLLEGE	NGR 21-027-010	Bhatia, M. S.	13	1988
GSFC	Mundy, J. R.	BOWIE STATE COLLEGE	NGT 21-027-012	Kirksey, C. H.	21	1990
GSFC	Unavailable	BOWIE STATE COLLEGE	NSG 5009	Unavailable	12	1991
GSFC	Coates, R. J.	BROWN UNIVERSITY	NGL 40-002-042	Heller, G. S.	13	2875
GSFC	Davis, M. A.	CALIF INST OF TECH	NAS 5-11066	Stone, D. C.	13	1164
GSFC	Kellsall, T.	CALIF INST OF TECH	NAS 5-20492	Neugebauer, G.	39	1165
GSFC	Sobieski, S.	CALIF INST OF TECH	NAS 5-23287	Neugebauer, G.	11	1166
GSFC	Wrublik, D. P.	CALIF INST OF TECH	NAS 5-23315	Garmire, G. P.	11	1167
GSFC	Velez, C. E.	CAL STATE U-FULLERTN	NGR 05-071-005	Pierce, S.	21	1220
GSFC	Roosen, R. G.	CAL STATE U-S DIEGO	NAS 5-23249	Angione, R. J.	31	1224
GSFC	Paddack, S. J.	CARNEGIE-MELLON UNIV	NGR 39-087-001	Renard, M. L.	42	2797
GSFC	Paddack, S. J.	CARNEGIE-MELLON UNIV	NGR 39-087-026	Renard, M. L.	42	2800
GSFC	Schaefer, D. H.	CARNEGIE-MELLON UNIV	NGR 39-087-036	Lee, S. H.	45	2801
GSFC	Shulman, A. R.	CARNEGIE-MELLON UNIV	NGR 39-087-037	Lee, S. R.	13	2802
GSFC	McAvoy, N.	CASE WESTERN RESERVE	NGR 36-027-068	Pao, Y. H.	13	2705
GSFC	Fichtel, C. E.	CATHOLIC UNIVERSITY	NGR 09-005-077	Crannell, H.	13	1634
GSFC	Stief, L. J.	CATHOLIC UNIVERSITY	NGR 09-005-103	Timmons, R. B.	12	1636
GSFC	Eckerman, J.	CITY COLLEGE OF N Y	NAS 5-20041	Pierson, W. J.	33	2487
GSFC	Stothers, R. B.	CITY COLLEGE OF N Y	NGL 33-013-040	Lea, R. M.	11	2494
GSFC	Brown, J. P.	CITY COLLEGE OF N Y	NGR 33-013-048	Schilling, D. L.	45	2495
GSFC	Brown, J. P.	CITY COLLEGE OF N Y	NGR 33-013-077	Schilling, D. L.	45	2496
GSFC	Halem, M.	CITY COLLEGE OF N Y	NGR 33-013-086	Spar, J.	31	2497
GSFC	Miller, J. E.	CITY COLLEGE OF N Y	NSG 5013	Schilling, D. L.	45	2498
GSFC	Lynch, T. J.	CLEMSON UNIV-CLEMSON	NGR 41-001-036	Snelsire, R.	19	2887
GSFC	Stonesifer, G. R.	COLORADO SCH OF MINE	NAS 5-21778	Reeves, R. G.	32	1525
GSFC	Wexler, R.	COLORADO STATE UNIV	NGR 06-002-098	Reiter, E. R.	31	1539
GSFC	Wexler, R.	COLORADO STATE UNIV	NGR 06-002-102	Vonder Haar, T. H.	31	1540
GSFC	Carpenter, L. H.	COLORADO STATE UNIV	NGR 06-002-191	Thompson, E. G.	32	1548
GSFC	Allison, L. J.	COLORADO STATE UNIV	NSG 5011	Grant, L. O.	31	1552
GSFC	Donley, J. L.	COLUMBIA UNIVERSITY	NAS 5-11362	Novick, R.	19	2501

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GSFC	Thaddeus, P.	COLUMBIA UNIVERSITY	NGL 33-008-012	Woltjer, L.	19	2508
GSFC	Smith, D. E.	COLUMBIA UNIVERSITY	NGR 33-008-146	Schölz, C. H.	32	2515
GSFC	Thaddeus, P.	COLUMBIA UNIVERSITY	NGR 33-008-191	Broecker, W. S.	11	2522
GSFC	Bracken, P. A.	COPPIN STATE COLLEGE	NGR 21-122-001	Sommerfeldt, D. E.	21	1993
GSFC	Szajna, E. F.	CORNELL UNIVERSITY	NAS 5-21781	Dethier, B. E.	39	2530
GSFC	Szajna, E. F.	CORNELL UNIVERSITY	NAS 5-21844	McNair, A. J.	59	2531
GSFC	Conrath, B. J.	CORNELL UNIVERSITY	NAS 5-23236	Gierasch, P. J.	13	2532
GSFC	Hrastar, J. A.	CORNELL UNIVERSITY	NGR 33-010-169	Alfriend, K. T.	49	2555
GSFC	Westrom, J. L.	DC TEACHERS COLLEGE	NGR 09-053-003	Bever, R. S.	39	1640
GSFC	Szajna, E. F.	DARTMOUTH COLLEGE	NAS 5-21749	Simpson, R. B.	39	2394
GSFC	Jastrow, R.	DARTMOUTH COLLEGE	NSG 5014	Stoiber, R. E.	39	2397
GSFC	Picciolo, G. L.	DELAWARE STATE COL	NGR 08-002-003	Bush, V. N.	51	1618
GSFC	Rodriguez, G. E.	DUKE UNIVERSITY	NGL 34-001-001	Wilson, T. J.	45	2656
GSFC	Trombka, J. I.	DUKE UNIVERSITY	NGR 34-001-041	O'Foghluha, F.	11	2657
GSFC	Heath, D. F.	FAIRFIELD UNIVERSITY	NGR 07-010-002	McElaney, J. H.	31	1595
GSFC	McDonald, F. B.	FEDERAL CITY COLLEGE	NGR 09-050-001	Whiteside, H.	11	1641
GSFC	Webster, W. H., Jr.	FEDERAL CITY COLLEGE	NGR 09-050-003	Nottingham, W. C.	11	1642
GSFC	Alterescu, S.	FEDERAL CITY COLLEGE	NGR 09-050-013	Friedman, C.	52	1644
GSFC	Nava, D. F.	FEDERAL CITY COLLEGE	NGR 09-050-019	Phelps, H. L.	39	1645
GSFC	Fuchs, A. J.	FEDERAL CITY COLLEGE	NGR 09-050-020	Bakshi, J.	21	1646
GSFC	Moore, J. V.	GEORGE WASHINGTON U	NGR 09-010-090	Kahn, W. K.	49	1655
GSFC	King, J. L.	GEORGIA INST OF TECH	NSG 5012	Dees, J. W.	45	1758
GSFC	Findlay, J. A.	HARVARD UNIVERSITY	NAS 5-23199	McElroy, M. B.	31	2081
GSFC	Plotkin, H. H.	HARVARD UNIVERSITY	NGL 22-007-117	Bloembergen, N.	13	2085
GSFC	Theon, J. S.	HARVARD UNIVERSITY	NGR 22-007-275	Lindzen, R. S.	31	2100
GSFC	Kupperian, J. E.	HARVARD UNIVERSITY	NGR 22-007-285	Noyes, R. W.	11	2101
GSFC	Chen, W. T.	HOWARD UNIVERSITY	NASW 2386	DeLoatch, E. M.	53	1661
GSFC	Okeefe, J. A.	HOWARD UNIVERSITY	NGL 09-011-006	Thorpe, A. N.	13	1662
GSFC	Mentall, J. E.	HOWARD UNIVERSITY	NGR 09-011-004	Thorpe, A. N.	13	1665
GSFC	Fedor, J. V.	HOWARD UNIVERSITY	NGR 09-011-039	Bainum, P. M.	41	1666
GSFC	Hobbs, R. W.	HOWARD UNIVERSITY	NGR 09-011-056	Kumar, C. K.	11	1669
GSFC	Yin, L. I.	HOWARD UNIVERSITY	NGR 09-011-057	Tsang, T.	13	1670
GSFC	Gordon, F., Jr.	INDIANA U-BLOOMINGTN	NAS 5-21795	Wier, C. E.	32	1861
GSFC	Findlay, J. A.	JOHNS HOPKINS UNIV	NAS 5-11415	Doering, J. P.	31	1995
GSFC	Gross, F. C.	JOHNS HOPKINS UNIV	NAS 5-22071	Rubin, R. J.	53	1996
GSFC	Sobieski, S.	JOHNS HOPKINS UNIV	NAS 5-23316	Fastie, W. G.	11	1997
GSFC	Kupperian, J. E.	JOHNS HOPKINS UNIV	NGR 21-001-120	Moos, H. W.	11	2005
GSFC	Major, F. G.	LAVAL UNIVERSITY	NGR 52-133-001	Vanier, J.	45	3369
GSFC	Szajna, E. J.	LONG ISLAND UNIV	NAS 5-21792	Yost, E.	33	2570
GSFC	Gordon, F.	LONG ISLAND UNIV	NAS 5-21793	Yost, E.	32	2571
GSFC	Jastrow, R.	LONG ISLAND UNIV	NGR 33-151-006	Yost, E.	32	2573
GSFC	Browning, R. K.	LA STATE U-BAT ROUGE	NAS 5-23174	Huggett, R. W.	11	1961
GSFC	Davis, M. A.	MASS INST OF TECH	NAS 5-11062	Bridge, H. S.	13	2117
GSFC	Ostaff, W.	MASS INST OF TECH	NAS 5-11082	Clark, G. W.	19	2118
GSFC	Piterski, N. J.	MASS INST OF TECH	NAS 5-11450	Clark, G. W.	11	2119
GSFC	Cambell, C. E.	MASS INST OF TECH	NAS 5-20091	Staelin, D.	42	2120
GSFC	Unavailable	MASS INST OF TECH	NAS 5-21980	Unavailable	31	2121
GSFC	Barbieri, R. W.	MASS INST OF TECH	NGR 22-009-207	Deyst, J. J., Jr.	42	2160
GSFC	Wilheit, T. T.	MASS INST OF TECH	NGR 22-009-421	Barrett, A. H.	31	2166
GSFC	Halem, M.	MASS INST OF TECH	NGR 22-009-727	Charney, J.	31	2188
GSFC	Plotkin, H. H.	MASS INST OF TECH	NGR 22-009-741	Javan, A.	13	2192
GSFC	Sobieski, S.	MASS INST OF TECH	NGR 22-009-778	McCord, T. B.	11	2194
GSFC	Clark, T. A.	MASS INST OF TECH	NGR 22-009-839	Shapiro, I. I.	45	2206
GSFC	Szajna, E. F.	MICHIGAN STATE UNIV	NAS 5-21834	Anderson, A.	39	2236
GSFC	Stonesifer, G. R.	MISSISSIPPI STATE U	NAS 5-21817	Ingels, F. M.	32	2340
GSFC	Stonesifer, G. R.	MISSISSIPPI STATE U	NAS 5-21881	Bouchillon, C. W.	39	2341
GSFC	Mundy, J. R.	MORGAN STATE COLLEGE	NGR 21-025-011	Collagan, R. B.	45	2009
GSFC	McKeehan, H. B.	NAT POLYTECHNIC INST	NAS 5-21224	Orellana, J. R.	49	3373

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GSFC	Lantz, P. A.	NEW MEX ST U-LAS CR	NAS 5-20565	Post, C. C.	45	2460
GSFC	Flowers, J.	NEW MEX ST U-LAS CR	NAS 5-21432	Snow, L. L.	45	2461
GSFC	Oosterhout, J. D.	NEW MEX ST U-LAS CR	NAS 5-21433	Chavez, R.	11	2462
GSFC	Lantz, P. A.	NEW MEX ST U-LAS CR	NAS 5-22203	Post, C. C.	45	2463
GSFC	Oosterhout, J. D.	NEW MEX ST U-LAS CR	NAS 5-22219	Sayles, A., Jr.	49	2464
GSFC	Bissell, E. E.	NEW MEX ST U-LAS CR	NAS 5-23001	Lawrence, O. H.	19	2465
GSFC	Mangus, J. D.	NEW YORK INST TECH	NGR 33-230-001	Stroke, G. W.	19	2574
GSFC	Halem, M.	NEW YORK UNIVERSITY	NGL 33-016-013	Schaeffer, O. A.	31	2579
GSFC	Halem, M.	NEW YORK UNIVERSITY	NGR 33-016-174	Spar, J.	31	2583
GSFC	Ensor, G. J.	NO CAROLINA STATE U	NAS 5-21732	Welby, C. W.	32	2663
GSFC	Unavailable	NORTHEASTERN UNIV	NSG 310	Kaula, W. M.	11	2220
GSFC	Hirschmann, E.	OHIO STATE UNIV	NAS 5-20521	Founty, R. A.	39	2724
GSFC	Hirschmann, E.	OHIO STATE UNIV	NAS 5-21983	Ksienski, A. A.	31	2725
GSFC	Hirschmann, E.	OHIO STATE UNIV	NGR 36-008-080	Ksienski, A. A.	45	2733
GSFC	Smith, D. E.	OHIO STATE UNIV	NGR 36-008-161	Rapp, R. H.	32	2735
GSFC	Gordon, F., Jr.	OLD DOMINION UNIV	NAS 5-21816	Copeland, G. E.	39	3180
GSFC	Crump, E. W.	OREGON STATE UNIV	NAS 5-21831	Smionson, G. H.	39	2779
GSFC	Szajna, E. F.	PENNSYLVANIA STATE U	NAS 5-23133	McMurtry, G. J.	39	2820
GSFC	Kupperian, J. E.	PRINCETON UNIVERSITY	NAS 5-1810	Spitzer, L., Jr.	11	2416
GSFC	Sobieski, S.	PRINCETON UNIVERSITY	NAS 5-20069	Spitzer, L., Jr.	11	2417
GSFC	Kelsall, T.	PRINCETON UNIVERSITY	NAS 5-20507	Lowrance, J. L.	49	2418
GSFC	Sobieski, S.	PRINCETON UNIVERSITY	NAS 5-23284	Danielson, R. E.	11	2419
GSFC	Barbieri, R. W.	PRINCETON UNIVERSITY	NGR 31-001-152	Lion, P. M.	42	2432
GSFC	Sobieski, S.	PRINCETON UNIVERSITY	NGR 31-001-306	Morton, D. C.	11	2444
GSFC	Boggess, A., III	PRINCETON UNIVERSITY	NSR 31-001-286	Lowrance, J. L.	11	2452
GSFC	Gordon, F., Jr.	PURDUE UNIVERSITY	NAS 5-21773	McDonald, R. B.	39	1872
GSFC	Gordon, F., Jr.	PURDUE UNIVERSITY	NAS 5-21785	Baumgardner, M. F.	19	1873
GSFC	Gordon, F., Jr.	PURDUE UNIVERSITY	NAS 5-21880	Bouchillon, C. W.	99	1874
GSFC	Lynch, T. J.	PURDUE UNIVERSITY	NGR 15-005-152	Wintz, P. A.	45	1888
GSFC	Lynch, T. J.	PURDUE UNIVERSITY	NSG 5010	Wintz, P. A.	32	1896
GSFC	Meese, K. J.	RICE UNIVERSITY	NAS 5-9317	Anderson, H. R.	32	2962
GSFC	Taylor, H. A., Jr.	RICE UNIVERSITY	NAS 5-23338	Cloutier, P. A.	13	2963
GSFC	Stonesifer, G. R.	SO DAKOTA STATE UNIV	NAS 5-21774	Meyers, V. I.	39	2894
GSFC	Baker, J.	STANFORD UNIVERSITY	NAS 5-10102	Villard, O. G.	45	1248
GSFC	Lidston, J. M.	STANFORD UNIVERSITY	NAS 5-21684	Debra, D. B.	42	1249
GSFC	Crump, E. W.	STANFORD UNIVERSITY	NAS 5-21775	Rich, E. I.	32	1250
GSFC	Crump, E. W.	STANFORD UNIVERSITY	NAS 5-21884	Lyon, R. P.	32	1251
GSFC	Lidston, J. M.	STANFORD UNIVERSITY	NAS 5-21960	Berra, D. B.	42	1252
GSFC	Wrublik, D. P.	STANFORD UNIVERSITY	NAS 5-23117	Hofstadter, R.	11	1253
GSFC	Stone, R. G.	STANFORD UNIVERSITY	NAS 5-23205	Peterson, A. M.	13	1254
GSFC	Barbieri, R. W.	STANFORD UNIVERSITY	NGR 05-020-592	Breakwell, J. V.	42	1287
GSFC	Hobbs, R. W.	STATE UNIV NY-ALBANY	NGR 33-182-018	Weinberg, J. L.	11	2613
GSFC	Chen, W. T.	ST U NY-DNST MED CTR	NAS 5-22277	Fealey, R. D.	52	2639
GSFC	Chiu, H. Y.	STATE U NY-STONY BRK	NGL 33-015-082	Owen, T.	11	2621
GSFC	Hansen, J.	STATE U NY-STONY BRK	NGR 33-015-165	Owen, T.	31	2630
GSFC	Hobbs, R. W.	STATE U NY-STONY BRK	NGR 33-015-195	Simon, M.	11	2634
GSFC	Mangus, J. D.	STATE U NY-STONY BRK	NGR 33-015-196	Stroke, G. W.	13	2635
GSFC	Hansen, J. E.	STATE U NY-STONY BRK	NSG 5015	Cess, R. D.	31	2636
GSFC	Pease, P. B.	SYRACUSE UNIVERSITY	NGR 33-022-150	Foster, G. H.	21	2644
GSFC	Damon, E. P.	TEXAS A&M UNIVERSITY	NAS 5-11988	Simmons, D. B.	21	2991
GSFC	Stonesifer, G. R.	TEXAS A&M UNIVERSITY	NAS 5-21857	Rouse, J. W., Jr.	39	2992
GSFC	Gordon, F., Jr.	TEXAS TECH UNIV	NAS 5-21720	Miller, W. D.	39	3019
GSFC	McAvoy, N.	UNION COLLEGE	NGR 33-032-004	Galantowicz, A.	13	2646
GSFC	Stonesifer, G. R.	UNIV ALA-TUSCALOOSA	NAS 5-21876	Henry, H. R.	39	1063
GSFC	Crump, E. W.	UNIV ALASKA-FAIRBNKS	NAS 5-21833	Belon, A. E.	32	1081
GSFC	Meese, K. J.	UNIV OF ARIZONA	NAS 5-11444	L'Heureux, J. J.	13	1100
GSFC	Chin, E. S.	UNIV OF ARIZONA	NAS 5-11456	Maratly, A. S.	11	1101
GSFC	Hansen, J.	UNIV OF ARIZONA	NAS 5-20514	Unavailable	39	1102

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
GSFC	Stonesifer, G. R.	UNIV OF ARIZONA	NAS 5-21812	McGinnies, W. G.	59	1103
GSFC	Stonesifer, G. R.	UNIV OF ARIZONA	NAS 5-21819	Lowe, C. H.	59	1104
GSFC	Stonesifer, G. R.	UNIV OF ARIZONA	NAS 5-21820	Smith, E. L., Jr.	39	1105
GSFC	Stonesifer, G. R.	UNIV OF ARIZONA	NAS 5-21849	Slater, P. N.	99	1106
GSFC	Stecher, T. P.	UNIV OF ARIZONA	NAS 5-22263	Kuiper, G. P.	11	1107
GSFC	Browning, R. K.	UNIV OF ARIZONA	NAS 5-23176	Bowen, T.	11	1108
GSFC	Curran, R. J.	UNIV OF ARIZONA	NGR 03-002-155	Herman, B. M.	31	1127
GSFC	Hoffman, W. F.	UNIV OF ARIZONA	NGR 03-002-180	Lee, T. A.	11	1129
GSFC	Sobieski, S.	UNIV OF ARIZONA	NGR 03-002-363	Serkowski, K. M.	11	1139
GSFC	Sobieski, S.	UNIV OF ARIZONA	NGR 03-002-372	Gilbert, G. R.	11	1142
GSFC	Heath, D. F.	UNIV OF ARIZONA	NGR 03-002-382	Herman, B. M.	31	1143
GSFC	Hobbs, R. W.	UNIV OF ARIZONA	NGR 03-002-392	Fink, U.	11	1146
GSFC	Hobbs, R. W.	UNIV OF ARIZONA	NGR 03-002-393	Larson, S. M.	11	1147
GSFC	Sobieski, S.	UNIV OF ARIZONA	NSG 5001	Angel, J. R.	11	1148
GSFC	Madden, J. J.	UNIV CALIF-BERKELEY	NAS 5-11038	Anderson, R. A.	13	1319
GSFC	Davis, M. A.	UNIV CALIF-BERKELEY	NAS 5-20079	Anderson, K. A.	13	1320
GSFC	Davis, M. A.	UNIV CALIF-BERKELEY	NAS 5-20080	Mozser, F. S.	13	1321
GSFC	Crump, E. W.	UNIV CALIF-BERKELEY	NAS 5-21827	Colwell, R. N.	39	1322
GSFC	Lynch, T. J.	UNIV CALIF-BERKELEY	NGR 05-003-538	Algazi, V. R.	45	1365
GSFC	Kupperian, J. E.	UNIV CALIF-BERKELEY	NGR 05-003-587	Spinrad, H.	11	1370
GSFC	Hobbs, R. W.	UNIV CALIF-BERKELEY	NGR 05-003-598	Townes, C. H.	11	1371
GSFC	Wales, R. O.	UNIV CALIF-L ANGELES	NAS 5-11674	Coleman, P. J., Jr.	32	1394
GSFC	Davis, M. A.	UNIV CALIF-L ANGELES	NAS 5-20064	Russell, C. T.	13	1395
GSFC	Bandeen, W. R.	UNIV CALIF-L ANGELES	NAS 5-21968	Kuriyan, J. G.	31	1396
GSFC	Wexler, R.	UNIV CALIF-L ANGELES	NGR 05-007-091	Mintz, Y.	31	1416
GSFC	Halem, M.	UNIV CALIF-L ANGELES	NGR 05-007-328	Mintz, Y.	31	1425
GSFC	Kupperian, J. E.	UNIV CALIF-L ANGELES	NGR 05-007-489	Plavec, M.	11	1436
GSFC	Temkin, A.	UNIV CALIF-RIVERSIDE	NGL 05-008-005	Poe, R. T.	13	1443
GSFC	Donley, J. L.	UNIV CALIF-SAN DIEGO	NAS 5-11080	Peterson, L. E.	39	1447
GSFC	Donley, J. L.	UNIV CALIF-SAN DIEGO	NAS 5-11081	Peterson, L. E.	19	1448
GSFC	Wales, R. O.	UNIV CALIF-SAN DIEGO	NAS 5-21055	Mellwain, C. E.	13	1449
GSFC	Carrion, W. J.	UNIV CALIF-SAN DIEGO	NGL 05-009-079	Helstom, C. W.	13	1458
GSFC	Sobieski, S.	UNIV CALIF-SAN DIEGO	NGR 05-009-239	Beaver, E. A.	11	1480
GSFC	Carpenter, L. H.	UNIV CALIF-SAN DIEGO	NGR 05-009-246	Berger, J.	39	1481
GSFC	Shulman, A. R.	UNIV CALIF-SAN DIEGO	NGR 05-009-260	Lee, S. H.	13	1484
GSFC	Schaefer, D. H.	UNIV CALIF-SAN DIEGO	NGR 05-009-264	Lee, S. H.	49	1485
GSFC	Meese, K. J.	UNIV OF CHICAGO	NAS 5-9096	Meyer, P.	13	1805
GSFC	Meese, K. J.	UNIV OF CHICAGO	NAS 5-9366	Simpson, J. A.	13	1806
GSFC	Ferer, B. H.	UNIV OF CHICAGO	NAS 5-11037	Simpson, J. A.	13	1807
GSFC	Davis, M. A.	UNIV OF CHICAGO	NAS 5-11067	Simpson, J. A.	13	1808
GSFC	Sobieski, S.	UNIV OF CHICAGO	NAS 5-23288	Van Altena, W. F.	11	1809
GSFC	Shenk, W. E.	UNIV OF CHICAGO	NGR 14-001-008	Fujita, T. T.	31	1822
GSFC	Christie, C. J.	UNIV OF CHILE	NAS 5-1925	Danyau, C. R.	99	3372
GSFC	Lancaster, E. R.	UNIV OF CINCINNATI	NGR 36-004-068	Danielli, J. F.	11	2756
GSFC	Donley, J. L.	UNIV COLORADO-BOLDR	NAS 5-11363	Brunner, E. C.	31	1554
GSFC	Findlay, J. A.	UNIV COLORADO-BOLDR	NAS 5-11405	Barth, C. A.	31	1555
GSFC	Underhill, A. B.	UNIV COLORADO-BOLDR	NAS 5-23274	Linsky, J. L.	11	1556
GSFC	Sobieski, S.	UNIV COLORADO-BOLDR	NGR 06-003-219	Lillie, C. F.	11	1574
GSFC	Gordon, F., Jr.	UNIV OF DELAWARE	NAS 5-21784	Szekielda, K. H.	33	1621
GSFC	Gordon, F.	UNIV OF DELAWARE	NAS 5-21837	Klemas, V.	39	1622
GSFC	Hobbs, R. W.	UNIV OF DENVER	NAS 5-23190	Edrich, J.	13	1582
GSFC	Hobbs, R. W.	UNIV OF DENVER	NGR 06-004-133	Lesh, J. R.	11	1592
GSFC	Kupperian, J. E.	UNIV OF DENVER	NSG 5004	Lesh, J. R.	11	1594
GSFC	Unavailable	UNIV OF FLORIDA	NGR 10-005-183	Unavailable	11	1703
GSFC	Crump, E. W.	UNIV OF IDAHO	NAS 5-21850	Tisdale, E. W.	39	1785
GSFC	Schneck, P. B.	UNIV ILLINOIS-URBANA	NAS 5-23334	Slotnick, D.	21	1837
GSFC	Golden, T. S.	UNIV ILLINOIS-URBANA	NGR 14-005-189	Yeh, K. C.	45	1849
GSFC	Davis, M. A.	UNIV OF IOWA	NAS 5-11039	Frank, L. A.	13	1905

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GSFC	Limberis, B. R.	UNIV OF IOWA	NAS 5-11064	Frank, L. A.	13	1906
GSFC	Madden, J. J.	UNIV OF IOWA	NAS 5-11074	Gurnett, D. A.	11	1907
GSFC	Longanecker, G. W.	UNIV OF IOWA	NAS 5-11167	Gurnett, D. A.	13	1908
GSFC	Eaker, H. L.	UNIV OF IOWA	NAS 5-11265	Frank, L. A.	13	1909
GSFC	Ousley, G. W.	UNIV OF IOWA	NAS 5-11279	Gurnett, D. A.	11	1910
GSFC	Davis, M. A.	UNIV OF IOWA	NAS 5-11431	Gurnett, D. A.	31	1911
GSFC	Davis, M. A.	UNIV OF IOWA	NAS 5-20093	Gurnett, D. A.	13	1912
GSFC	Davis, M.	UNIV OF IOWA	NAS 5-20094	Frank, L. A.	13	1913
GSFC	Allen, R. F., Jr.	UNIV OF IOWA	NAS 5-20539	Van Allen, J. A.	11	1914
GSFC	Stonesifer, G. R.	UNIV OF IOWA	NAS 5-21852	Hoppin, R. A.	32	1915
GSFC	Stonesifer, G. R.	UNIV OF KANSAS	NAS 5-21822	Kanemasu, E. T.	39	1923
GSFC	Davis, M. A.	UNIV MARYLAND-COL PK	NAS 5-11063	Gloeckler, G.	13	2012
GSFC	Davis, M. A.	UNIV MARYLAND-COL PK	NAS 5-20062	Gloeckler, G.	13	2013
GSFC	Conrath, R. J.	UNIV MARYLAND-COL PK	NAS 5-23237	Ponnamperuma, C.	12	2014
GSFC	Fainberg, J.	UNIV MARYLAND-COL PK	NGL 21-002-029	Erickson, W. C.	11	2017
GSFC	Abid, G. E.	UNIV MARYLAND-COL PK	NGL 21-002-033	Smith, E. P.	31	2018
GSFC	Fainberg, J.	UNIV MARYLAND-COL PK	NGL 21-002-367	Kundu, M. R.	11	2020
GSFC	Brace, L. H.	UNIV MARYLAND-COL PK	NGR 21-002-096	Matthews, D. L.	31	2025
GSFC	Grunby, E. I.	UNIV MARYLAND-COL PK	NGR 21-002-197	Chu, Y.	21	2026
GSFC	Ogilvie, K. W.	UNIV MARYLAND-COL PK	NGR 21-002-291	Rosenberg, T. J.	13	2033
GSFC	Mentzer, R.	UNIV MARYLAND-COL PK	NGR 21-002-296	Pai, S. I.	31	2034
GSFC	Teegarden, B. J.	UNIV MARYLAND-COL PK	NGR 21-002-316	Gloeckler, G.	13	2037
GSFC	Hurt, C. R.	UNIV MARYLAND-COL PK	NGR 21-002-345	Hochuli, U. E.	45	2040
GSFC	Alford, W. A.	UNIV MARYLAND-COL PK	NGR 21-002-351	Rosenfeld, A.	49	2042
GSFC	Pease, P. B.	UNIV MARYLAND-COL PK	NGR 21-002-355	Pugsley, J. H.	45	2043
GSFC	Schnetzler, C. C.	UNIV MARYLAND-COL PK	NGR 21-002-368	Weidner, J. R.	32	2044
GSFC	Arking, A.	UNIV MARYLAND-COL PK	NGR 21-002-378	Rosenfeld, A.	31	2045
GSFC	Smith, D. E.	UNIV MARYLAND-COL PK	NGR 21-002-390	Currie, D. G.	19	2047
GSFC	Mueller, R. F.	UNIV MARYLAND-COL PK	NGR 21-002-399	Weidner, J. R.	39	2049
GSFC	Rosenbaum, B.	UNIV MARYLAND-COL PK	NGR 21-002-412	Richard, J. P.	13	2052
GSFC	Marini, J. W.	UNIV MARYLAND-COL PK	NGR 21-002-433	Harger, R. O.	33	2054
GSFC	Bufton, J. L.	UNIV MARYLAND-COL PK	NGR 21-002-444	Currie, D. G.	13	2056
GSFC	Fitzmaurice, M. W.	UNIV MD-EASTRN SHORE	NGR 21-119-001	Singh, G.	19	2066
GSFC	Rolinski, A. J.	UNIV OF MASS-AMHERST	NGL 22-010-018	Monopoli, R. V.	45	2224
GSFC	Spencer, N. W.	UNIV MICH-ANN ARBOR	NAS 5-11073	Carignan, G. R.	13	2246
GSFC	Niemann, H. B.	UNIV MICH-ANN ARBOR	NAS 5-11128	Carignan, G. R.	31	2247
GSFC	Madden, J. J.	UNIV MICH-ANN ARBOR	NAS 5-11174	Haddock, F. T.	13	2248
GSFC	Pelz, D. T.	UNIV MICH-ANN ARBOR	NAS 5-11309	Carignan, G. R.	11	2249
GSFC	Pelz, D. T.	UNIV MICH-ANN ARBOR	NAS 5-11376	Carignan, G. R.	31	2250
GSFC	Spencer, N. W.	UNIV MICH-ANN ARBOR	NAS 5-11380	Carignan, G. R.	31	2251
GSFC	Unavailable	UNIV MICH-ANN ARBOR	NAS 5-20622	Unavailable	43	2252
GSFC	Spencer, N. W.	UNIV MICH-ANN ARBOR	NAS 5-21038	Carignan, G. R.	31	2253
GSFC	Wright, D. U., Jr.	UNIV MICH-ANN ARBOR	NAS 5-21147	Horvath, R.	31	2254
GSFC	Findlay, J. A.	UNIV MICH-ANN ARBOR	NAS 5-23006	Hays, P. B.	31	2255
GSFC	Spencer, N. W.	UNIV MICH-ANN ARBOR	NAS 5-23230	Carignan, G. R.	31	2256
GSFC	Trainor, J. H.	UNIV MICH-ANN ARBOR	NAS 5-23267	MacNee, A. B.	13	2257
GSFC	Spencer	UNIV MICH-ANN ARBOR	NAS 5-23310	Unavailable	31	2258
GSFC	Hughes, W. E.	UNIV MICH-ANN ARBOR	NGL 23-005-183	Haddad, G. I.	45	2264
GSFC	Wexler, R.	UNIV MICH-ANN ARBOR	NSR 23-005-376	Bartman, F. L.	31	2295
GSFC	Staff, W. O.	U MINN-MNPLS-ST PAUL	NAS 5-3838	Epney, O.	13	2304
GSFC	Sizemore, K. O.	U MINN-MNPLS-ST PAUL	NAS 5-11173	Cahill, L. J., Jr.	49	2305
GSFC	White, C. E.	U MINN-MNPLS-ST PAUL	NAS 5-11310	Kellogg, P. J.	13	2306
GSFC	Findlay, J. A.	U MINN-MNPLS-ST PAUL	NAS 5-11438	Nier, A. O.	31	2307
GSFC	Wainscott, F. H.	U MINN-MNPLS-ST PAUL	NAS 5-11687	Winckler, J. R.	49	2308
GSFC	Davis, M. A.	U MINN-MNPLS-ST PAUL	NAS 5-23273	Kellogg, P. J.	13	2309
GSFC	Flatley, T. W.	UNIV MO-ROLLA	NGR 26-003-069	Taylor, J. M.	49	2367
GSFC	Gordon, F., Jr.	UNIV OF MONTANA	NAS 5-21826	Weidman, R. M.	32	2382
GSFC	Stonesifer, G. R.	UNIV NEBRASKA-LINCLN	NAS 5-21756	Drew, J. V.	39	2385

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GSFC	Kalet, M. W.	UNIV NEBRASKA-LINCLN	NAS 5-23125	Samson, J. A.	11	2386
GSFC	Kupperian, J. E.	UNIV NEBRASKA-LINCLN	NGR 28-004-028	Gallagher, J. S.	11	2391
GSFC	Crump, E. W.	UNIV OF NEVADA-RENO	NAS 5-21870	Tueller, P. A.	39	2392
GSFC	Teegarden, B. J.	UNIV NEW HAMPSHIRE	NAS 5-11276	Webber, W. R.	11	2398
GSFC	Wales, R. O.	UNIV NEW HAMPSHIRE	NAS 5-11694	Arnoldy, R. L.	11	2399
GSFC	Orwig, L. E.	UNIV NEW HAMPSHIRE	NAS 5-23263	Chinburg, D. L.	31	2400
GSFC	Meese, K. J.	UNIV OF NEW MEXICO	NAS 5-9314	Regener, V. H.	13	2474
GSFC	Lynch, T. J.	UNIV OF NOTRE DAME	NGL 15-004-026	Massey, J. L.	45	1900
GSFC	Christie, C.	UNIV OF PERU	NASW 7	Unavailable	49	3378
GSFC	Temkin, A.	UNIV OF PITTSBURGH	NGL 39-011-035	Gerjuoy, E.	13	2859
GSFC	Osantowski, J. F.	UNIV OF ROCHESTER	NAS 5-20028	Baumeister, P.	13	2648
GSFC	Kutz, R. L.	UNIV OF SOUTHERN CAL	NAS 5-21505	Davisson, L. D.	45	1509
GSFC	Premo, D. A.	UNIV OF SOUTHERN CAL	NGL 05-018-104	Gagliardi, R. M.	45	1516
GSFC	Kutz, R. L.	UNIV OF SOUTHERN CAL	NGL 05-018-118	Davisson, L. D.	45	1517
GSFC	Broderick, J. C.	UNIV TENNESSEE-KNOXV	NAS 5-21726	Rehder, J. B.	31	2907
GSFC	Ensor, G. J.	UNIV TENNESSEE-KNOXV	NAS 5-21873	Parks, W. L.	59	2908
GSFC	Broderick, J. C.	UNIV TENNESSEE-KNOXV	NAS 5-21875	Bodenheimer, R. E.	39	2909
GSFC	Ensor, G. J.	UNIV TENNESSEE-KNOXV	NAS 5-21882	De Selm, H. R.	39	2910
GSFC	Velez, C. E.	UNIV TENNESSEE-KNOXV	NGR 43-001-144	Feagin, T.	21	2928
GSFC	Schaefer, D. H.	UNIV TENNESSEE-KNOXV	NSG 5002	Bodenheimer, R. E.	21	2931
GSFC	Hirschman, H.	UNIV TEXAS-AUSTIN	NAS 5-21982	Straiton, A. W.	45	3049
GSFC	Velez, C. E.	UNIV TEXAS-AUSTIN	NGR 44-012-255	Nacozy, P. E.	21	3075
GSFC	Sobieski, S.	UNIV TEXAS-AUSTIN	NGR 44-012-260	Tull, R. G.	11	3077
GSFC	Sobieski, S.	UNIV TEXAS-AUSTIN	NGR 44-012-261	Nather, R. E.	11	3078
GSFC	Sobieski, S.	UNIV TEXAS-AUSTIN	NGR 44-012-263	Angel, J. R.	11	3079
GSFC	Velez, C. E.	UNIV TEXAS-AUSTIN	NGR 44-012-269	Tapley, B. D.	21	3080
GSFC	Kolenkiewicz, R.	UNIV TEXAS-AUSTIN	NGR 44-012-283	Tapley, B. D.	32	3083
GSFC	Kupperian, J. E.	UNIV TEXAS-AUSTIN	NSG 5005	Lambert, D. L.	11	3086
GSFC	Jackson, J. E.	UNIV TEXAS-DALLAS	NAS 5-11003	Hoffman, J. H.	31	3091
GSFC	Jackson, J. E.	UNIV TEXAS-DALLAS	NAS 5-11011	Heikkila, W. J.	31	3092
GSFC	Findlay, J. A.	UNIV TEXAS-DALLAS	NAS 5-11406	Hoffman, J. H.	31	3093
GSFC	Findlay, J. A.	UNIV TEXAS-DALLAS	NAS 5-11407	Hanson, W. B.	31	3094
GSFC	Kupperian, J. E.	UNIV OF TOLEDO	NGR 36-010-031	Molnar, M. R.	11	2765
GSFC	Kupperian, J. E.	UNIV OF TOLEDO	NSG 5006	Molnar, M. R.	11	2766
GSFC	Szajna, E. F.	UNIV OF UTAH	NAS 5-21883	Jensen, M. L.	32	3133
GSFC	Szajna, E. F.	UNIV OF VERMONT	NAS 5-21753	Lind, A. O.	32	3153
GSFC	Kelsall, T. N.	UNIV OF VIRGINIA	NAS 5-20065	Frederick, L. W.	11	3216
GSFC	Bertsch, D. L.	UNIV OF VIRGINIA	NAS 5-22266	Frederick, L. W.	11	3217
GSFC	Treon, S. L.	UNIV OF WASHINGTON	NGR 48-002-125	Leovy, C. B.	31	3295
GSFC	Kupperian, J. E.	UNIV OF WASHINGTON	NGR 48-002-166	Wallerstein, G.	11	3305
GSFC	Kupperian, J. E.	UNIV WISC-MADISON	NAS 5-1348	Code, A. D.	11	3320
GSFC	Davis, M. A.	UNIV WISC-MADISON	NAS 5-11068	Scherb, F.	13	3321
GSFC	Donley, J. L.	UNIV WISC-MADISON	NAS 5-11361	Kraushaar, W. L.	19	3322
GSFC	Oberright, J. E.	UNIV WISC-MADISON	NAS 5-20068	Dombroski, R. M.	13	3323
GSFC	Stonesifer, G. R.	UNIV WISC-MADISON	NAS 5-21754	Clapp, J. L.	39	3324
GSFC	Greaves, J. R.	UNIV WISC-MADISON	NAS 5-21794	Erickson, R. W.	31	3325
GSFC	Bandeen, W. R.	UNIV WISC-MADISON	NAS 5-21798	Suomi, V. E.	31	3326
GSFC	Moody, J. C.	UNIV WISC-MADISON	NAS 5-21965	Suomi, V. E.	31	3327
GSFC	Sobieski, S.	UNIV WISC-MADISON	NAS 5-23285	Bless, R. C.	11	3328
GSFC	Grecues, J.	UNIV WISC-MADISON	NAS 5-23296	Suomi, V. E.	31	3329
GSFC	Halem, M.	UNIV WISC-MADISON	NGR 50-002-215	Suomi, V. E.	31	3348
GSFC	Sobieski, S.	UNIV WISC-MADISON	NGR 50-002-223	Roesler, F. L.	11	3349
GSFC	Hobbs, R. W.	UNIV WISC-MADISON	NGR 50-002-242	Roesler, F. L.	11	3350
GSFC	Gordon, F., Jr.	UNIV OF WYOMING	NAS 5-21799	Houston, R. S.	32	3358
GSFC	Gordon, F., Jr.	UNIV OF WYOMING	NAS 5-21818	Houston, R. S.	32	3359
GSFC	Gordon, F., Jr.	VIRGINIA POLY INST	NAS 5-21729	Glover, L., III	32	3242
GSFC	Hirschmann, E.	VIRGINIA POLY INST	NAS 5-21984	Bostian, C. W.	45	3243
GSFC	Hirschmann, E.	VIRGINIA POLY INST	NGR 47-004-091	Bostian, C. W.	45	3252

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GSFC	Walter, L. S.	VIRGINIA POLY INST	NGR 47-004-093	Gibbs, G. V.	12	3253
GSFC	Fedor, J. V.	VIRGINIA POLY INST	NGR 47-004-098	Meirovitch, L.	42	3255
GSFC	Hrastar, J. A.	VIRGINIA POLY INST	NGR 47-004-100	Meirovitch, L.	49	3256
GSFC	Dod, L. R.	VIRGINIA POLY INST	NGR 47-004-102	Galindo, V.	45	3258
GSFC	Dod, L. R.	VIRGINIA POLY INST	NGR 47-004-103	Stutzman, W. L.	45	3259
GSFC	Fedor, J. V.	VIRGINIA POLY INST	NGR 47-004-126	Meirovitch, L.	11	3266
GSFC	Ehrmann, C. H.	WASHINGTON TECH INST	NGR 09-059-002	Brach, P.	45	1674
GSFC	Findlay, J. A.	YALE UNIVERSITY	NAS 5-23004	Walker, J. W.	31	1607
GSFC	Schaefer, D. H.	YALE UNIVERSITY	NGL 07-004-005	Barker, R. C.	45	1608
GSFC	Unavailable	YALE UNIVERSITY	NGL 07-004-035	Lamb, W. E., Jr.	12	1609
JPL	Trajmar, S.	FLORIDA A&M UNIV	NSG 901	Jones, H. W.	13	1677
JPL	Mounihan, P. I.	NO CAR A&T STATE U	NGR 34-012-013	Craft, W. J.	47	2661
JPL	Huntress, W. T.	PAN AMERICAN UNIV	NGR 44-087-002	Glaser, F. M.	32	2956
JPL	Strand, L.	PRINCETON UNIVERSITY	NGL 31-001-109	Summerfield, M.	41	2423
JPL	Estabrook, F. B.	SO UNIV-BATON ROUGE	NGR 19-005-006	Chakkalakal, D. A.	11	1974
JSC	Carter, V. L.	ALBANY MED COLLEGE	NAS 9-9964	Coulston, F.	59	2485
JSC	Wilmarth, V. R.	AMERICAN UNIVERSITY	NAS 9-13956	MacLeod, N. H.	39	1629
JSC	Harris, J. W.	ARIZONA STATE UNIV	NGR 03-001-057	Moore, C. B.	12	1092
JSC	Dornbach, J. E.	AUSTIN STATE UNIV	NAS 9-13089	Baker, R. D.	72	2939
JSC	Alexander, W. C.	BAYLOR UNIV-MED COL	NAS 9-7280	Johnson, P. C.	52	2940
JSC	Kaplan, H.	BAYLOR UNIV-MED COL	NAS 9-8109	Duncan, W. C.	59	2941
JSC	Leach, C. S.	BAYLOR UNIV-MED COL	NAS 9-10537	Campbell, B. O.	52	2942
JSC	Leach, C. S.	BAYLOR UNIV-MED COL	NAS 9-11201	Johnson, P. C.	59	2943
JSC	Smith, M. C., Jr.	BAYLOR UNIV-MED COL	NAS 9-12728	Nichols, B. L.	53	2944
JSC	Kimzey, S. L.	BAYLOR UNIV-MED COL	NAS 9-13139	Criswell, B. S.	53	2945
JSC	Shumate, W. H.	BAYLOR UNIV-MED COL	NAS 9-13452	Roessler, R.	53	2946
JSC	Smith, M. C., Jr.	BAYLOR UNIV-MED COL	NAS 9-13737	Johnson, P. C.	53	2947
JSC	Kimzey, S. L.	BAYLOR UNIV-MED COL	NGR 44-003-053	Nichols, B. L.	52	2948
JSC	Hoffler, G. W.	BOSTON UNIVERSITY	NGR 22-004-021	Chobanian, A. V.	52	2072
JSC	Harris, J. W.	BROWN UNIVERSITY	NGR 40-002-123	Rutherford, M. J.	32	2881
JSC	Harris, J. W.	BRYN MAWR COLLEGE	NSG 9005	Crawford, M. L.	13	2794
JSC	Eichelman, W. F.	CALIF INST OF TECH	NAS 9-12585	Burnett, D. S.	19	1172
JSC	Wilmarth, V. R.	CALIF INST OF TECH	NAS 9-13960	Silver, L. T.	32	1173
JSC	Harris, J. W.	CALIF INST OF TECH	NGL 05-002-187	Silver, L. T.	12	1185
JSC	Harris, J. W.	CALIF INST OF TECH	NGL 05-002-188	Wasserburg, G. J.	12	1186
JSC	Harris, J. W.	CALIF INST OF TECH	NGL 05-002-190	Epstein, S.	13	1187
JSC	Harris, J. W.	CALIF INST OF TECH	NGL 05-002-338	Albee, A. L.	13	1190
JSC	Bates, J. R.	CALIF INST OF TECH	NGR 05-002-159	Silver, L. T.	32	1196
JSC	Harris, J. W.	CALIF INST OF TECH	NGR 05-002-333	Tombrello, T. A.	13	1212
JSC	Harris, J. W.	CASE WESTERN RESERVE	NGL 36-027-057	Radcliffe, S. V.	12	2695
JSC	Byrns, Z. H.	CITY COLLEGE OF N Y	NAS 9-13642	Pierson, W. J.	13	2490
JSC	Batson, B. H.	CITY COLLEGE OF N Y	NAS 9-13940	Schilling, D. L.	45	2491
JSC	Reveley, W. F.	CLEMSON UNIV-CLEMSON	NAS 9-13669	Gaddis, J. L.	39	2884
JSC	Pitts, D. E.	CLEMSON UNIV-CLEMSON	NAS 9-14006	Haun, J. R.	39	2885
JSC	Harris, J. W.	COLLEGE VIRGIN ISLND	NGL 52-083-009	McCord, T. B.	19	3367
JSC	Hoffman, R. A.	COLLEGE OF WM & MARY	NGR 47-006-054	Aceto, H., Jr.	51	3162
JSC	Miller, M. L.	COLORADO SCH OF MINE	NAS 9-13394	Lee, K.	32	1526
JSC	Dragg, J.	COLORADO STATE UNIV	NAS 9-12972	Smith, J.	31	1535
JSC	Harris, J. W.	COLORADO STATE UNIV	NGR 06-002-119	Lindsay, W. A.	13	1542
JSC	Hoffman, R. A.	COLORADO STATE UNIV	NGR 06-002-128	Letz, J. T.	51	1544
JSC	Eichelman, W. F.	COLUMBIA UNIVERSITY	NAS 9-6037	Langseth, M. G.	19	2506
JSC	Eichelman, W. F.	COLUMBIA UNIVERSITY	NAS 9-11751	Talwani, M.	19	2507
JSC	Harris, J. W.	COLUMBIA UNIVERSITY	NGR 33-008-169	Horai, K.	13	2518
JSC	Harris, J. W.	COLUMBIA UNIVERSITY	NGR 33-008-177	Horai, K.	13	2519
JSC	Harris, J. W.	COLUMBIA UNIVERSITY	NGR 33-008-199	Ridley, W. I.	12	2524
JSC	Joosten, R. E.	CORNELL UNIVERSITY	NAS 9-13364	Hardy, E. E.	39	2533
JSC	Harris, J. W.	CORNELL UNIVERSITY	NGR 33-010-137	Gold, T.	13	2551
JSC	Miller, M. L.	DARTMOUTH COLLEGE	NAS 9-13311	Stoiber, R. E.	32	2395

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JSC	Harris, J. W.	DUKE UNIVERSITY	NGR 34-001-054	Cocks, F. H.	13	2658
JSC	Harris, J. W.	FAIRLEIGH-DICKNSON U	NGL 31-006-011	Adams, J. B.	13	2408
JSC	Fedderson, W. E.	FORDHAM UNIVERSITY	NSR 33-012-006	Kubis, J. F.	69	2567
JSC	Rummel, J. A.	HARDING COLLEGE	NAS 9-14134	Olree, H.	52	1154
JSC	Smith, M. C., Jr.	HARVARD UNIVERSITY	NAS 9-13370	Hegsted, D. M.	59	2082
JSC	Harris, J. W.	HARVARD UNIVERSITY	NGL 22-007-247	Hays, J. F.	12	2088
JSC	White, D. R.	HOUSTON BAPTIST COL	NGR 44-081-001	Modisette, J. L.	11	2952
JSC	Kondo, Y.	HOUSTON BAPTIST COL	NGR 44-081-005	Modisette, J. L.	11	2953
JSC	Potter, A. E.	HOUSTON BAPTIST COL	NSG 9007	Modisette, J. L.	13	2954
JSC	Savely, R. T.	HOWARD UNIVERSITY	NSG 9010	Choudhury, A. K.	45	1673
JSC	Harris, J. W.	INDIANA U-BLOOMINGTN	NGR 15-003-105	Meinschein, W. G.	12	1868
JSC	Hardee, S. N.	JOHNS HOPKINS UNIV	NAS 9-11528	Fastie, W. G.	13	1998
JSC	Harris, J. W.	JOHNS HOPKINS UNIV	NSG 9004	Henry, R. C.	13	2007
JSC	Harris, J. W.	LEHIGH UNIVERSITY	NGR 39-007-056	Goldstein, J. I.	12	2813
JSC	Kondo, Y.	LEHIGH UNIVERSITY	NGR 39-007-061	McCluskey, G. E., Jr.	11	2814
JSC	Harris, J. W.	LEHIGH UNIVERSITY	NGR 39-007-064	Sclar, C. B.	13	2815
JSC	York, L. B.	LONG ISLAND UNIV	NAS 9-13308	Yost, E.	19	2572
JSC	Teixeira, C.	LA STATE U-BAT ROUGE	NAS 9-12352	Daniel, L. R., Jr.	41	1964
JSC	Rummel, J. A.	LA STATE U-NEW ORLNS	NAS 9-12941	Laseter, J. L.	51	1971
JSC	Giuli, R. T.	LA STATE U-SHREVEPT	NAS 9-9317	Moss, T. A.	11	1972
JSC	Eichelman, W. F.	MASS INST OF TECH	NAS 9-11540	Simmons, D. G.	19	2134
JSC	Eichelman, W. F.	MASS INST OF TECH	NAS 9-12334	Press, F.	31	2135
JSC	Heidelbaugh, N. D.	MASS INST OF TECH	NAS 9-12485	Flink, J. M.	53	2136
JSC	Harris, J. W.	MASS INST OF TECH	NGR 22-009-540	Simmons, G.	13	2171
JSC	Harris, J. W.	MASS INST OF TECH	NGR 22-009-551	Burns, R. G.	12	2172
JSC	Harris, J. W.	MASS INST OF TECH	NGR 22-009-646	Uhlmann, D. R.	47	2179
JSC	Shack, P. E.	MEMPHIS ST UNIV	NAS 9-13878	Morris, C. F.	45	2899
JSC	Forbes, C. D.	MICHIGAN STATE UNIV	NAS 9-13332	Manderscheid, L. V.	19	2237
JSC	Fenner, R. G.	NEW MEX ST U-LAS CR	NAS 9-95435	Henry, D. G.	39	2466
JSC	Henize, K. G.	NORTHWESTERN UNIV	NAS 9-12280	Hynek, J. A.	11	1790
JSC	Dragg, J. L.	OAKLAND UNIVERSITY	NAS 9-14195	Haskell, R. E.	21	2243
JSC	Nance, R. L.	OHIO STATE UNIV	NAS 9-13093	Mueller, I. I.	19	2727
JSC	French, B. O.	OLD DOMINION UNIV	NAS 9-13410	Keshock, E. G.	46	3181
JSC	Harris, J. W.	OREGON STATE UNIV	NGL 38-002-039	Schmitt, R. A.	13	2781
JSC	Miller, M. L.	PENNSYLVANIA STATE U	NAS 9-13406	McMurtry, G. J.	32	2823
JSC	Harris, J. W.	PENNSYLVANIA STATE U	NGR 39-009-184	Muan, A.	13	2836
JSC	Homick, J. L.	PENNSYLVANIA STATE U	NGR 39-009-204	Kales, A.	59	2837
JSC	Rozas, P.	PRAIRIE VIEW A&M U	NGL 44-033-017	Sohel, M. S.	49	2957
JSC	Potter, A. E.	PRAIRIE VIEW A&M U	NSG 9006	Sohel, M. S.	39	2960
JSC	Miller, M. L.	PRESCOTT COLLEGE	NAS 9-13342	Gumerman, G. J.	32	1095
JSC	Harris, J. W.	PRINCETON UNIVERSITY	NGL 31-001-283	Hollister, L. S.	11	2428
JSC	Joosten, R. E.	PURDUE UNIVERSITY	NAS 9-13301	Silva, L. F.	39	1875
JSC	Joosten, R. E.	PURDUE UNIVERSITY	NAS 9-13380	Hoffer, R. M.	39	1876
JSC	Potter, A. E.	PURDUE UNIVERSITY	NAS 9-14016	Landgrebe, D. A.	39	1877
JSC	Overton, J. D.	PURDUE UNIVERSITY	NGL 15-005-112	Landgrebe, D. A.	13	1880
JSC	Harris, J. W.	PURDUE UNIVERSITY	NGL 15-005-175	Taylor, L. A.	13	1882
JSC	Harris, J. W.	PURDUE UNIVERSITY	NGR 15-005-157	Meyer, H. O.	13	1889
JSC	Harris, J. W.	QUEENS COLLEGE	NSG 9008	Schreiber, E.	13	2596
JSC	Eichelman, W. F.	RICE UNIVERSITY	NAS 9-5911	Freeman, J. W.	13	2965
JSC	Eichelman, W. F.	RICE UNIVERSITY	NAS 9-10428	Low, F. J.	39	2966
JSC	Kissinger, L. D.	RICE UNIVERSITY	NAS 9-11827	Davis, S. H.	43	2967
JSC	Baker, K.	RICE UNIVERSITY	NAS 9-12776	Lynn, M. S.	21	2968
JSC	Scheld, H. W.	RICE UNIVERSITY	NAS 9-12912	Ward, C. H.	51	2969
JSC	Harris, J. W.	RICE UNIVERSITY	NGL 44-006-127	Heymann, D.	32	2972
JSC	Harris, J. W.	RICE UNIVERSITY	NGR 44-006-142	Powell, B. N.	32	2974
JSC	Hudson, R. D.	RICE UNIVERSITY	NGR 44-006-156	Stebbings, R. F.	13	2975
JSC	Hudson, R. D.	RICE UNIVERSITY	NGR 44-006-169	Walters, G. K.	13	2976
JSC	Forbes, C. D.	SO DAKOTA STATE UNIV	NAS 9-13337	Myers, V. I.	19	2895

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JSC	Curry, D. M.	SO UNIV-BATON ROUGE	NSG 9001	Chehl, S. S.	19	1978
JSC	Eichelman, W. F.	STANFORD UNIVERSITY	NAS 9-5632	Kovach, R. L.	39	1255
JSC	York, L. B.	STANFORD UNIVERSITY	NAS 9-13357	Lyon, R. P.	19	1256
JSC	Rummel, J. A.	STANFORD UNIVERSITY	NGR 05-020-632	Lederberg, J.	53	1290
JSC	Harris, J. W.	STANFORD UNIVERSITY	NGR 05-020-633	Nur, A.	13	1291
JSC	Harris, J. W.	STATE UNIV NY-BUFFAL	NGL 33-183-013	Cadenhead, D. A.	12	2616
JSC	Hardee, S. N.	ST U NY COL-GENESE	NAS 9-12770	Young, R. A.	32	2641
JSC	Harris, J. W.	STATE U NY-STONY BRK	NGL 33-015-130	Papike, J. J.	13	2622
JSC	Harris, J. W.	STATE U NY-STONY BRK	NGL 33-015-174	Schaeffer, O. A.	12	2623
JSC	Leach, C. S.	ST U NY-UPST MED CTR	NAS 9-11846	Miller, M.	59	2640
JSC	Hoffman, R. A.	TEXAS A&M UNIVERSITY	NAS 9-9053	Hightower, D.	51	2998
JSC	Arndt, G. D.	TEXAS A&M UNIVERSITY	NAS 9-9285	Haden, C. R.	45	2999
JSC	Moseley, W. C., Jr.	TEXAS A&M UNIVERSITY	NAS 9-9766	Lowy, S. H.	41	3000
JSC	Smith, M. C., Jr.	TEXAS A&M UNIVERSITY	NAS 9-12434	Burns, E. E.	59	3001
JSC	Walkinshaw, C. H.	TEXAS A&M UNIVERSITY	NAS 9-13374	Kuykendall, W. E., Jr.	51	3002
JSC	Potter, A. E.	TEXAS A&M UNIVERSITY	NAS 9-13545	Toler, R. W.	32	3003
JSC	Simmonds, R. C.	TEXAS A&M UNIVERSITY	NAS 9-13647	Dehon, R. A.	51	3004
JSC	Matthews, R. E.	TEXAS A&M UNIVERSITY	NAS 9-13782	Rouse, J. W., Jr.	19	3005
JSC	Pitts, D. E.	TEXAS A&M UNIVERSITY	NAS 9-13894	Guseman, L. D.	21	3006
JSC	Potter, A. E.	TEXAS A&M UNIVERSITY	NAS 9-13904	Rouse, J. W., Jr.	39	3007
JSC	McPherson, T. M.	TEXAS A&M UNIVERSITY	NAS 9-13905	Toler, R. W.	39	3008
JSC	Potter, A. E.	TEXAS A&M UNIVERSITY	NAS 9-14197	Rouse, J. L.	39	3009
JSC	Gardner, S.	TEXAS SOUTHERN UNIV	NGR 44-016-016	Dixon, H. W.	99	3017
JSC	Shields, V. E.	TEXAS SOUTHERN UNIV	NSG 9009	Wilson, R. F.	31	3018
JSC	Day, J. L.	TEXAS TECH UNIV	NAS 9-11162	Portnoy, W. M.	45	3020
JSC	Jackson, M. M.	TUFTS UNIVERSITY	NGR 22-012-026	Spodick, D. H.	53	2221
JSC	French, B. O.	TUSKEGEE INSTITUTE	NAS 9-13844	Sellers, J. P.	46	1030
JSC	Leblanc, C. M.	UNIV ALASKA-FAIRBNKS	NAS 9-13945	Wescott, E. M.	32	1083
JSC	Harris, J. W.	UNIV OF ARIZONA	NGR 03-002-237	Nagy, B.	12	1132
JSC	Harris, J. W.	UNIV OF ARIZONA	NGR 03-002-388	Drake, M. J.	12	1144
JSC	Potter, A. E.	UNIV ARKANSAS-FAYETV	NAS 9-14251	Waite, W. P.	19	1155
JSC	Hardee, S. N.	U ARKANSAS-MONTICELO	NAS 9-13196	Delton, R. A.	13	1158
JSC	Potter, A. E.	U ARKANSAS-PINE BLUF	NSG 9002	Davis, L. A., Jr.	39	1160
JSC	Craddock, W. L.	UNIV CALIF-BERKELEY	NAS 9-7801	Alvarez, L. W.	31	1326
JSC	Lafferty, P. E.	UNIV CALIF-BERKELEY	NAS 9-10509	Anderson, K. A.	13	1327
JSC	Sanders, J.	UNIV CALIF-BERKELEY	NAS 9-13799	Bowyer, C. S.	11	1328
JSC	Sanders, J.	UNIV CALIF-BERKELEY	NAS 9-13807	Bowyer, C. S.	11	1329
JSC	Wilmarth, V. R.	UNIV CALIF-BERKELEY	NAS 9-14088	Colwell, R. N.	39	1330
JSC	Harris, J. W.	UNIV CALIF-BERKELEY	NGL 05-003-409	Reynolds, J. H.	13	1339
JSC	Harris, J. W.	UNIV CALIF-BERKELEY	NGL 05-003-410	Price, P. B.	12	1340
JSC	Harris, J. W.	UNIV CALIF-BERKELEY	NGR 05-003-435	Burlingame, A. L.	13	1349
JSC	Leach, C. S.	UNIV CALIF-DAVIS	NAS 9-13504	Beljan, J. R.	52	1381
JSC	Smith, M. C., Jr.	UNIV CALIF-DAVIS	NAS 9-13589	Vogel, J. M.	59	1382
JSC	Lafferty, P. E.	UNIV CALIF-L ANGELES	NAS 9-12236	Coleman, P. J., Jr.	39	1402
JSC	Hardee, S. N.	UNIV CALIF-L ANGELES	NAS 9-12757	Kaula, W. M.	13	1403
JSC	Harris, J. W.	UNIV CALIF-L ANGELES	NGL 05-007-287	Wetherill, G. W.	13	1412
JSC	Harris, J. W.	UNIV CALIF-L ANGELES	NGL 05-007-330	Warren, N.	13	1413
JSC	Harris, J. W.	UNIV CALIF-L ANGELES	NGL 05-007-367	Wasson, J. T.	12	1414
JSC	Harris, J. W.	UNIV CALIF-L ANGELES	NGR 05-007-289	Kaplan, I. R.	13	1421
JSC	Harris, J. W.	UNIV CALIF-SAN DIEGO	NGL 05-009-148	Arnold, J. R.	12	1461
JSC	Harris, J. W.	UNIV CALIF-SAN DIEGO	NGL 05-009-150	Marti, K.	12	1462
JSC	Harris, J. W.	UNIV CALIF-SAN DIEGO	NGL 05-009-154	Arrhenius, G. O.	13	1463
JSC	Harris, J. W.	UNIV CALIF-S BARBARA	NGR 05-010-081	Tilton, G. R.	32	1493
JSC	Wilmarth, V. R.	UNIV OF CHICAGO	NAS 9-14042	Fujita, T.	39	1811
JSC	Harris, J. W.	UNIV OF CHICAGO	NGL 14-001-167	Anders, E.	13	1818
JSC	Harris, J. W.	UNIV OF CHICAGO	NGL 14-001-169	Clayton, R. N.	12	1819
JSC	Harris, J. W.	UNIV OF CHICAGO	NGL 14-001-171	Smith, J. V.	13	1820
JSC	Harris, J. W.	UNIV COLORADO-BOLDR	NGR 06-003-181	Larson, E. E.	13	1567

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JSC	Mieszkuć, B. J.	UNIV OF CONNECTICUT	NAS 9-11941	Kenyon, A. J.	59	1599
JSC	Byrns, Z. H.	UNIV OF DELAWARE	NAS 9-13344	Szekielda, K. H.	33	1623
JSC	Harris, J. W.	UNIV OF DELAWARE	NGR 08-001-029	Glass, B. P.	13	1624
JSC	Smith, M. C., Jr.	UNIV OF HOUSTON	NAS 9-11676	Cox, J. E.	59	3023
JSC	Arndt, G. D.	UNIV OF HOUSTON	NAS 9-11845	Simpson, R. S.	45	3024
JSC	Jackson, J. T.	UNIV OF HOUSTON	NAS 9-11885	Sheer, D. H.	53	3025
JSC	Teegarden, D. L., Jr.	UNIV OF HOUSTON	NAS 9-12650	Holland, W. E.	79	3026
JSC	Allen, J. P.	UNIV OF HOUSTON	NAS 9-12692	Eisner, M. E.	59	3027
JSC	MacDonald, R. B.	UNIV OF HOUSTON	NAS 9-12777	Decell, H. P., Jr.	21	3028
JSC	Scheld, H. W.	UNIV OF HOUSTON	NAS 9-13262	Venkateswaran, S.	51	3029
JSC	Schneider, H. J.	UNIV OF HOUSTON	NAS 9-13457	Zlatkis, A.	52	3030
JSC	York, L. B.	UNIV OF HOUSTON	NAS 9-13462	Hayre, H. S.	19	3031
JSC	Golden, R. L.	UNIV OF HOUSTON	NAS 9-14209	Sheldon, W. R.	11	3032
JSC	Golden, R. L.	UNIV OF HOUSTON	NGL 44-005-041	Goodman, C.	13	3035
JSC	Eandi, B. K.	UNIV OF HOUSTON	NGL 44-005-090	Huang, C. J.	49	3037
JSC	Harris, J. W.	UNIV OF HOUSTON	NGL 44-005-184	King, E. A., Jr.	32	3038
JSC	White, D.	UNIV OF HOUSTON	NGR 44-005-137	Hildebrandt, A. F.	13	3043
JSC	Teegarden, D. L., Jr.	UNIV OF HOUSTON	NGR 44-005-162	Vant-Hull, L. L.	32	3044
JSC	Kimzey, S. L.	UNIV ILLINOIS-CHICGO	NGR 14-012-026	Guttman, H. N.	53	1834
JSC	Bender, M. J.	UNIV ILLINOIS-URBANA	NAS 9-12459	Karara, H. M.	44	1838
JSC	Miller, M.	UNIV OF IOWA	NAS 9-13313	Hoppin, R. A.	32	1916
JSC	Potter, A. E.	UNIV OF KANSAS	NAS 9-10261	Ulaby, F. T.	39	1924
JSC	York, L. B.	UNIV OF KANSAS	NAS 9-13271	Yarger, H. L.	19	1925
JSC	Forbes, C. D.	UNIV OF KANSAS	NAS 9-13273	Eagleman, J. R.	19	1926
JSC	York, L. B.	UNIV OF KANSAS	NAS 9-13331	Moore, R. K.	19	1927
JSC	Dell, M. E.	UNIV OF KANSAS	NAS 9-13347	Moore, R. K.	49	1928
JSC	Potter, A. E.	UNIV OF KANSAS	NAS 9-14052	Ulaby, F. T.	39	1929
JSC	Jackson, M. M.	UNIV OF KENTUCKY	NAS 9-12749	Carter, W. M.	46	1945
JSC	Harris, J. W.	UNIV OF KENTUCKY	NGR 18-001-058	Ehmann, W. D.	13	1948
JSC	Eichelman, W. F.	UNIV MARYLAND-COL PK	NAS 9-5886	Weber, J.	19	2015
JSC	Harris, J. W.	UNIV OF MASS-AMHERST	NGL 22-010-089	Haggerty, S. E.	13	2227
JSC	Harris, J. W.	UNIV OF MIAMI	NGR 10-007-088	Fox, S. W.	12	1712
JSC	Leach, C. S.	UNIV OF MIAMI	NGR 10-007-097	Epstein, M.	52	1714
JSC	Hudson, R. D.	UNIV MICH-ANN ARBOR	NGR 23-005-616	Stolarski, R. S.	31	2287
JSC	Heidelbaugh, N. D.	U MINN-MNPLS-ST PAUL	NAS 9-12560	Labuza, T. P.	59	2311
JSC	Harris, J. W.	U MINN-MNPLS-ST PAUL	NGL 24-005-225	Pepin, R. O.	13	2315
JSC	Harris, J. W.	U MINN-MNPLS-ST PAUL	NGR 24-005-223	Murthy, V. R.	13	2321
JSC	Harris, J. W.	U MINN-MNPLS-ST PAUL	NGR 24-005-248	Banerjee, S. K.	32	2322
JSC	Kimzey, S. L.	UNIV MO-COLUMBIA	NAS 9-9209	Mengel, C. E.	59	2359
JSC	Smith, M. C., Jr.	UNIV MO-COLUMBIA	NAS 9-12369	Rambaut, P. C.	59	2360
JSC	Ellis, W. E.	UNIV MO-COLUMBIA	NAS 9-12526	Winnick, J.	43	2361
JSC	Dawson, C. T.	UNIV MO-COLUMBIA	NAS 9-13436	Tranter, W. H.	21	2362
JSC	Heidelbaugh, N. D.	UNIV NEBRASKA-LINCLN	NAS 9-11045	Hartung, T. E.	59	2387
JSC	Miller, M. L.	UNIV OF NEVADA-RENO	NAS 9-13274	Quade, J.	32	2393
JSC	Harris, J. W.	UNIV OF NEW MEXICO	NGL 32-004-063	Keil, K.	12	2479
JSC	Pitts, D. E.	UNIV OKLAHOMA-NORMAN	NAS 9-13360	Sasaki, Y.	31	2777
JSC	Teegarden, D. L., Jr.	UNIV OREGON-EUGENE	NAS 9-9690	Blank, H. R.	32	2786
JSC	Harris, J. W.	UNIV OREGON-EUGENE	NGL 38-003-022	Weill, D. F.	13	2788
JSC	Harris, J. W.	UNIV OREGON-EUGENE	NGL 38-003-024	Goles, G. G.	12	2789
JSC	Michel, E. L.	UNIV OF PENNSYLVANIA	NGL 39-010-097	Lambertsen, C. J.	53	2849
JSC	Eichelman, W. F.	UNIV OF PITTSBURGH	NAS 9-13803	Donahue, T. M.	13	2855
JSC	Harris, J. W.	UNIV OF PITTSBURGH	NGL 39-011-160	Fuller, M.	13	2861
JSC	Bailey, J. V.	UNIV SAN FRANCISCO	NAS 9-12466	Benton, E. V.	13	1497
JSC	Unavailable	UNIV OF SOUTHERN CAL	NAS 9-6164	Unavailable	13	1512
JSC	Wilmarth, V. R.	UNIV OF SOUTHERN CAL	NAS 9-13980	Stone, R. O.	33	1513
JSC	Harris, J. W.	UNIV TENNESSEE-KNOXV	NGL 43-001-140	Taylor, L. A.	11	2919
JSC	Kaplan, H.	U TENNESSEE-MEMPHIS	NAS 9-13617	Autian, J.	53	2933
JSC	Moseley, E. C.	U TEX CANCER CENTER	NAS 9-13042	Mitchell, B. A., Jr.	61	3087

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JSC	Potter, A. E.	UNIV TEXAS-AUSTIN	NAS 9-12568	Barnes, T. G., III	11	3053
JSC	Mansur, S. R.	UNIV TEXAS-AUSTIN	NAS 9-13176	Henize, K. G.	11	3054
JSC	Miller, M. L.	UNIV TEXAS-AUSTIN	NAS 9-13312	Baker, V. R.	32	3055
JSC	Goodrich, W. D.	UNIV TEXAS-AUSTIN	NAS 9-13680	Bertin, J. J.	41	3056
JSC	Boyd, W. C.	UNIV TEXAS-AUSTIN	NAS 9-13865	Hickox, C. E.	46	3057
JSC	Wilmarth, V. R.	UNIV TEXAS-AUSTIN	NAS 9-13946	Muehlberger, W. R.	32	3058
JSC	Wilmarth, V. R.	UNIV TEXAS-AUSTIN	NAS 9-13957	Holz, R. K.	39	3059
JSC	Eandi, B. K.	UNIV TEXAS-AUSTIN	NGL 44-012-133	McKetta, J. J.	49	3064
JSC	Fedderson, W. E.	UNIV TEXAS-AUSTIN	NGR 44-012-224	Helmreich, A. L.	69	3072
JSC	Eichelman, W. F.	UNIV TEXAS-DALLAS	NAS 9-12074	Hoffman, J. H.	19	3095
JSC	Baker, K.	UNIV TEXAS-DALLAS	NAS 9-13512	Odell, P. L.	21	3096
JSC	Bergman, S. A.	UNIV TEXAS-DALLAS	NAS 9-14190	Mitchell, J. H.	53	3097
JSC	Harris, J. W.	UNIV TEXAS-DALLAS	NGR 44-004-116	Carter, J. L.	13	3102
JSC	Buchanan, P.	UNIV TEX-DENTAL BRCH	NAS 9-10566	Shannon, I. L.	51	3110
JSC	Buchanan, P.	UNIV TEX-DENTAL BRCH	NAS 9-11118	Brown, L. R.	51	3111
JSC	Kimzey, S. L.	UNIV TEXAS-GALVESTON	NAS 9-11088	Ritzmann, S. E.	53	3112
JSC	Kimzey, S. L.	UNIV TEXAS-GALVESTON	NAS 9-13102	Lockhart, L. H.	53	3113
JSC	Eichelman, W. F.	UNIV TEXAS-GALVESTON	NAS 9-13143	Latham, G. V.	13	3114
JSC	Leach, C. S.	UNIV TEXAS-GALVESTON	NAS 9-13605	Ritzmann, S. E.	52	3115
JSC	Harris, J. W.	UNIV TEXAS-GALVESTON	NGR 44-088-008	Lindsay, J. F.	51	3117
JSC	Leach, C. S.	U TEX HEALTH CTR-SA	NGR 44-094-001	Morgan, W. W.	51	3120
JSC	Jackson, M. M.	U TEX HEALTH CTR-SA	NGR 44-094-003	Earley, L. E.	53	3121
JSC	Heidelbaugh, N. D.	UNIV TEX-PUB HEALTH	NAS 9-11701	Chambers, L. A.	59	3122
JSC	Ferguson, J. K.	UNIV TEX-PUB HEALTH	NAS 9-12783	Downs, J. D.	53	3123
JSC	Barnes, C. M.	UNIV TEX-PUB HEALTH	NAS 9-12823	Steele, J. H.	59	3124
JSC	Hoffler, G. W.	U TEX HEALTH CTR-DAL	NGR 44-012-151	Mitchell, J. H.	53	3119
JSC	Eichelman, W. F.	UNIV OF UTAH	NAS 9-12168	Ward, S. H.	32	3137
JSC	Miller, M. L.	UNIV OF UTAH	NAS 9-13322	Jensen, M. L.	32	3138
JSC	Harris, J. W.	UNIV OF UTAH	NGR 45-003-090	Ward, S. H.	32	3144
JSC	Foreman, R. G.	UNIV OF UTAH	NGR 45-003-093	Fotias, E. S.	21	3145
JSC	Hardee, S. N.	UNIV OF VIRGINIA	NAS 9-12752	Junkins, J. L.	13	3218
JSC	Smith, M. C., Jr.	UNIV OF WASHINGTON	NAS 9-13029	Nelp, W. B.	59	3284
JSC	Horz, F.	UNIV OF WASHINGTON	NAS 9-13743	Brownlee, D. E.	32	3285
JSC	Harris, J. W.	UNIV OF WASHINGTON	NGR 48-002-149	Ghose, S.	13	3301
JSC	Harris, J. W.	UNIV WISC-MADISON	NGL 50-002-148	Haskin, L. A.	12	3339
JSC	Miller, M. L.	UNIV OF WYOMING	NAS 9-13298	Houston, R. S.	32	3360
JSC	Hoffler, G. W.	VANDERBILT UNIVERSTY	NAS 9-12889	Smith, R. F.	59	2937
JSC	Curry, D. M.	VIRGINIA POLY INST	NAS 9-12630	Lewis, C. H.	41	3246
JSC	Leach, C. S.	WASHINGTON UNIVERSTY	NAS 9-13741	Lowry, O.	52	2373
JSC	Harris, J. W.	WASHINGTON UNIVERSTY	NGL 26-008-065	Walker, R. M.	13	2376
JSC	Kondo, Y.	WESLEYAN UNIVERSITY	NGR 07-006-006	Page, T.	11	1605
JSC	Hardee, N.	WOODSHOLE OCEAN INST	NAS 9-12563	Bowin, C.	32	2232
JSC	Hardee, N.	WOODSHOLE OCEAN INST	NAS 9-12564	Bryan, W. B.	32	2233
KSC	Schoenberger, F. B.	BETHUNE-COOKMAN COL	NGR 10-022-001	Poonai, P.	39	1675
KSC	Franks, H. H.	FLORIDA INST OF TECH	NAS10-8399	Bowman, T. E.	43	1678
KSC	Lee, W. H.	FLORIDA INST OF TECH	NGR 10-015-008	Nevin, T. A.	39	1679
KSC	Lee, W. H.	FLORIDA TECH UNIV	NGR 10-019-004	Sweet, H. C.	39	1684
KSC	Lee, W. H.	FLORIDA TECH UNIV	NGR 10-019-009	Nimmo, B. G.	39	1685
KSC	Wright, M. I.	GEORGIA INST OF TECH	NAS10-8375	Webb, R. P.	45	1737
KSC	Morrison, J. D.	KENTUCKY STATE UNIV	NSG 801	Kloek, G.	59	1943
KSC	Schlimmer, G. E.	NEW MEX ST U-LAS CR	NAS10-7399	Bumgarner, R. A.	45	2467
KSC	Toft, P. D.	UNIV OF ARIZONA	NAS10-8518	Krider, E. P.	31	1115
KSC	Deese, J. H.	UNIV OF FLORIDA	NAS10-1255	Farber, E. A.	49	1687
KSC	Schnoor, R. H.	UNIV OF FLORIDA	NAS10-7791	Benson, C. D.	73	1688
KSC	Deese, J. H.	UNIV OF FLORIDA	NAS10-8297	O'Brien, M. P.	33	1689
KSC	Michalski, J. P.	UNIV OF FLORIDA	NAS10-8404	Bartholic, J. F.	31	1690
KSC	Toft, P. D.	UNIV OF FLORIDA	NAS10-8560	Bartholic, J. F.	39	1691
KSC	Toft, P. D.	UNIV OF FLORIDA	NGR 10-005-169	Uman, M. A.	31	1700

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KSC	Garó, J. T.	UNIV OF MIAMI	NAS10-8402	Veziroglu, T. N.	39	1706
KSC	Bland, R. A.	UNIV OF MIAMI	NAS10-8498	Veziroglu, T. N.	39	1707
KSC	Bland, R. A.	UNIV OF MIAMI	NAS10-8600	Hirschberg, J. G.	39	1708
KSC	Jorolan, A. E.	UNIV OF SO CAROLINA	NAS10-8354	Bonnell, R. D.	43	2890
LARC	Whitman, R. I.	AMERICAN UNIVERSITY	NAS 1-12209	Anderson, R. R.	39	1625
LARC	Long, E. R., Jr.	AMERICAN UNIVERSITY	NGR 09-003-014	Cullen, E.	45	1630
LARC	Spearmán, M. L.	AUBURN UNIV-AUBURN	NSG 1002	Nichols, J. O.	41	1025
LARC	Lanford, W. E.	BENNETT COLLEGE-NC	NSG 1032	Maggiolo, A.	12	2654
LARC	Yates, E. C., Jr.	BOSTON UNIVERSITY	NGR 22-004-030	Morino, L.	41	2076
LARC	Soffen, G. A.	BROWN UNIVERSITY	NAS 1-9680	Mutch, T. A.	31	2874
LARC	Walker, G. H.	BROWN UNIVERSITY	NGR 40-002-093	Loferski, J. J.	13	2879
LARC	Soffen, G. A.	CALIF INST OF TECH	NAS 1-9703	Anderson, D. L.	32	1161
LARC	Soffen, G. A.	CALIF INST OF TECH	NAS 1-12311	Horowitz, N. H.	51	1162
LARC	Kenimer	CALIF INST OF TECH	NGL 05-002-100	Nicolett, M. A.	11	1180
LARC	Lansing, D. L.	CALIF INST OF TECH	NGR 05-002-220	Liepmann, H. W.	13	1200
LARC	Davis, R. C.	CALIF INST OF TECH	NSG 1005	Babcock, C. D., Jr.	49	1215
LARC	Walker, G. H.	CARNEGIE-MELLON UNIV	NGR 39-087-021	Milnes, A. G.	13	2799
LARC	Stroud, W. J.	CASE WESTERN RESERVE	NGL 36-003-002	Kicher, T. P.	41	2691
LARC	Smith, R. E.	CASE WESTERN RESERVE	NSG 1069	Lynch, W. C.	99	2708
LARC	Nealy, J. E.	CHESAPEAKE COLLEGE	NSG 1066	Paul, F. W.	13	1992
LARC	Jewel, J. W., Jr.	CHRISTPHR NEWPRT COL	NAS 1-12152	McMurrán, R. E.	41	3156
LARC	Morris, G. J.	CHRISTPHR NEWPRT COL	NAS 1-12328	Roby, A. B.	41	3157
LARC	Stroud, W. J.	CLARKSON COL OF TECH	NGL 33-007-075	Thornton, W. A.	41	2500
LARC	Doggett, R. V., Jr.	CLEMSON UNIV-CLEMSON	NGR 41-001-027	Rudisill, C. S.	41	2886
LARC	Richie, H. G., Jr.	CLEVELAND STATE UNIV	NSG 1030	Peters, L. K.	31	2716
LARC	Wilson, J. W.	COLLEGE OF WM & MARY	NAS 1-11808	Remler, E. A.	13	3158
LARC	Martin, D. J.	COLLEGE OF WM & MARY	NAS 1-11958	Aceto, H., Jr.	99	3159
LARC	Martin, D. J.	COLLEGE OF WM & MARY	NGL 47-006-058	Sher, A.	99	3161
LARC	Martin, D. J.	COLLEGE OF WM & MARY	NSG 1034	Von Baeyer, H. C.	13	3164
LARC	Breckenridge, R. A.	COLLEGE OF WM & MARY	NSG 1089	Chen, A. B.	13	3165
LARC	Sweet, G. E.	COLORADO STATE UNIV	NAS 1-12106	Vonder Haar, T. H.	31	1528
LARC	Costen, R. C.	COLORADO STATE UNIV	NSG 1023	Sinclair, P. C.	31	1549
LARC	Danberg, J. E.	COLUMBIA UNIVERSITY	NGL 33-008-098	Friedman, M. B.	41	2510
LARC	Shepherd, W. T.	COLUMBIA UNIVERSITY	NGL 33-008-118	Borsky, P. N.	62	2511
LARC	Mixson, J. S.	COLUMBIA UNIVERSITY	NSG 1059	Vailaitas, R.	41	2527
LARC	Soffen, G. A.	CORNELL UNIVERSITY	NAS 1-9683	Sagan, C.	13	2528
LARC	Carlson, H. W.	CORNELL UNIVERSITY	NGL 33-010-054	Seebass, A. R.	13	2539
LARC	Allario, F.	CORNELL UNIVERSITY	NGL 33-010-064	Cool, T. A.	12	2541
LARC	Stephens, W. B.	CORNELL UNIVERSITY	NGL 33-010-070	Gallagher, R. H.	41	2542
LARC	Barger, R. L.	CORNELL UNIVERSITY	NGR 33-010-203	Seebass, A. R.	41	2562
LARC	Sweet, G. E.	DREXEL UNIVERSITY	NAS 1-11871	House, F. B.	31	2806
LARC	Howlett, J. T.	DREXEL UNIVERSITY	NGR 39-004-051	Mortimer, R. C.	46	2807
LARC	Soffen, G. A.	FLORIDA STATE UNIV	NAS 1-9693	Hess, S. K.	31	1680
LARC	Hardin, J. C.	FLORIDA STATE UNIV	NSG 1021	Tam, C. K.	13	1683
LARC	Martin, D. J.	GEORGE WASHINGTON U	NGL 09-010-053	Liebowitz, H.	49	1650
LARC	Margolis, K.	GEORGE WASHINGTON U	NGR 09-010-064	Liebowitz, H.	41	1651
LARC	Mulac, R. W.	GEORGE WASHINGTON U	NGR 09-010-074	Liebowitz, H.	41	1652
LARC	Fulton, R. E.	GEORGE WASHINGTON U	NGR 09-010-078	Liebowitz, H.	41	1653
LARC	Hubbard, H. H.	GEORGE WASHINGTON U	NGR 09-010-085	Liebowitz, H.	41	1654
LARC	Swift, C. T.	GEORGE WASHINGTON U	NGR 09-010-096	Liebowitz, H.	33	1656
LARC	Callis, L. B.	GEORGE WASHINGTON U	NSG 1026	Liebowitz, H.	31	1657
LARC	Peterson, J. P.	GEORGIA INST OF TECH	NGL 11-002-096	Horton, W. H.	41	1740
LARC	Evans, J. S.	GEORGIA INST OF TECH	NGR 11-002-157	Huang, A. B.	41	1744
LARC	Morris, R.	GEORGIA INST OF TECH	NGR 11-002-158	Walker, R. D., Jr.	45	1745
LARC	Bushnell, D. M.	GEORGIA INST OF TECH	NGR 11-002-159	Huang, A. B.	41	1746
LARC	Leybold, H. A.	GEORGIA INST OF TECH	NGR 11-002-169	Hanagud, S. V.	21	1748
LARC	Boatright, W. B.	GEORGIA INST OF TECH	NGR 11-002-177	Bangert, L. H.	41	1749
LARC	Hammond, C. E.	GEORGIA INST OF TECH	NGR 11-002-185	Pierce, G. A.	41	1752

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
LARC	Carter, J. E.	GEORGIA INST OF TECH	NSG 1004	Wu, J. C.	41	1754
LARC	Posey, J. W.	GEORGIA INST OF TECH	NSG 1047	Pierce, A. D.	46	1755
LARC	Jewel, J. W., Jr.	HAMPTON INSTITUTE	NAS 1-12445	Williams, G. K.	41	3166
LARC	Anderson, A. F.	HAMPTON INSTITUTE	NGR 47-020-007	Bell, J. A.	62	3170
LARC	Singh, J. J.	HAMPTON INSTITUTE	NGR 47-020-008	Han, K. S.	13	3171
LARC	Catherines, J. J.	HAMPTON INSTITUTE	NSG 1011	Handy, J. W.	39	3172
LARC	Cox, J. J.	HAMPTON INSTITUTE	NSG 1053	Trehan, A.	49	3173
LARC	Soffen, G. A.	HARVARD UNIVERSITY	NAS 1-10492	McElroy, M. B.	31	2079
LARC	Leonard, H. W.	HARVARD UNIVERSITY	NSG 1019	Budiansky, B.	46	2103
LARC	Swift, C. T.	HOFSTRA UNIVERSITY	NGR 33-209-002	Weissman, D. E.	45	2569
LARC	Diaz, A. V.	INDIANA U-BLOOMINGTN	NAS 1-12055	Hayes, J. M.	13	1860
LARC	Bland, S. R.	ISRAEL INST OF TECH	NGR 52-012-006	Nissim, E.	41	3375
LARC	Bland, S. R.	ISRAEL INST OF TECH	NGR 52-012-006	Nissim, E.	41	3375
LARC	Newman, J. C., Jr.	LEHIGH UNIVERSITY	NGL 39-007-040	Wei, R. P.	47	2810
LARC	Illg, W.	LEHIGH UNIVERSITY	NGR 39-007-011	Erdogan, F.	47	2811
LARC	Fichter, W. B.	LEHIGH UNIVERSITY	NGR 39-007-066	Sih, G. C.	46	2816
LARC	Cawthorn, J. M.	LOUGHBOROUGH U TECH	NGR 52-140-002	Lowson, M. V.	41	3374
LARC	Cawthorn, J. M.	LOUGHBOROUGH U TECH	NGR 52-140-002	Lowson, M. V.	41	3374
LARC	Moss, J. N.	LA STATE U-BAT ROUGE	NGL 19-001-059	Pike, R. W.	49	1965
LARC	Johnson, D. L.	LA STATE U-BAT ROUGE	NGL 19-001-068	Whitehurst, C. A.	49	1966
LARC	Hinton, D. E.	MARQUETTE UNIVERSITY	NSG 1025	Nigro, N. J.	21	3314
LARC	Williams, T. S., Jr.	MASS INST OF TECH	NAS 1-9684	Biemann, K.	12	2108
LARC	Soffen, G. A.	MASS INST OF TECH	NAS 1-9691	Rich, A.	51	2109
LARC	Soffen, G. A.	MASS INST OF TECH	NAS 1-9702	Shapiro, I. T.	45	2110
LARC	Howell, J. Q.	MASS INST OF TECH	NAS 1-10693	Staelin, D. H.	31	2111
LARC	Whitten, J. B.	MASS INST OF TECH	NGL 22-009-025	Young, L. R.	41	2145
LARC	Mace, W. D.	MASS INST OF TECH	NGL 22-009-640	Simpson, R. W.	41	2156
LARC	Barger, R. L.	MASS INST OF TECH	NGR 22-009-618	Toong, T. G.	41	2175
LARC	Stone, R. W., Jr.	MASS INST OF TECH	NGR 22-009-701	Young, L. R.	41	2184
LARC	Kyser, A. C.	MASS INST OF TECH	NGR 22-009-781	Mar, J. W.	41	2195
LARC	Stewart, E. C.	MASS INST OF TECH	NGR 22-009-782	Deyst, J. J., Jr.	41	2196
LARC	Hoad, D. R.	MASS INST OF TECH	NGR 22-009-818	Widnall, S. E.	41	2204
LARC	Elliott, J. R.	MASS INST OF TECH	NSG 1018	Athens, M.	41	2207
LARC	Hess, R. V.	MASS INST OF TECH	NSG 1048	Wrighton, M. S.	12	2208
LARC	Reed, W. H., III	MASS INST OF TECH	NSG 1051	Dugundji, J.	41	2209
LARC	Gunn, W. J.	MEMPHIS ST UNIV	NGR 43-008-007	Fletcher, J. L.	69	2900
LARC	Gunn, W. J.	MEMPHIS ST UNIV	NGR 43-008-008	Fletcher, J. L.	69	2901
LARC	Unavailable	MICHIGAN STATE UNIV	NAS 1-6860	Unavailable	13	2235
LARC	Weinstein, L. M.	MICHIGAN STATE UNIV	NGR 23-004-085	Krzywoblocki, M. Z.	41	2240
LARC	Morrisette, E. L.	MICHIGAN STATE UNIV	NGR 23-004-089	Foss, J. F.	41	2241
LARC	Hardin, J. C.	MICHIGAN STATE UNIV	NGR 23-004-091	Foss, J. F.	13	2242
LARC	Bobbitt, P. J.	MISSISSIPPI STATE U	NGR 25-001-055	Thompson, J. F.	41	2351
LARC	Harvey, G. A.	NEW MEX ST U-LAS CR	NAS 1-12715	Beebe, R.	11	2458
LARC	Jones, W. L.	NEW YORK UNIVERSITY	NAS 1-10090	Pierson, W. J., Jr.	99	2575
LARC	Fetterman, D. E.	NEW YORK UNIVERSITY	NGL 33-016-119	Ferri, A.	41	2580
LARC	Huber, P. W.	NEW YORK UNIVERSITY	NGR 33-016-131	Ferri, A.	41	2581
LARC	South, J. C., Jr.	NEW YORK UNIVERSITY	NGR 33-016-167	Garabedian, P. R.	41	2582
LARC	Maestrello, L.	NEW YORK UNIVERSITY	NGR 33-016-177	Ferri, A.	41	2584
LARC	Dunavant, J. C.	NEW YORK UNIVERSITY	NGR 33-016-179	Zakkay, V.	41	2585
LARC	Hefner, J. N.	NEW YORK UNIVERSITY	NGR 33-016-193	Ferri, A.	41	2586
LARC	Hefner, J. N.	NEW YORK UNIVERSITY	NSG 1049	Ferri, A.	41	2590
LARC	Shodsmith, J. N.	NORFOLK STATE COL	NSG 1014	Boseman, M.	21	3175
LARC	Mehrens, H. E.	NORFOLK STATE COL	NSG 1073	Jacobs, J. A.	47	3176
LARC	Stone, R. W., Jr.	NORFOLK STATE COL	NSG 1074	Colegate, R. L.	59	3177
LARC	Fripp, A. L.	NO CAR A&T STATE U	NGR 34-012-004	Williams, L.	45	2660
LARC	Lassiter, W. S.	NO CAROLINA STATE U	NAS 1-12833	Monteith, L. K.	45	2662
LARC	Armstrong, E. S.	NO CAROLINA STATE U	NGL 34-002-032	Sagan, H.	21	2666
LARC	Thomson, R. G.	NO CAROLINA STATE U	NGL 34-002-084	Chang, T. S.	41	2667

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LARC	Gunn, W. J.	NO CAROLINA STATE U	NGL 34-002-095	Levere, T. E.	69	2668
LARC	Hagginbothom, W. K., Jr.	NO CAROLINA STATE U	NGR 34-002-108	Manning, C. R., Jr.	47	2669
LARC	Hendricks, H. D.	NO CAROLINA STATE U	NGR 34-002-172	Monteith, L. K.	45	2670
LARC	Crane, H. L.	NO CAROLINA STATE U	NGR 34-002-179	Smetana, F. O.	41	2673
LARC	Imig, L. A.	NO CAROLINA STATE U	NGR 34-002-180	Fahmy, A. A.	41	2674
LARC	Turner, R. E.	NO CAROLINA STATE U	NGR 34-002-184	Moore, C. J.	21	2675
LARC	Croswell, W. F.	NO CAROLINA STATE U	NGR 34-002-188	Kauffman, J. F.	45	2676
LARC	Leatherwood, J. D.	NO CAROLINA STATE U	NGR 34-002-189	Suggs, C. W.	59	2677
LARC	Hamilton, H. H., II	NO CAROLINA STATE U	NGR 34-002-193	Dejaarnette, F. R.	41	2678
LARC	Sidney, B. D.	NO CAROLINA STATE U	NSG 1013	Hassan, H. A.	31	2682
LARC	Hohl, F.	NO CAROLINA STATE U	NSG 1058	Hassan, H. A.	19	2683
LARC	Painter, J. H.	NORTHWESTERN UNIV	NGR 14-007-129	Schaefer, B. M.	45	1799
LARC	Siemers, P. M.	OHIO STATE UNIV	NAS 1-12688	Petri, S. L.	41	2721
LARC	Naumann, E. C.	OHIO STATE UNIV	NGL 36-008-109	Bailey, C. D.	41	2731
LARC	Cockrell, C. R.	OHIO STATE UNIV	NGL 36-008-138	Richmond, J. H.	45	2732
LARC	Croswell, W. F.	OHIO STATE UNIV	NGR 36-008-144	Peters, L., Jr.	45	2734
LARC	Painter, J. H.	OHIO STATE UNIV	NGR 36-008-169	Peake, W. H.	45	2736
LARC	Runyan, H. L., Jr.	OHIO STATE UNIV	NGR 36-008-197	Bailey, C. D.	41	2737
LARC	Mace, W. D.	OHIO UNIVERSITY	NGR 36-009-017	McFarland, R. H.	41	2744
LARC	Moul, M. T.	OKLAHOMA STATE UNIV	NGR 37-002-096	Rhoten, R. P.	45	2771
LARC	Martin, D. J.	OLD DOMINION UNIV	NAS 1-9434	Ousterhout, D. S.	99	3178
LARC	Martin, D. J.	OLD DOMINION UNIV	NAS 1-11707	Ousterhout, D. S.	49	3179
LARC	Hellbaum, R. F.	OLD DOMINION UNIV	NGL 47-003-007	Goglia, G. L.	46	3182
LARC	Johnston, N. J.	OLD DOMINION UNIV	NGL 47-003-008	Williams, R. L.	12	3183
LARC	Leland, T. J.	OLD DOMINION UNIV	NGL 47-003-012	Cheng, R.	44	3184
LARC	Gentry, G. L., Jr.	OLD DOMINION UNIV	NGL 47-003-039	Ousterhout, D. S.	41	3185
LARC	Outlaw, R. A.	OLD DOMINION UNIV	NGR 47-003-040	Cox, J. L.	13	3187
LARC	Outlaw, R. A.	OLD DOMINION UNIV	NGR 47-003-043	Pittman, M. A.	13	3188
LARC	Phillips, D. H.	OLD DOMINION UNIV	NGR 47-003-048	Ake, R. L.	13	3189
LARC	Martin, D. J.	OLD DOMINION UNIV	NGR 47-003-052	Roberts, A. S.	41	3190
LARC	Hulten, W. C.	OLD DOMINION UNIV	NGR 47-003-068	Harris, F. S., Jr.	31	3191
LARC	McCormick, M. P.	OLD DOMINION UNIV	NGR 47-003-069	Chu, W. P.	13	3192
LARC	Houghton, W. M.	OLD DOMINION UNIV	NGR 47-003-071	Bandy, A. R.	33	3193
LARC	Outlaw, R. A.	OLD DOMINION UNIV	NGR 47-003-077	Cox, J. L.	13	3194
LARC	Wilson, J. W.	OLD DOMINION UNIV	NGR 47-003-078	Khandelwal, G. S.	13	3195
LARC	Melfi, L. T., Jr.	OLD DOMINION UNIV	NGR 47-003-082	Clay, F. P.	31	3196
LARC	Mixson, J. S.	OLD DOMINION UNIV	NGR 47-003-083	Kirby, R. H.	69	3197
LARC	Northam, G. B.	OLD DOMINION UNIV	NGR 47-003-087	Bandy, A. R.	39	3198
LARC	McCormick, M. P.	OLD DOMINION UNIV	NGR 47-003-088	Chu, W. P.	13	3199
LARC	Hohl, F.	OLD DOMINION UNIV	NSG 1022	Harries, W. L.	13	3202
LARC	Keating, G. M.	OLD DOMINION UNIV	NSG 1028	Goglia, G. L.	31	3203
LARC	Morgan, H. L., Jr.	OLD DOMINION UNIV	NSG 1038	Baker, A. J.	41	3204
LARC	Holmes, H. K.	OLD DOMINION UNIV	NSG 1039	Zuckerwar, A. J.	49	3205
LARC	Hohl, F.	OLD DOMINION UNIV	NSG 1040	Harries, W. L.	19	3206
LARC	Orr, H. D., III	OLD DOMINION UNIV	NSG 1041	Becher, J.	39	3207
LARC	Mixson, J. S.	OLD DOMINION UNIV	NSG 1042	Kirby, R. H.	69	3208
LARC	Davis, J. G., Jr.	OLD DOMINION UNIV	NSG 1043	Thornton, E. A.	49	3209
LARC	Wilson, J. W.	OLD DOMINION UNIV	NSG 1055	Khandelwal, G. S.	19	3210
LARC	Remsberg, E. E.	OLD DOMINION UNIV	NSG 1060	Kindle, E. C.	31	3211
LARC	Walberg, G. D.	OLD DOMINION UNIV	NSG 1065	Goglia, G. L.	41	3212
LARC	Maestrello, L.	PENNSYLVANIA STATE U	NGL 39-009-121	Reethof, G.	41	2831
LARC	Heyson, H. H.	PENNSYLVANIA STATE U	NGL 39-009-172	Eisenhuth, J. J.	41	2832
LARC	Schoonover, W. E., Jr.	PENNSYLVANIA STATE U	NGR 39-009-256	Park, W. H.	46	2840
LARC	Soffen, G. A.	POMONA COLLEGE	NAS 1-11854	Baird, A. K.	12	1235
LARC	Soffen, G. A.	PRINCETON UNIVERSITY	NAS 1-9705	Hargraves, R. B.	13	2410
LARC	Crane, H. L.	PRINCETON UNIVERSITY	NAS 1-11231	Seckel, E.	41	2411
LARC	Hilton, D. A.	PRINCETON UNIVERSITY	NGL 31-001-119	Hayes, W. D.	41	2424
LARC	Mixson, J. S.	PRINCETON UNIVERSITY	NGL 31-001-146	Dowell, E. H.	42	2426

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LARC	Mace, W. D.	PRINCETON UNIVERSITY	NGL 31-001-252	Graham, D.	41	2427
LARC	Johnston, N. J.	PRINCETON UNIVERSITY	NGR 31-001-221	Gillham, J. K.	12	2436
LARC	McHatton, A. D.	PRINCETON UNIVERSITY	NGR 31-001-272	Gillham, J. K.	19	2441
LARC	Hunter, W. W., Jr.	PRINCETON UNIVERSITY	NSG 1070	Miles, R. B.	13	2448
LARC	Margason, R. J.	PURDUE UNIVERSITY	NGL 15-005-094	Skifstad, J. G.	41	1879
LARC	Landrum, E. J.	PURDUE UNIVERSITY	NGR 15-005-119	Marshall, F. J.	41	1886
LARC	Pao, S. P.	PURDUE UNIVERSITY	NGR 15-005-174	Kentzer, C. P.	39	1891
LARC	Morgan, H. L., Jr.	PURDUE UNIVERSITY	NGR 15-005-188	Marshall, F. J.	41	1893
LARC	Yeager, P. R.	RENSELAER-CONN	NGL 07-009-003	Schwarz, H. J.	13	1596
LARC	Elliott, J. R.	RENSELAER POLY-NY	NGR 33-018-183	Kaufman, H.	41	2606
LARC	Wood, G. M.	RENSELAER POLY-NY	NSG 1052	White, F. A.	19	2608
LARC	Outlaw, R. A.	RICE UNIVERSITY	NSG 1017	Stebbing, R. F.	13	2977
LARC	Fulton, R. E.	ST LOUIS UNIVERSITY	NGL 26-006-021	Rhodes, J. L.	41	2355
LARC	Bell, V. L.	SHAW UNIVERSITY	NSG 1033	Chatterji, A. K.	12	2684
LARC	Breckenridge, R. A.	SOUTHERN METHODIST U	NGL 44-007-042	Chu, T. L.	47	2983
LARC	Painter, J. H.	SOUTHERN METHODIST U	NGR 44-007-049	Gupta, S. C.	45	2985
LARC	Soffen, G. A.	STANFORD UNIVERSITY	NAS 1-9682	Levinthal, E. C.	13	1238
LARC	Soffen, G. A.	STANFORD UNIVERSITY	NAS 1-9692	Lederberg, J.	51	1239
LARC	Soffen, G. A.	STANFORD UNIVERSITY	NAS 1-9701	Tyler, G. L.	45	1240
LARC	Doggett, R. V., Jr.	STANFORD UNIVERSITY	NGL 05-020-243	Ashley, H.	41	1266
LARC	Reed, W. H.	STANFORD UNIVERSITY	NGL 05-020-397	Herrmann, G.	41	1270
LARC	Northam, G. B.	STANFORD UNIVERSITY	NSG 1012	Byer, R. L.	31	1308
LARC	Soffen, G. A.	STATE U NY-STONY BRK	NAS 1-10493	Owens, T.	13	2619
LARC	Hardesty, C. A.	TENNESSEE TECH U	NGR 43-003-012	McLennan, W. D.	13	2905
LARC	Williams, T. S.	TEXAS A&M UNIVERSITY	NAS 1-12840	Young, A. T.	31	2987
LARC	Chapman, A. J.	TEXAS A&M UNIVERSITY	NAS 1-13342	Beckwith, S. W.	44	2988
LARC	South, J. C., Jr.	TEXAS A&M UNIVERSITY	NGR 44-001-157	Carlson, L. A.	41	3015
LARC	Williams, J. G.	UNIV OF BRIDGEPORT	NGR 07-001-004	Palazotto, A. N.	41	1597
LARC	Stroud, W. J.	UNIV CALIF-L ANGELES	NGR 05-007-337	Schmit, L. A.	41	1427
LARC	Bland, S. R.	UNIV CALIF-L ANGELES	NGR 05-007-395	Cole, J. D.	41	1430
LARC	Hammond, C. E.	UNIV CALIF-L ANGELES	NGR 05-007-414	Friedman, P. P.	41	1432
LARC	Keating, G. M.	UNIV CALIF-L ANGELES	NGR 05-007-416	Knuth, E. L.	13	1433
LARC	Reichle, H. G., Jr.	UNIV CALIF-RIVERSIDE	NAS 1-10373	Behar, J. V.	31	1442
LARC	Gessow, A.	UNIV CALIF-SAN DIEGO	NGR 05-009-178	Libby, P. A.	41	1473
LARC	Brooks, D. R.	UNIV OF CINCINNATI	NAS 1-11105	Herget, P.	11	2745
LARC	Queijo, M. J.	UNIV OF CINCINNATI	NGR 36-004-061	Wells, W. R.	41	2752
LARC	Price, H. L.	UNIV OF CINCINNATI	NGR 36-004-063	Chartoff, R. P.	43	2753
LARC	Williams, J. G.	UNIV OF CINCINNATI	NGR 36-004-065	Sobel, L. H.	49	2755
LARC	Harris, J. E.	UNIV OF CINCINNATI	NGR 36-004-069	Davis, R. T.	41	2757
LARC	Hutchby, J. A.	UNIV COLORADO-BOLDR	NGR 06-003-205	Chernow, F.	13	1570
LARC	Hutchby, J. A.	UNIV COLORADO-BOLDR	NSG 1027	Chernow, F.	19	1577
LARC	Hutchby, J. A.	UNIV COLORADO-BOLDR	NSG 1037	Chernow, F.	19	1578
LARC	Rainey, R. W.	UNIV COLORADO-BOLDR	NSG 1056	Busemann, A.	41	1579
LARC	Johnson, R. W.	UNIV OF DELAWARE	NAS 1-12304	Klemas, V.	39	1620
LARC	Russell, J. M., III	UNIV OF DENVER	NGR 06-004-128	Murcray, D. G.	31	1590
LARC	Russell, J. M., III	UNIV OF DENVER	NGR 06-004-131	Murcray, D. G.	31	1591
LARC	Margason, R. J.	UNIV OF FLORIDA	NGL 10-005-127	Fearn, R. L.	41	1698
LARC	Soffen, G. A.	UNIV OF HOUSTON	NAS 1-9685	Oro, J.	13	3021
LARC	Morgan, H. L., Jr.	UNIV ILLINOIS-URBANA	NGR 14-005-144	Ormsbee, A. I.	41	1843
LARC	Stickle, J. W.	UNIV ILLINOIS-URBANA	NGR 14-005-194	Ormsbee, A. I.	41	1851
LARC	Stickle, J. W.	UNIV ILLINOIS-URBANA	NGR 14-005-206	Ormsbee, A. I.	41	1854
LARC	Hohl, F.	UNIV ILLINOIS-URBANA	NSG 1063	Miley, G. H.	19	1856
LARC	Coffee, C. W., Jr.	UNIV OF IOWA	NAS 1-11257	Van Allen, J. A.	13	1902
LARC	Coffee, C. W., Jr.	UNIV OF IOWA	NAS 1-13129	Van Allen, J. A.	13	1903
LARC	Jones, W. L.	UNIV OF KANSAS	NAS 1-10048	Moore, R. K.	99	1920
LARC	Ward, J. F.	UNIV OF KANSAS	NAS 1-12976	Muirhead, V. U.	41	1921
LARC	Crane, H. L.	UNIV OF KANSAS	NGR 17-002-072	Kohlman, D. L.	41	1932
LARC	Campbell, J. F.	UNIV OF KANSAS	NGR 17-002-107	Lan, C. T.	41	1935

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LARC	Pride, R. A.	UNIV OF KANSAS	NGR 17-004-027	Lenzen, K. H.	41	1936
LARC	Martin, D. J.	UNIV OF KANSAS	NSG 1045	Lenzen, K. H.	49	1938
LARC	Lamar, J. E.	UNIV OF KANSAS	NSG 1046	Roskam, J.	41	1939
LARC	Duberg, J. E.	UNIV OF KANSAS	NSG 1061	Roskam, J.	41	1940
LARC	Pellett, G. L.	UNIV MARYLAND-COL PK	NSG 1031	Davis, D. D.	12	2058
LARC	Wagner, H. S.	UNIV MARYLAND-COL PK	NSG 1035	Davis, D. D.	31	2059
LARC	Northam, G. B.	UNIV MARYLAND-COL PK	NSG 1036	Wilkerson, T. D.	31	2060
LARC	Wagner, H. S.	UNIV MARYLAND-COL PK	NSG 1075	Davis, D. D.	31	2061
LARC	Housner, J. M.	UNIV OF MIAMI	NSG 1044	Plass, H. J., Jr.	46	1717
LARC	McCarty, J. L.	UNIV MICH-ANN ARBOR	NGL 23-005-010	Clark, S. R.	41	2263
LARC	Czarnecki, K. R.	UNIV MICH-ANN ARBOR	NGR 23-005-523	Adamson, T. C., Jr.	41	2273
LARC	Fichter, W. B.	UNIV MICH-ANN ARBOR	NGR 23-005-528	Atkins, A. G.	46	2274
LARC	Russell, J. M., III	UNIV MICH-ANN ARBOR	NGR 23-005-538	Bartman, F. L.	31	2277
LARC	Lanford, W. E.	UNIV MICH-ANN ARBOR	NGR 23-005-599	Stedman, D. H.	12	2283
LARC	Beckwith, I. E.	UNIV MICH-ANN ARBOR	NGR 23-005-600	Nicholls, J. A.	41	2284
LARC	Tripp, J. S.	UNIV MICH-ANN ARBOR	NGR 23-005-602	Zeigler, B. P.	49	2285
LARC	Reichle, H. G., Jr.	UNIV MICH-ANN ARBOR	NGR 23-005-617	Drayson, S. R.	31	2288
LARC	Bavuso, S. J.	UNIV MICH-ANN ARBOR	NGR 23-005-622	Meyer, J. E.	21	2289
LARC	Russell, J. M., III	UNIV MICH-ANN ARBOR	NSG 1003	Drayson, S. R.	31	2290
LARC	McCarty, J. L.	UNIV MICH-ANN ARBOR	NSG 1080	Clark, S. K.	41	2291
LARC	Adams, J. A.	UNIV MICH-ANN ARBOR	NSR 23-005-364	Howe, R. M.	99	2294
LARC	Soffen, G. A.	U MINN-MNPLS-ST PAUL	NAS 1-9697	Nier, A. O.	31	2301
LARC	Melfi, L. T., Jr.	U MINN-MNPLS-ST PAUL	NAS 1-11676	Nier, A. O.	31	2302
LARC	Mixson, J. S.	UNIV MO-ROLLA	NSG 1050	Koval, L. R.	41	2369
LARC	Reichle, H. G., Jr.	UNIV NEW BRUNSWICK	NGR 52-163-001	Young, C.	31	3370
LARC	Soffen, G. A.	UNIV OF NEW MEXICO	NAS 1-11855	Keil, K.	12	2472
LARC	Helfbaum, R. F.	UNIV OF NEW MEXICO	NGR 32-004-026	Richards, C. G.	46	2481
LARC	Fripp, A. L.	UNIV OF NOTRE DAME	NAS 1-12468	Gajda, W. J., Jr.	45	1899
LARC	Wilson, J. W.	UNIV OF PENNSYLVANIA	NGR 39-010-114	Shen, B. S.	13	2851
LARC	Suttles, J. T.	UNIV OF RHODE ISLAND	NSG 1008	Spaulding, M. L.	49	2882
LARC	Soffen, G. A.	UNIV OF ROCHESTER	NAS 1-9689	Vishniac, W. V.	51	2647
LARC	Johnston, N. J.	UNIV SO MISSISSIPPI	NGR 25-005-005	Thames, S. F.	12	2354
LARC	Bland, S. R.	UNIV TENNESSEE-KNOXV	NGR 43-001-102	Wu, J. M.	41	2920
LARC	Fetterman, D. E.	UNIV TENNESSEE-KNOXV	NGR 43-001-124	Chaudhuri, S. N.	41	2924
LARC	Hammond, C. E.	UNIV TENNESSEE-KNOXV	NSG 1054	Lumsdaine, E.	41	2929
LARC	Hunt, L. R.	UNIV TENNESSEE-KNOXV	NSG 1062	Hodgson, J. W.	41	2930
LARC	Harvey, G. A.	UNIV TEXAS-AUSTIN	NAS 1-12762	Wray, J. D.	21	3048
LARC	Pinson, L. D.	UNIV TEXAS-AUSTIN	NSG 1001	Craig, R. R.	49	3085
LARC	Soffen, G. A.	UNIV TEXAS-DALLAS	NAS 1-9699	Hanson, W. B.	31	3088
LARC	Williams, T. S., Jr.	UNIV OF UTAH	NAS 1-12705	Shorthill, R. W.	19	3131
LARC	Hardesty, C. A.	UNIV OF UTAH	NGL 45-003-025	Staffanson, F. L.	31	3141
LARC	Kelly, W. L.	UNIV OF VIRGINIA	NAS 1-10210	White, E. J.	45	3213
LARC	Martin, D. J.	UNIV OF VIRGINIA	NAS 1-12754	Barnes, D.	99	3214
LARC	Yates, E. C., Jr.	UNIV OF VIRGINIA	NGL 47-005-098	Haviland, J. K.	41	3221
LARC	Rainey, A. G.	UNIV OF VIRGINIA	NGL 47-005-108	Haviland, J. K.	41	3222
LARC	Kilgore, R. A.	UNIV OF VIRGINIA	NGR 47-005-112	Zapata, R. N.	41	3223
LARC	Sewall, J. L.	UNIV OF VIRGINIA	NGR 47-005-145	Pilkey, W. D.	46	3224
LARC	Schoonover, W. E., Jr.	UNIV OF VIRGINIA	NGR 47-005-181	Jacobson, I. D.	41	3227
LARC	Stone, R. W., Jr.	UNIV OF VIRGINIA	NGR 47-005-208	Jacobson, I. D.	41	3230
LARC	Schoenster, J. A.	UNIV OF VIRGINIA	NGR 47-005-219	Haviland, J. K.	41	3232
LARC	Kilgore, R. A.	UNIV OF VIRGINIA	NSG 1010	Zapata, R. N.	41	3233
LARC	Wells, J. G., Jr.	UNIV OF VIRGINIA	NSG 1067	Parrish, E. A.	45	3234
LARC	Soffen, G. A.	UNIV OF WASHINGTON	NAS 1-9694	Leovy, C. B.	13	3281
LARC	Heyson, H. H.	UNIV OF WASHINGTON	NGL 48-002-010	Joppa, R. G.	41	3287
LARC	Heyson, H. H.	UNIV OF WASHINGTON	NGL 48-002-035	Rae, W. H.	41	3288
LARC	Dicus, D. L.	UNIV OF WASHINGTON	NGR 48-002-129	Fischbach, D. B.	47	3296
LARC	Smith, G. L.	UNIV WISC-MADISON	NAS 1-13204	Suomi, V. E.	31	3315
LARC	Remsberg, E. E.	UNIV WISC-MADISON	NSG 1057	Weinman, J. A.	31	3351

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
LARC	Ward, J. F.	UNIV WISC-MILWAUKEE	NGR 50-007-001	Bratanow, T.	41	3354
LARC	Mauldin, L. E.	UNIV OF WYOMING	NAS 1-12798	Pepin, T. J.	31	3356
LARC	Crumbly, K. H.	UNIV OF WYOMING	NAS 1-13213	Pepin, T. J.	31	3357
LARC	McCormick, M. P.	UNIV OF WYOMING	NGR 51-001-045	Schroeder, D. J.	31	3364
LARC	Mauldin, L. E.	UNIV OF WYOMING	NSG 1006	Pepin, T. J.	31	3365
LARC	Fuller, W. H., Jr.	UNIV OF WYOMING	NSG 1009	Rosen, J. M.	31	3366
LARC	Hohlt, F.	VANDERBILT UNIVERSTY	NGR 43-002-031	Lee, J. H.	13	2938
LARC	Wilkins, J. R.	VIRGINIA COMNWLTH U	NGL 47-002-020	Dalton, H. P.	51	3236
LARC	Bell, V. L.	VIRGINIA COMNWLTH U	NGR 47-002-041	Stump, B. L.	12	3237
LARC	Creedon, J. F.	VA MILITARY INSTITUT	NGR 47-018-005	Reid, G. F.	41	3238
LARC	Russin, W. R.	VIRGINIA POLY INST	NAS 1-10233	Schetz, J. A.	41	3239
LARC	Byvik, C. E.	VIRGINIA POLY INST	NAS 1-10646	Wightman, J. P.	31	3240
LARC	Martin, D. J.	VIRGINIA POLY INST	NAS 1-13175	Robertson, R. M.	49	3241
LARC	Newman, J. C., Jr.	VIRGINIA POLY INST	NGR 47-004-076	Smith, C. W.	46	3249
LARC	Stein, B. A.	VIRGINIA POLY INST	NGR 47-004-082	Tenney, D. R.	47	3250
LARC	Martin, D. J.	VIRGINIA POLY INST	NGR 47-004-090	Fabrycky, W. J.	41	3251
LARC	Stein, B. A.	VIRGINIA POLY INST	NGR 47-004-097	Tenney, D. R.	47	3254
LARC	Davis, J. G., Jr.	VIRGINIA POLY INST	NGR 47-004-101	Herakovich, C. T.	47	3257
LARC	Beckwith, I. E.	VIRGINIA POLY INST	NGR 47-004-106	Schetz, J. A.	41	3260
LARC	Stein, B. A.	VIRGINIA POLY INST	NGR 47-004-108	Lytton, J. L.	47	3261
LARC	Zorumski, W. E.	VIRGINIA POLY INST	NGR 47-004-109	Nayfeh, A. H.	13	3262
LARC	Hayduk, R. J.	VIRGINIA POLY INST	NGR 47-004-114	Melosh, R. J.	44	3263
LARC	Montgomery, R. C.	VIRGINIA POLY INST	NGR 47-004-116	Vanlandingham, H. F.	41	3264
LARC	Wornom, S. F.	VIRGINIA POLY INST	NGR 47-004-119	Inger, G. R.	13	3265
LARC	Davis, J. G., Jr.	VIRGINIA POLY INST	NGR 47-004-129	Herakovich, C. T.	49	3267
LARC	Montgomery, R. C.	VIRGINIA POLY INST	NSG 1015	Cliff, E. M.	41	3268
LARC	Yeager, P. R.	VIRGINIA POLY INST	NSG 1020	Sanzone, G.	13	3269
LARC	Newman, J. C., Jr.	VIRGINIA POLY INST	NSG 1024	Smith, C. W.	46	3270
LARC	Johnston, N. J.	VIRGINIA POLY INST	NSG 1064	Wolfe, J. F.	12	3271
LARC	Llewellyn, C. P.	VIRGINIA POLY INST	NSG 1071	Hinkelmann, K.	21	3272
LARC	Young, P. R.	VIRGINIA POLY INST	NSG 1085	Mason, J. G.	12	3273
LARC	Wilson, J. W.	VIRGINIA STATE COL	NGR 47-014-006	Stronach, C. E.	13	3278
LARC	Mehrens, H. E.	VIRGINIA STATE COL	NGR 47-014-007	Van Dyke, A.	49	3279
LARC	Mehrens, H. E.	VIRGINIA STATE COL	NSG 1007	Crawley, L. F.	99	3280
LARC	Heyman, J. S.	WASHINGTON UNIVERSTY	NSG 1016	Miller, J. G.	13	2379
LARC	Johnson, J. W.	WEST VIRGINIA UNIV	NGR 49-001-056	Balanis, C. A.	45	3311
LARC	Kirby, C. E.	WEST VIRGINIA UNIV	NGR 49-001-061	Steinhardt, E.	39	3312
LARC	Noonan, K. W.	WICHITA STATE UNIV	NGR 17-003-021	Wentz, W. H., Jr.	41	1942
LARC	Gray, D. L.	YOUNGSTOWN STATE U	NGR 36-028-006	Zuckerwar, A. J.	49	2768
LERC	Misencik, J. A.	BROWN UNIVERSITY	NGL 40-002-080	Mylonas, C.	46	2877
LERC	Seasholtz, R. G.	BUCKNELL UNIVERSITY	NGR 39-027-002	Maxwell, B. R.	49	2795
LERC	Seasholtz, R. G.	BUCKNELL UNIVERSITY	NGR 39-027-003	Maxwell, B. R.	49	2796
LERC	Sandercock, D. M.	CALIF INST OF TECH	NGL 05-002-136	Rannie, W. D.	41	1183
LERC	Coe, H. H.	CAL STATE U-NRTHRDGE	NGR 05-062-002	Nypan, L. J.	46	1222
LERC	Priem, R. J.	CAL STATE U-SACRAMEN	NGR 05-058-003	Reardon, F. H.	41	1223
LERC	Misencik, J. A.	CARNEGIE-MELLON UNIV	NGR 39-087-003	Low, J. R., Jr.	47	2798
LERC	Klopp, W. D.	CARNEGIE-MELLON UNIV	NGR 39-087-047	Low, J. R., Jr.	47	2803
LERC	Srawley, J. E.	CARNEGIE-MELLON UNIV	NGR 39-087-053	Swedlow, J. L.	49	2804
LERC	Ludwig, L. P.	CARNEGIE-MELLON UNIV	NSG 3023	Hughes, W. F.	46	2805
LERC	Rayle, W. D.	CASE WESTERN RESERVE	NGL 36-003-064	Reshotko, E.	19	2692
LERC	Quatinetz, M.	CASE WESTERN RESERVE	NGL 36-003-094	Ebert, L. J.	47	2693
LERC	Anderson, B. H.	CASE WESTERN RESERVE	NGL 36-027-032	Reshotko, E.	41	2694
LERC	Ashbrook, R. L.	CASE WESTERN RESERVE	NGR 36-027-035	Wallace, J. F.	47	2696
LERC	Anderson, B. H.	CASE WESTERN RESERVE	NGR 36-027-038	Reshotko, E.	41	2697
LERC	Gray, H. R.	CASE WESTERN RESERVE	NGR 36-027-040	Troiano, A. R.	47	2698
LERC	Usher, R. J.	CASE WESTERN RESERVE	NGR 36-027-047	Boltz, R. E.	49	2699
LERC	Gray, H. R.	CASE WESTERN RESERVE	NGR 36-027-051	Hehemann, R. H.	47	2701
LERC	Anderson, B. H.	CASE WESTERN RESERVE	NGR 36-027-064	Reshotko, E.	41	2704

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LERC	Kohl, F. J.	CASE WESTERN RESERVE	NSG 3009	Mateescu, G. D.	19	2709
LERC	Probst, H. B.	CASE WESTERN RESERVE	NSG 3027	Mitchell, T. E.	47	2710
LERC	Deissler, R. G.	CATHOLIC UNIVERSITY	NGR 09-005-076	Ling, S. C.	13	1633
LERC	Deissler, R. G.	CATHOLIC UNIVERSITY	NGR 09-005-099	Ling, S. C.	41	1635
LERC	Raquet, C. A.	CENTRAL ST UNIV-OHIO	NGR 36-033-002	Rubin, D.	51	2713
LERC	Putre, H.	CITY COLLEGE OF N Y	NGL 33-013-029	Pfeffer, R.	13	2492
LERC	Barile, S.	CLEVELAND STATE UNIV	NGL 36-025-001	Casper, K.	13	2715
LERC	Gedney, R. T.	COLORADO STATE UNIV	NAS 3-17213	Vickers, R. S.	32	1530
LERC	Misencik, J. A.	COLORADO STATE UNIV	NGL 06-002-063	Smith, F. W.	46	1536
LERC	Priem, R. J.	COLORADO STATE UNIV	NGR 06-002-095	Mitchell, C. E.	42	1538
LERC	Kerslake, W. R.	COLORADO STATE UNIV	NGR 06-002-112	Wilbur, P. J.	49	1541
LERC	Serafini, J. S.	COLORADO STATE UNIV	NGR 06-002-147	Wilhelm, H. E.	42	1545
LERC	Brown, G. V.	COLORADO STATE UNIV	NGR 06-002-159	Etters, R. D.	13	1546
LERC	Mirtich, M. J.	COLORADO STATE UNIV	NSG 3011	Wilbur, P. J.	42	1551
LERC	Lalli, V. R.	COLUMBIA UNIVERSITY	NGL 33-008-090	Stern, T.	45	2509
LERC	Evvard, J. C.	CORNELL UNIVERSITY	NGL 33-010-042	Moore, F. K.	46	2538
LERC	Brown, G. V.	CORNELL UNIVERSITY	NGR 33-010-188	Ashcroft, N. W.	13	2560
LERC	Laurence, J. C.	CORNELL UNIVERSITY	NGR 33-010-189	Ruoff, A. L.	47	2561
LERC	Marek, C. J.	CORNELL UNIVERSITY	NSG 3019	Gouldin, F. C.	41	2566
LERC	Baker, C. E.	GEORGE WASHINGTON U	NSR 09-010-027	Schiff, H. I.	59	1658
LERC	Unavailable	GEORGIA INST OF TECH	NAS 3-17827	Unavailable	49	1724
LERC	Huff, R. G.	GEORGIA INST OF TECH	NAS 3-17861	Strahle, W. C.	41	1725
LERC	Unavailable	GEORGIA INST OF TECH	NAS 3-18901	Unavailable	45	1726
LERC	Priem, R. J.	GEORGIA INST OF TECH	NGL 11-002-085	Zinn, B. T.	41	1739
LERC	Jones, W. R., Jr.	GEORGIA INST OF TECH	NGR 11-002-133	Winer, W. O.	46	1742
LERC	Masser, C. C.	GEORGIA INST OF TECH	NGR 11-002-146	Williams, J. R.	49	1743
LERC	Kascak, A. F.	GEORGIA INST OF TECH	NGR 11-002-166	Clement, J. D.	49	1747
LERC	Priem, R. J.	GEORGIA INST OF TECH	NGR 11-002-179	Zinn, B. T.	42	1750
LERC	Kaplan, G. M.	GEORGIA INST OF TECH	NGR 11-002-181	Clement, J. D.	49	1751
LERC	Huff, R. G.	GEORGIA INST OF TECH	NSG 3015	Strahle, W. C.	13	1757
LERC	Buckley, D. H.	HIRAM COLLEGE	NAS 3-17353	Wheeler, D. R.	13	2717
LERC	Buckley, D. H.	HIRAM COLLEGE	NSG 3026	Wheeler, D. R.	47	2718
LERC	Kaplan, G. M.	ILL INST OF TECH	NGR 14-004-008	Weinstein, H.	43	1787
LERC	Zuk, J.	JACKSON STATE UNIV	NSG 3004	Chu, C. S.	49	2338
LERC	Brown, G. V.	KENT STATE UNIV	NGR 36-007-027	Johnson, D. L.	13	2719
LERC	Ashbrook, R. L.	LEHIGH UNIVERSITY	NGL 39-007-007	Kraft, R. W.	47	2809
LERC	Misencik, J. A.	LEHIGH UNIVERSITY	NGR 39-007-067	Wei, R. P.	47	2817
LERC	Lalli, V. R.	LOWELL TECH INST	NGR 22-018-006	Burger, P.	45	2107
LERC	Hacker, P. T.	MASS INST OF TECH	NAS 3-17534	Senturia, S. D.	19	2116
LERC	Quatinetz, M.	MASS INST OF TECH	NGL 22-009-003	Grant, N. J.	47	2140
LERC	McNally, W. D.	MASS INST OF TECH	NGL 22-009-383	Kerrebrock, J. L.	41	2152
LERC	Weiss, S.	MASS INST OF TECH	NGR 22-009-339	Witner, E. A.	41	2162
LERC	Holdeman, J. D.	MASS INST OF TECH	NGR 22-009-378	Fay, J. A.	43	2165
LERC	Baumeister, K. J.	MASS INST OF TECH	NGR 22-009-805	Ingard, K. U.	41	2203
LERC	Orange, T. W.	MASS INST OF TECH	NSG 3006	Kerrebrock, J. L.	41	2213
LERC	Weinberg, J.	MASS INST OF TECH	NSG 3017	Gatos, H. C.	13	2214
LERC	Fleming, D. P.	MISSISSIPPI STATE U	NGR 25-001-050	Stiffler, A. K.	46	2350
LERC	Neustadter, H. E.	NEW YORK UNIVERSITY	NGR 33-016-197	Hoydysb, W. G.	39	2588
LERC	Godlewski, M. P.	NO CAROLINA STATE U	NGR 34-002-195	Hauser, J. R.	45	2679
LERC	Myers, I.	NORTHEASTERN UNIV	NAS12-2053	Radinodici, B.	45	2218
LERC	Lad, R. A.	NORTHWESTERN UNIV	NGL 14-007-081	Waber, J. T.	13	1795
LERC	Zaretsky, E. V.	NORTHWESTERN UNIV	NGR 14-007-084	Ching, H. S.	46	1796
LERC	Grobman, J. S.	NORTHWESTERN UNIV	NGR 14-007-114	Kovitz, A. A.	41	1797
LERC	Bambakidis, G.	NORTHWESTERN UNIV	NGR 14-007-131	Waber, J. T.	13	1800
LERC	Gray, H. R.	OHIO STATE UNIV	NGL 36-008-051	Beck, F. H.	47	2729
LERC	Gedney, R. T.	OHIO STATE UNIV	NSG 3005	Peake, W. H.	45	2742
LERC	Heidmann, M. F.	PENNSYLVANIA STATE U	NAS 3-17855	Lakshminarayana, B.	41	2819
LERC	Britsch, W. R.	PENNSYLVANIA STATE U	NGL 39-009-001	Holl, J. W.	41	2824

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LERC	Britsch, W. R.	PENNSYLVANIA STATE U	NGL 39-009-007	Lakshminarayana, B.	41	2827
LERC	Hirschberg, M. H.	PENNSYLVANIA STATE U	NGR 39-009-034	Zamrik, S. Y.	47	2833
LERC	Priem, R. J.	PENNSYLVANIA STATE U	NGR 39-009-077	Faeth, G. M.	42	2834
LERC	Stone, J. R.	PENNSYLVANIA STATE U	NGR 39-009-270	Arndt, R. E.	41	2841
LERC	Dittmar, J. H.	PENNSYLVANIA STATE U	NGR 39-009-275	Henderson, R. E.	46	2842
LERC	Heidmann, M. F.	PENNSYLVANIA STATE U	NSG 3012	Lakshminarayana, B.	41	2844
LERC	Sanders, W. A.	PENNSYLVANIA STATE U	NSG 3016	Bradt, R. C.	47	2845
LERC	Dunning, J. W.	PRINCETON UNIVERSITY	NGL 31-001-129	Glassman, I.	12	2425
LERC	Chamis, C. C.	PRINCETON UNIVERSITY	NGR 31-001-267	Moon, F. C.	41	2440
LERC	Gray, V. H.	PRINCETON UNIVERSITY	NGR 31-001-307	Summerfield, M.	41	2445
LERC	Dunning, J. W., Jr.	PRINCETON UNIVERSITY	NGR 31-001-312	Glassman, I.	19	2446
LERC	Minner, G. L.	PURDUE UNIVERSITY	NAS 3-18010	Vaidya, P. G.	41	1871
LERC	Poferl, D. J.	PURDUE UNIVERSITY	NGR 15-005-147	Lecuyer, M. R.	41	1887
LERC	Anderson, B. H.	PURDUE UNIVERSITY	NGR 15-005-162	Hoffman, J. D.	41	1890
LERC	Bishop, A. R.	PURDUE UNIVERSITY	NGR 15-005-191	Hoffman, J. D.	41	1894
LERC	Minner, G. L.	PURDUE UNIVERSITY	NSG 3029	Vaidya, P. G.	46	1895
LERC	Lad, R. A.	RENSSELAER POLY-NY	NGL 33-018-003	Wiberly, S. E.	47	2600
LERC	Miller, C. D.	RENSSELAER POLY-NY	NGR 33-018-152	Ling, F. F.	47	2605
LERC	Grimes, H. H.	RENSSELAER POLY-NY	NSG 3007	Diefendorf, R. J.	47	2609
LERC	Lad, R. A.	RICE UNIVERSITY	NGL 44-006-001	Rorschach, H. E.	13	2970
LERC	Dietrich, M. W.	ROSE-HULMAN INST TEC	NAS 3-17357	Coy, J. J.	46	1898
LERC	Colladay, R. S.	STANFORD UNIVERSITY	NAS 3-14336	Kays, W. M.	41	1247
LERC	Graham, R. W.	STANFORD UNIVERSITY	NGL 05-020-134	Kays, W. M.	46	1262
LERC	Whittenberger, J. D.	STANFORD UNIVERSITY	NGR 05-020-671	Sherby, O. D.	47	1298
LERC	Lad, R. A.	STATE U NY-STONY BRK	NGL 33-015-035	Seigle, L. L.	47	2620
LERC	Levine, S. R.	STATE U NY-STONY BRK	NGR 33-015-160	Seigle, L. L.	47	2628
LERC	Belles, F. E.	STATE U NY-STONY BRK	NGR 33-015-163	Berlad, A. L.	39	2629
LERC	Hirschberg, M. H.	SYRACUSE UNIVERSITY	NGR 33-022-157	Liu, H. W.	47	2645
LERC	Lad, R. A.	TEMPLE UNIVERSITY	NGR 39-012-024	Labes, M. M.	12	2847
LERC	Cassidy, J. F.	TENNESSEE STATE UNIV	NGR 43-014-002	Busby, M. R.	13	2902
LERC	Buckley, D. H.	TENNESSEE STATE UNIV	NGR 43-014-003	Sutherland, C. W.	47	2903
LERC	Priem, R. J.	TENNESSEE TECH U	NGR 43-003-015	Purdy, K. R.	42	2906
LERC	King, R.	TEXAS A&M UNIVERSITY	NAS 3-17508	Kuykendahl, W.	39	2990
LERC	Chamis, C. C.	TEXAS A&M UNIVERSITY	NGR 44-001-149	Thornton, H. R.	41	3013
LERC	Priem, R. J.	TULANE UNIVERSITY	NGR 19-002-030	O'Hara, J. C.	41	1982
LERC	Kaplan, G. M.	UNIV OF ARIZONA	NGR 03-002-213	Perkins, H. C.	49	1130
LERC	Stephens, J. R.	UNIV CALIF-BERKELEY	NGR 05-003-562	Zackay, V. F.	47	1368
LERC	Marek, C. J.	UNIV CALIF-BERKELEY	NSG 3028	Branch, M. C.	46	1374
LERC	Johnson, R. L.	UNIV CALIF-L ANGELES	NGR 05-007-338	Amstutz, H. C.	47	1428
LERC	Brown, G. V.	UNIV OF CINCINNATI	NGR 36-004-054	Joiner, W. C.	13	2748
LERC	Haas, J. E.	UNIV OF CINCINNATI	NGR 36-004-055	Tabakoff, W.	46	2749
LERC	Olson, W. T.	UNIV OF CINCINNATI	NGR 36-004-056	Harness, D.	47	2750
LERC	Liu, D. C.	UNIV OF CINCINNATI	NGR 36-004-060	Fedder, R. C.	19	2751
LERC	Prust, H. W., Jr.	UNIV OF CINCINNATI	NGR 36-004-064	Tabakoff, W.	41	2754
LERC	Sundberg, G. R.	UNIV OF CINCINNATI	NSG 3022	Henderson, H. T.	45	2759
LERC	Grier, N. T.	UNIV OF CINCINNATI	NSG 3024	Nevin, J. H.	45	2760
LERC	Deissler, R. G.	UNIV COLORADO-BOLDR	NGR 06-003-208	Uberoi, M. S.	41	1571
LERC	Hirschberg, M. H.	UNIV COLORADO-BOLDR	NGR 06-003-236	Essenburg, F.	21	1576
LERC	Antoine, A. C.	UNIV OF CONNECTICUT	NGR 07-002-058	Wells, A. F.	12	1603
LERC	Easter, R. W.	UNIV OF FLORIDA	NGL 10-005-022	Walker, R. D., Jr.	43	1693
LERC	Lad, R. A.	UNIV OF FLORIDA	NGL 10-005-039	Hren, J. J.	47	1694
LERC	Lad, R. A.	UNIV OF FLORIDA	NGL 10-005-080	Hummel, R. E.	47	1696
LERC	Soltis, D. G.	UNIV OF FLORIDA	NGR 10-005-182	Walker, R. D., Jr.	42	1702
LERC	Godlewski, M. P.	UNIV OF FLORIDA	NSG 3018	Lindholm, F. A.	45	1705
LERC	Anderson, B. H.	UNIV ILLINOIS-URBANA	NGL 14-005-140	Chow, W. L.	41	1840
LERC	Karchmer, A. M.	UNIV ILLINOIS-URBANA	NGR 14-005-149	Jones, B. G.	41	1844
LERC	Karchmer, A. M.	UNIV ILLINOIS-URBANA	NGR 14-005-177	Jones, B. G.	41	1846
LERC	Marek, C. J.	UNIV ILLINOIS-URBANA	NGR 14-005-193	Strehlow, R. A.	41	1850

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LERC	Dunning, J. W., Jr.	UNIV ILLINOIS-URBANA	NGR 14-005-200	Verdeyen, J. T.	13	1852
LERC	Siewert, R. D.	UNIV ILLINOIS-URBANA	NSG 3008	Strehlow, R. A.	13	1857
LERC	Sanders, W. A.	UNIV OF KENTUCKY	NGL 18-001-042	Leipold, M. H.	47	1947
LERC	Haggard, J. B.	UNIV OF KENTUCKY	NGR 18-001-083	Lienhard, J. H.	13	1950
LERC	Gordon, S.	UNIV OF KENTUCKY	NGR 18-001-086	Funk, J. E.	12	1951
LERC	Brown, W. F., Jr.	UNIV OF KENTUCKY	NSG 3013	Conrad, H.	47	1952
LERC	Patch, R. W.	UNIV MARYLAND-COL PK	NGL 21-002-167	Miller, M. H.	13	2019
LERC	Simoneau, R. J.	UNIV MARYLAND-COL PK	NGR 21-002-344	Sengers, J. V.	13	2039
LERC	Coles, W. D.	UNIV MARYLAND-COL PK	NGR 21-002-400	Spain, I. L.	19	2050
LERC	Stephens, J. R.	UNIV MARYLAND-COL PK	NSG 3001	Arsenault, R. J.	13	2062
LERC	Shannon, J. L., Jr.	UNIV OF MIAMI	NGR 10-007-118	Craig, H. L., Jr.	47	1716
LERC	Freche, J. C.	UNIV MICH-ANN ARBOR	NGL 23-005-005	Wilson, D. J.	47	2262
LERC	Priem, R. J.	UNIV MICH-ANN ARBOR	NGL 23-005-336	Nicholls, J. A.	46	2266
LERC	Priem, R. J.	UNIV MICH-ANN ARBOR	NGR 23-005-536	Nicholls, J. A.	46	2275
LERC	Buckley, D. H.	UNIV MICH-ANN ARBOR	NGR 23-005-603	Ludema, K. C.	47	2286
LERC	Hyland, R. F.	UNIV OF NEW MEXICO	NAS 3-18522	Long, W. W.	49	2473
LERC	Fordyce, J. S.	UNIV OF PITTSBURGH	NAS 3-17658	Liu, C. C.	12	2854
LERC	Baker, C. E.	UNIV OF PITTSBURGH	NGR 39-011-161	Kaufman, F.	12	2869
LERC	Stephens, J. R.	UNIV OF PITTSBURGH	NGR 39-011-164	Meier, G. H.	47	2870
LERC	Fordyce, J. S.	UNIV OF PITTSBURGH	NSG 3002	Liu, C. C.	12	2872
LERC	O'Donnell, P. M.	UNIV OF PITTSBURGH	NSG 3010	Liv, C. C.	12	2873
LERC	Fordyce, J. S.	UNIV OF SO ALABAMA	NSG 3003	Weber, F. N., Jr.	13	1080
LERC	Dorsch, R. G.	UNIV OF SOUTHERN CAL	NAS 3-17857	Laufer, J.	41	1508
LERC	Dorsch, R. G.	UNIV OF SOUTHERN CAL	NSG 3025	Laufer, J.	41	1523
LERC	Hady, W. F.	UNIV TENNESSEE-KNOXV	NGR 43-001-127	Milligan, M. W.	42	2925
LERC	Dittmar, J. H.	UNIV TENNESSEE-KNOXV	NGR 43-001-134	Lunsdaine, E.	41	2926
LERC	Dorsch, R. G.	UNIV TENNESSEE-KNOXV	NGR 43-001-135	Maus, J. R.	41	2927
LERC	Unavailable	UNIV OF TOLEDO	NAS 3-17826	Unavailable	49	2762
LERC	Willoh, R. G.	UNIV OF TOLEDO	NGR 36-010-024	Leininger, G. G.	49	2764
LERC	Cunningham, R. E.	UNIV OF VIRGINIA	NGL 47-005-050	Gunter, E. J.	46	3219
LERC	Lad, R. A.	UNIV OF WASHINGTON	NGL 48-002-004	Mueller, J. I.	47	3286
LERC	Brandhorst, H. W., Jr.	WAYNE STATE UNIV	NGR 23-006-057	Wang, E. Y.	45	2297
LERC	Dunning, J. W., Jr.	WAYNE STATE UNIV	NGR 23-006-063	Wang, E. Y.	45	2298
LERC	Brandhorst, H. W., Jr.	WAYNE STATE UNIV	NSG 3014	Wang, E. Y.	13	2300
LERC	Rice, E. J.	WICHITA STATE UNIV	NGR 17-003-018	Eversman, W.	13	1941
LERC	Baker, C. E.	YORK UNIVERSITY	NGR 52-134-005	Schiff, H. I.	31	3371
MSFC	Downs, S. W., Jr.	ALABAMA A&M UNIV	NGR 01-001-023	Golden, M. S.	39	1005
MSFC	McDonough, G. F.	ALABAMA A&M UNIV	NGR 01-001-025	Manger, M. C.	39	1007
MSFC	Parnell, T. A.	ALABAMA A&M UNIV	NSG 8001	George, M. C.	11	1008
MSFC	Kurtz, R. L.	ALABAMA A&M UNIV	NSG 8011	Lee, C. T.	13	1009
MSFC	Lowrey, D. O.	ALABAMA A&M UNIV	NSG 8013	Weathers, G.	45	1010
MSFC	Wolverton, B. C.	ALCORN STATE UNIV	NSG 8005	Naqvi, S. M.	39	2334
MSFC	Falls, L. W.	APPALACHIAN STATE U	NAS 8-29286	Carter, M. C.	21	2652
MSFC	Jex, D. W.	ATHENS COLLEGE	NAS 8-28058	McNutt, R. C.	13	1011
MSFC	Zwiener, J. M.	ATHENS COLLEGE	NAS 8-30561	McNutt, R. C.	13	1012
MSFC	Emens, F. H.	AUBURN UNIV-AUBURN	NAS 8-20765	Irwin, J. D.	45	1013
MSFC	Lowery, D. O.	AUBURN UNIV-AUBURN	NAS 8-26193	Honnell, M. A.	45	1014
MSFC	Jones, B. P.	AUBURN UNIV-AUBURN	NAS 8-26579	Vachon, R. I.	13	1015
MSFC	White, J. B.	AUBURN UNIV-AUBURN	NAS 8-26930	Irwin, J. D.	45	1016
MSFC	Hethcoat, J. P.	AUBURN UNIV-AUBURN	NAS 8-27664	Bennett, A. G.	42	1017
MSFC	Ellsworth, D. J.	AUBURN UNIV-AUBURN	NAS 8-29852	Boland, J. S., III	49	1018
MSFC	Downs, S. W.	AUBURN UNIV-AUBURN	NAS 8-29856	Hagler, T. B.	39	1019
MSFC	McKannan, E. C.	AUBURN UNIV-AUBURN	NAS 8-29881	Vachon, R. I.	72	1020
MSFC	Duncan, J. R., Jr.	AUBURN UNIV-AUBURN	NAS 8-30248	Bennett, A. G.	41	1021
MSFC	Cummings, R. E.	AUBURN UNIV-AUBURN	NAS 8-30654	Vachon, R. I.	21	1022
MSFC	Kent, M. I.	BENEDICT COLLEGE	NSG 8004	Kinard, J. T.	39	2883
MSFC	Krome, H. O.	CALIF INST OF TECH	NAS 8-27403	Stone, E. C.	11	1168
MSFC	Krome, H. O.	CALIF INST OF TECH	NAS 8-27978	Stone, E. C.	11	1169

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MSFC	Reichman, E. J.	CALIF INST OF TECH	NAS 8-28028	Zirin, H.	11	1170
MSFC	Gross, L. A.	CALIF INST OF TECH	NAS 8-29313	Acosta, A. J.	46	1171
MSFC	Wdowiak, T. J.	CASE WESTERN RESERVE	NAS 8-29707	Bidelman, W.	11	2690
MSFC	Brown, S. C.	CITY COLLEGE OF N Y	NAS 8-29616	Pierson, W. J.	33	2489
MSFC	Turner, R. E.	COLORADO STATE UNIV	NAS 8-28590	Sadeh, W. Z.	39	1531
MSFC	Sloan, J. C.	COLORADO STATE UNIV	NAS 8-28655	Marschner, B. W.	39	1532
MSFC	Camp, D. W.	COLORADO STATE UNIV	NAS 8-29583	Cermak, J. E.	44	1533
MSFC	Adams, G. D.	COLORADO STATE UNIV	NAS 8-30250	Jones, T. B.	45	1534
MSFC	Neuschaefer, R. W.	COLUMBIA UNIVERSITY	NAS 8-27405	Angel, J. R.	11	2503
MSFC	Lavender, R. E.	COLUMBIA UNIVERSITY	NAS 8-27970	Novick, R.	11	2504
MSFC	Manning, H.	COLUMBIA UNIVERSITY	NAS 8-30532	Novick, R.	11	2505
MSFC	Moore, W. W.	FISK UNIVERSITY	NGR 43-021-002	Silberman, E.	13	2897
MSFC	Parnell, T. A.	FISK UNIVERSITY	NSG 8007	Mickens, R. E.	13	2898
MSFC	Allen, R. E.	GEORGETOWN UNIV	NAS 8-29778	Leise, E. M.	47	1659
MSFC	Kerr, J. H.	GEORGIA INST OF TECH	NAS 8-28591	Callor, W. R.	45	1727
MSFC	Hasemeyer, E. A.	GEORGIA INST OF TECH	NAS 8-28735	Brown, J. L.	47	1728
MSFC	Smith, O. E.	GEORGIA INST OF TECH	NAS 8-29753	Justus, C. G.	13	1729
MSFC	Kerr, J. H.	GEORGIA INST OF TECH	NAS 8-29860	Hart, R. K.	45	1730
MSFC	Kerr, J. H.	GEORGIA INST OF TECH	NAS 8-30246	Callen, W. R.	13	1731
MSFC	Kerr, J. H.	GEORGIA INST OF TECH	NAS 8-30534	Shackelford, R. G.	99	1732
MSFC	Thomas, J. M.	GEORGIA INST OF TECH	NAS 8-30617	Hanagud, S. V.	19	1733
MSFC	Cummings, R. E.	GEORGIA INST OF TECH	NAS 8-30653	Spann, G. W.	39	1734
MSFC	Smith, O. E.	GEORGIA INST OF TECH	NAS 8-30657	Justus, C. G.	49	1735
MSFC	Huggins, C. T.	GEORGIA INST OF TECH	NAS 8-30919	Walsh, J. R.	21	1736
MSFC	Kroes, R. L.	GRAMBLING COLLEGE	NGR 19-011-016	Murty, A. N.	13	1960
MSFC	Unavailable	HARVARD UNIVERSITY	NAS 5-3949	Goldberg, L.	11	2080
MSFC	Schafer, C. F.	HOWARD UNIVERSITY	NAS 8-30252	Ukanwa, A. O.	13	1660
MSFC	Wolverton, B. C.	JACKSON STATE UNIV	NGR 25-011-005	Sekhon, B. S.	39	2337
MSFC	Wolverton, B. C.	JACKSON STATE UNIV	NSG 8015	Perkins, J.	39	2339
MSFC	Baugher, C. R.	JOHNS HOPKINS UNIV	NGR 21-001-024	Gotwols, B. L.	11	2000
MSFC	Patterson, W. J.	KENTUCKY STATE UNIV	NSG 8008	Marano, G. A.	12	1944
MSFC	Bond, J. B.	LEHIGH UNIVERSITY	NAS 8-28654	Vanderhoff, J. W.	19	2808
MSFC	Wilson, H. B.	LA STATE U-BAT ROUGE	NAS 8-30380	Farmer, R. C.	13	1962
MSFC	Paludan, C. T.	LA STATE U-BAT ROUGE	NAS 8-30620	Maples, D.	39	1963
MSFC	McDonough, G. F.	LA STATE U-NEW ORLNS	NAS 8-28955	Saussy, G. A.	39	1970
MSFC	Hasemeyer, E. A.	MASS INST OF TECH	NAS 8-24364	Masubuchi, K.	49	2122
MSFC	Poorman, R. M.	MASS INST OF TECH	NAS 8-24365	Masubuchi, K.	46	2123
MSFC	Bodie, W. G.	MASS INST OF TECH	NAS 8-27972	Bradt, H. V.	11	2124
MSFC	Jordan, W.	MASS INST OF TECH	NAS 8-27975	Lewin, W. H.	11	2125
MSFC	Borelli, M. T.	MASS INST OF TECH	NAS 8-28055	Whitney, D. E.	46	2126
MSFC	Adams, W. R.	MASS INST OF TECH	NAS 8-28306	Gatos, H. C.	19	2127
MSFC	Hoppes, R. V.	MASS INST OF TECH	NAS 8-28732	Masubuchi, K.	46	2128
MSFC	Fikes, E. H.	MASS INST OF TECH	NAS 8-29849	Ovellette, G.	46	2129
MSFC	Hale, D. P.	MASS INST OF TECH	NAS 8-30301	Shapiro, I. I.	13	2130
MSFC	Manning, H.	MASS INST OF TECH	NAS 8-30531	Clark, G. W.	11	2131
MSFC	Davidson, M. C.	MASS INST OF TECH	NAS 8-30537	Gatos, H. C.	13	2132
MSFC	Adams, W. R.	MASS INST OF TECH	NAS 8-30576	Gatos, H. C.	19	2133
MSFC	Dalins, I.	MASS INST OF TECH	NGI 22-009-125	Gatos, H. C.	13	2147
MSFC	Davidson, M. C.	MASS INST OF TECH	NGR 22-009-517	Gatos, H. C.	12	2168
MSFC	Hollis, B. R., Jr.	MISSISSIPPI STATE U	NAS 8-26749	Gassaway, J. D.	49	2342
MSFC	McDonough, G. F.	MISSISSIPPI STATE U	NAS 8-29036	McKee, J. C., Jr.	39	2343
MSFC	Pitts, E. H.	MISSISSIPPI STATE U	NAS 8-30618	Rogers, T. W.	45	2344
MSFC	Daniels, J. L., Jr.	MISSISSIPPI STATE U	NAS 8-30623	Miller, W. F.	39	2345
MSFC	Kent, M. I.	MISSISSIPPI STATE U	NGI 25-001-032	Bouchillon, C. W.	99	2347
MSFC	Wolverton, B. C.	MISS VALLEY ST UNIV	NSG 8009	Sethi, S. L.	51	2352
MSFC	Smith, R. E.	MOREHOUSE COLLEGE	NGI 11-008-001	Gales, J. N.	12	1760
MSFC	Shriver, E. L.	MOREHOUSE COLLEGE	NSG 8014	Spight, C.	13	1763

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MSFC	Brown, S. C.	NEW YORK UNIVERSITY	NAS 8-29578	Pierson, W. J.	33	2578
MSFC	Derington, J. C.	NO CAROLINA STATE U	NAS 9-13321	Welby, C.	39	2664
MSFC	Downs, S. W.	NORTH GEORGIA COL	NAS 8-30619	Biesbrock, J. A.	51	1764
MSFC	Bannister, T. C.	PAINE COLLEGE	NSG 8002	Lal, R. B.	13	1765
MSFC	Fichtl, G.	PENNSYLVANIA STATE U	NAS 8-21140	Blackadar, A. K.	31	2821
MSFC	Fichtl, G. H.	PENNSYLVANIA STATE U	NAS 8-27334	Dutton, J. A.	31	2822
MSFC	Gary, A.	PORTLAND STATE UNIV	NAS 8-29256	Gurevitch, M.	13	2785
MSFC	Bordelon, C. S.	PRINCETON UNIVERSITY	NAS 8-29239	Danielson, R. E.	45	2420
MSFC	Davidson, M. C.	RENSSELAER POLY-NY	NAS 8-26146	Wiedemeier, H. T.	13	2597
MSFC	Adams, W. R.	RENSSELAER POLY-NY	NAS 8-28307	Wiedemeier, H.	19	2598
MSFC	Adams, W. R.	RENSSELAER POLY-NY	NAS 8-30578	Wiedemeier, H.	19	2599
MSFC	Unavailable	SO UNIV-BATON ROUGE	NSG 8016	Unavailable	13	1977
MSFC	Potter, R. A.	STANFORD UNIVERSITY	NGR 05-020-019	Fairbanks, W. M.	13	1275
MSFC	Ousley, A. T.	STATE UNIV NY-ALBANY	NAS 8-30251	Weinberg, J. L.	11	2612
MSFC	Allen, R. E.	STATE UNIV NY-BUFFAL	NAS 8-29745	Bigazzi, P. E.	13	2614
MSFC	Dalins, J.	TALLADEGA COLLEGE	NGR 01-0C7-009	Breecher, J.	13	1027
MSFC	McKannan, E. C.	TALLADEGA COLLEGE	NSG 8010	Morrison, R. A.	47	1029
MSFC	Holder, R. C.	TENNESSEE STATE UNIV	NSG 8012	Houghton, J. R.	46	2904
MSFC	Holladay, A. M.	TEXAS A&M UNIVERSITY	NAS 8-26379	Porter, W. A.	47	2993
MSFC	Turner, R. E.	TEXAS A&M UNIVERSITY	NAS 8-26751	Scoggins, J. R.	32	2994
MSFC	Fichtl, G. H.	TEXAS A&M UNIVERSITY	NAS 8-29582	Brundidge, K. C.	31	2995
MSFC	Fichtl, G. H.	TEXAS A&M UNIVERSITY	NAS 8-29764	Scoggins, J. R.	31	2996
MSFC	Nowakowski, M. F.	TEXAS A&M UNIVERSITY	NAS 8-29851	Porter, W. A.	13	2997
MSFC	McDonough, G. F.	TULANE UNIVERSITY	NAS 8-29026	Hidalgo, J. V.	39	1980
MSFC	Bannister, T. C.	TUSKEGEE INSTITUTE	NGR 01-005-003	Reams, F. M.	13	1031
MSFC	Guest, S. H.	TUSKEGEE INSTITUTE	NGR 01-005-010	Lenzo, C. S.	41	1032
MSFC	Clark, E. E., Jr.	TUSKEGEE INSTITUTE	NSG 8003	Doreswamy, C. V.	45	1034
MSFC	Parnell, T. A.	UNIV ALA-HUNTSVILLE	NAS 8-24908	Gregory, J. C.	11	1036
MSFC	Parnell, T. A.	UNIV ALA-HUNTSVILLE	NAS 8-24953	Gregory, J. C.	13	1037
MSFC	Swenson, G. R.	UNIV ALA-HUNTSVILLE	NAS 8-25750	Wu, S. T.	49	1038
MSFC	Sorensen, V. C.	UNIV ALA-HUNTSVILLE	NAS 8-26055	Beltz, J. S.	73	1039
MSFC	Jones, B. P.	UNIV ALA-HUNTSVILLE	NAS 8-27181	Horner, J. M.	13	1040
MSFC	Lacy, L. L.	UNIV ALA-HUNTSVILLE	NAS 8-27809	Otto, G. H.	13	1041
MSFC	Hagyard, M. J.	UNIV ALA-HUNTSVILLE	NAS 8-28097	Wu, S. T.	13	1042
MSFC	Smith, R. E.	UNIV ALA-HUNTSVILLE	NAS 8-28248	Hermann, R.	42	1043
MSFC	Adams, W. R.	UNIV ALA-HUNTSVILLE	NAS 8-28304	Walter, H. U.	19	1044
MSFC	Hodges, B.	UNIV ALA-HUNTSVILLE	NAS 8-28545	Polge, R. J.	13	1045
MSFC	Jones, J. H.	UNIV ALA-HUNTSVILLE	NAS 8-28588	Pao, S. P.	46	1046
MSFC	Allums, S. L.	UNIV ALA-HUNTSVILLE	NAS 8-28736	Shih, C. C.	46	1047
MSFC	Decher, R.	UNIV ALA-HUNTSVILLE	NAS 8-29316	Hendricks, J. B.	13	1048
MSFC	Smith, R. E.	UNIV ALA-HUNTSVILLE	NAS 8-29501	Wu, S. T.	13	1049
MSFC	Davidson, M. C.	UNIV ALA-HUNTSVILLE	NAS 8-29542	Castle, J. G.	47	1050
MSFC	Swenson, G. R.	UNIV ALA-HUNTSVILLE	NAS 8-29543	Wu, S. T.	13	1051
MSFC	Davidson, M. C.	UNIV ALA-HUNTSVILLE	NAS 8-29650	Walter, H. U.	13	1052
MSFC	Hamby, H. G.	UNIV ALA-HUNTSVILLE	NAS 8-30216	Doyle, F. L.	39	1053
MSFC	Urban, E. W.	UNIV ALA-HUNTSVILLE	NAS 8-30244	Otto, G. H.	13	1054
MSFC	Smith, R. E.	UNIV ALA-HUNTSVILLE	NAS 8-30247	Hung, R. J.	46	1055
MSFC	Fields, S. A.	UNIV ALA-HUNTSVILLE	NAS 8-30286	Walters, H. U.	49	1056
MSFC	Smith, R. E.	UNIV ALA-HUNTSVILLE	NAS 8-30616	Hung, R. J.	31	1057
MSFC	Johnson, C.	UNIV ALA-HUNTSVILLE	NAS 8-30737	Engle, H. A.	99	1058
MSFC	Morton, R. R.	UNIV ALA-HUNTSVILLE	NAS 8-30772	Rossing, L. M.	32	1059
MSFC	Unavailable	UNIV ALA-HUNTSVILLE	NAS 8-30885	Unavailable	39	1060
MSFC	Emens, F. H.	UNIV ALA-TUSCALOOSA	NAS 8-20172	Houts, R. C.	45	1064
MSFC	Randall, J. L.	UNIV ALA-TUSCALOOSA	NAS 8-25562	Webb, W. E.	45	1065
MSFC	Clarke, W. D.	UNIV ALA-TUSCALOOSA	NAS 8-28019	Hill, J. L.	49	1066
MSFC	Bannister, T. C.	UNIV ALA-TUSCALOOSA	NAS 8-28098	Miyagawa, I.	13	1067
MSFC	Hamby, H. G.	UNIV ALA-TUSCALOOSA	NAS 8-29100	April, G.	39	1068
MSFC	Schafer, C. F.	UNIV ALA-TUSCALOOSA	NAS 8-29494	De Smet, D. J.	13	1069

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
MSFC	Eby, P. B.	UNIV ALA-TUSCALOOSA	NAS 8-29900	Coulter, C. A.	13	1070
MSFC	Bensko, J., Jr.	UNIV ALA-TUSCALOOSA	NAS 8-29936	Hughes, T. H.	32	1071
MSFC	Bensko, J., Jr.	UNIV ALA-TUSCALOOSA	NAS 8-29937	Stow, S. H.	32	1072
MSFC	Moore, W. W.	UNIV ALA-TUSCALOOSA	NAS 8-30479	Liu, H. K.	13	1073
MSFC	Schutzenhofer, L. A.	UNIV ALA-TUSCALOOSA	NAS 8-30624	Doughiy, J. O.	46	1074
MSFC	Griner, D. B.	UNIV OF ARIZONA	NAS 8-27804	Tiftt, W. G.	19	1109
MSFC	Wyman, C. L.	UNIV OF ARIZONA	NAS 8-27863	Shack, R. V.	13	1110
MSFC	Moore, W. W.	UNIV OF ARIZONA	NAS 8-28661	Jacobs, S. F.	13	1111
MSFC	Snyder, R. S.	UNIV OF ARIZONA	NAS 8-29566	Bier, M.	51	1112
MSFC	Dabbs, J. R.	UNIV CALIF-BERKELEY	NAS 8-27408	Alvarez, L. W.	11	1323
MSFC	Ondrak, B. T.	UNIV CALIF-BERKELEY	NAS 8-29603	Price, P. B.	13	1324
MSFC	Neuschafer, R. W.	UNIV CALIF-BERKELEY	NAS 8-29704	Alvarez, L. W.	31	1325
MSFC	Adams, W. R.	UNIV CALIF-L ANGELES	NAS 8-28310	Yue, A. S.	19	1398
MSFC	Seltzer, S. M.	UNIV CALIF-L ANGELES	NAS 8-28358	Likins, P. W.	49	1399
MSFC	McPherson, W. B.	UNIV CALIF-L ANGELES	NAS 8-29854	Yue, A. S.	12	1400
MSFC	Adams, W. R.	UNIV CALIF-L ANGELES	NAS 8-30579	Yue, A. S.	19	1401
MSFC	Jordan, W. E.	UNIV CALIF-SAN DIEGO	NAS 8-27974	Peterson, L. E.	11	1450
MSFC	Fountain, W. F.	UNIV CALIF-SAN DIEGO	NAS 8-28015	Hudson, H. S.	11	1451
MSFC	Dabbs, J. R.	UNIV OF CHICAGO	NAS 8-27407	Meyer, P.	11	1810
MSFC	Hasemeyer, E. A.	UNIV OF CONNECTICUT	NAS 8-28734	Katahis, T. Z.	47	1598
MSFC	Schell, J. T.	UNIV OF FLORIDA	NAS 8-20247	Patterson, E. P.	12	1686
MSFC	Falls, L. W.	UNIV OF GEORGIA	NAS 8-11175	Cohen, A. C.	21	1767
MSFC	Folds, D.	UNIV OF GEORGIA	NAS 8-29939	Burkhard, D. G.	49	1768
MSFC	McGuire, J. P.	UNIV OF HAWAII	NAS 8-27950	Jeffries, J. T.	11	1774
MSFC	Patterson, J. W.	UNIV OF MASS-AMHERST	NAS 8-29073	Crossley, F. R.	46	2223
MSFC	Littles, J. W.	UNIV MICH-ANN ARBOR	NAS 8-20228	Merte, H., Jr.	49	2259
MSFC	Devries, L. L.	UNIV MICH-ANN ARBOR	NAS 8-28294	Cicerone, R. J.	13	2260
MSFC	Devries, L. L.	UNIV MICH-ANN ARBOR	NAS 8-30625	Stedman, D. H.	31	2261
MSFC	Krome, H. O.	U MINN-MNPLS-ST PAUL	NAS 8-27977	Waddington, C. J.	11	2310
MSFC	Hoover, R. B.	UNIV OF MONTEVALLO	NAS 8-27301	Foreman, J. W., Jr.	11	1077
MSFC	Randall, J. L.	UNIV OF MONTEVALLO	NAS 8-29855	Foreman, W. J.	11	1078
MSFC	Parnell, T. A.	UNIV N CAR-CHPL HILL	NAS 8-26601	Childs, C. B.	13	2685
MSFC	Turner, R. E.	UNIV OKLAHOMA-NORMAN	NAS 8-28659	Inman, R. L.	31	2775
MSFC	Stephens, J. B.	UNIV OKLAHOMA-NORMAN	NAS 8-30175	Canfield, J. M.	41	2776
MSFC	Parnell, T. A.	UNIV SAN FRANCISCO	NAS 8-26758	Benton, E. V.	13	1496
MSFC	Seltzer, S. M.	UNIV OF SANTA CLARA	NAS 8-27799	Siljak, D. D.	49	1498
MSFC	Larson, P. A.	UNIV OF SO ALABAMA	NAS 8-28722	Elliott, J. M.	46	1079
MSFC	Lowrey, D. O.	UNIV OF SO CAROLINA	NAS 8-28660	Fellers, R. G.	45	2889
MSFC	Adams, W. R.	UNIV OF SOUTHERN CAL	NAS 8-28305	Wilcox, W. R.	19	1510
MSFC	Bannister, T. C.	UNIV OF SOUTHERN CAL	NAS 8-29847	Wilcox, W. R.	13	1511
MSFC	Parker, J. R.	UNIV TENNESSEE-KNOXV	NAS 8-27296	Hung, J. C.	42	2911
MSFC	Borelli, M. T.	UNIV TENNESSEE-KNOXV	NAS 8-29271	Gonzalez, R. C.	45	2912
MSFC	Fichtl, G. H.	UNIV TENNESSEE-KNOXV	NAS 8-29584	Frost, W.	46	2913
MSFC	Ellsworth, D. J.	UNIV TENNESSEE-KNOXV	NAS 8-29632	Hung, J. C.	46	2914
MSFC	Thompson, Z.	UNIV TENNESSEE-KNOXV	NAS 8-30256	Liu, T. C.	45	2915
MSFC	Unavailable	UNIV TENNESSEE-KNOXV	NAS 8-30878	Unavailable	39	2916
MSFC	Fortenberry, W. H.	UNIV TENNESSEE-KNOXV	NAS 8-30879	Sherman, G. R.	21	2917
MSFC	Messer, C. W.	UNIV TENNESSEE-KNOXV	NGR 43-001-115	Shabrokh, F.	39	2921
MSFC	Allen, R. E.	UNIV TENNESSEE-KNOXV	NGR 43-001-117	Helvey, T. C.	99	2923
MSFC	Fehlberg, E.	UNIV TEXAS-AUSTIN	NAS 8-30245	Bettis, D. G.	21	3051
MSFC	Key, J. E.	UNIV TEXAS-AUSTIN	NAS 8-30622	Becker, E. B.	41	3052
MSFC	Krupnick, A. C.	UNIV OF UTAH	NAS 8-30253	Andrade, J. D.	12	3136
MSFC	Ponder, T. W.	UNIV WISC-MADISON	NAS 8-21015	Kraushaar, W. L.	11	3330
MSFC	Williams, J. R.	UNIV WISC-MADISON	NAS 8-28733	Heine, R. W.	47	3331
MSFC	Odell, C. R.	UNIV WISC-MADISON	NAS 8-29387	Code, A. D.	11	3332
MSFC	Allen, R. V.	VANDERBILT UNIVERSTY	NAS 8-29460	Kinser, D. L.	47	2934
MSFC	Nichols, R. L.	VANDERBILT UNIVERSTY	NAS 8-30656	Kinser, D. L.	19	2935
MSFC		VANDERBILT UNIVERSTY	NAS 8-30883		47	2936

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
MSFC	Yates, I. C., Jr.	WASHINGTON ST UNIV	NAS 8-29725	Johnson, A. A.	47	3307
MSFC	Jones, J. H.	WASHINGTON UNIVERSTY	NAS 8-26084	Rodin, E. Y.	13	2371
MSFC	Krome, H. O.	WASHINGTON UNIVERSTY	NAS 8-27976	Israel, M. H.	11	2372
MSFC	Allen, R. E.	WAYNE STATE UNIV	NAS 8-29823	Brown, R. K.	47	2296
MTF	Mooneyhan, D. W.	MISSISSIPPI STATE U	NAS 9-13363	Bouchillon, C. W.	99	2346
WFC	Rossi, L. C.	CITY COLLEGE OF N Y	NAS 6-2439	Pierson, W. J.	32	2488
WFC	Oberholtzer, J. D.	COLLEGE OF WM & MARY	NGR 47-006-064	Aceto, H., Jr.	59	3163
WFC	Stanley, H. R.	COLUMBIA UNIVERSITY	NAS 6-2455	Kuo, J. T.	33	2502
WFC	Holland, A. C.	DC TEACHERS COLLEGE	NGR 09-053-002	Curtis, W. C.	19	1639
WFC	Kim, H. H.	HAMPTON INSTITUTE	NGR 47-020-006	Trehan, A. K.	19	3169
WFC	Stanley, H. R.	OHIO STATE UNIV	NAS 6-2484	Rapp, R. H.	32	2726
WFC	Gray, J. W.	RICE UNIVERSITY	NAS 6-1667	Freeman, J. W.	11	2964
WFC	Vaughn, C. R.	STATE UNIV NY-BUFFAL	NGL 33-183-012	Williams, T. C.	51	2615
WFC	Gray, J. W.	UNIV ALASKA-FAIRBNKS	NAS 6-1932	Davis, T. N.	31	1082
WFC	Holton, E. M.	UNIV CALIF-DAVIS	NGR 05-004-035	Smith, R. E.	51	1385
WFC	Stanley, H. R.	UNIV CALIF-L ANGELES	NAS 6-2463	Kaula, W. M.	33	1397
WFC	Duke, J. R.	UNIV OF DAYTON	NAS 6-2456	Luers, J. K.	31	2761
WFC	Hoge, F. E.	UNIV MARYLAND-COL PK	NGR 21-002-435	Alley, C. O.	13	2055
WFC	Floyd, J. C.	UNIV MD-EASTRN SHORE	NAS 6-2067	Unavailable	99	2065
WFC	Stanley, H. R.	UNIV TEXAS-AUSTIN	NAS 6-2454	Tapley, B. D.	32	3050
WFC	Schmidlin, F. J.	UNIV OF UTAH	NAS 6-1908	Staffanson, F. L.	31	3134
WFC	Duke, J. R.	UNIV OF UTAH	NAS 6-2498	Kao, S. K.	31	3135
WFC	Bettle, J. F.	VIRGINIA POLY INST	NAS 6-1863	Pettry, D. E.	39	3244
WFC	Scott, J. H.	VIRGINIA POLY INST	NAS 6-2388	Pettry, D. E.	39	3245
WFC	Spurling, J. F.	VIRGINIA POLY INST	NGL 47-004-067	Tieleman, H. W.	31	3247
HQ-AA	Emme, E. M.	JOHNS HOPKINS UNIV	NSR 21-001-077	Berthel, J. H.	73	2008
HQ-D	Myers, B. C.	NORTHWESTERN UNIV	NGR 14-007-136	Radnor, M.	99	1801
HQ-EC	Silverman, D.	MASS INST OF TECH	NASW 2197	Harrington, J. V.	99	2137
HQ-EC	Silverman, D.	WASHINGTON UNIVERSTY	NGL 26-008-054	Morgan, R. P.	99	2374
HQ-ER	Jacobs, G. J.	BOSTON UNIVERSITY	NGR 22-004-024	MacKay, R. S.	51	2073
HQ-ER	Park, A. B.	COLORADO SCH OF MINE	NGL 06-001-015	Lee, K.	39	1527
HQ-ER	Lehmann, J.	UNIV COLORADO-BOLDR	NGR 06-003-160	Baird, J. R.	45	1564
HQ-ER	Jacobs, G. J.	UNIV OF MONTANA	NGR 27-002-006	Craighead, J. J.	51	2383
HQ-ES	Murphy, J. P.	OHIO STATE UNIV	NASW 2435	Mueller, I. I.	32	2728
HQ-ES	Murphy, J. P.	OHIO STATE UNIV	NGL 36-008-093	Mueller, I. I.	19	2730
HQ-ES	Murphy, J. P.	OHIO STATE UNIV	NGR 36-008-204	Mueller, I.	32	2738
HQ-ES	Murphy, J. P.	UNIV CALIF-L ANGELES	NSG 7002	Kaula, W. M.	99	1439
HQ-FE	Collin, E. E.	OKLAHOMA STATE UNIV	NASW 1964	Wiggins, K. E.	99	2770
HQ-FE	Tuttle, F. B.	OREGON STATE UNIV	NGR 38-002-018	Williamson, S. E.	12	2784
HQ-FE	Tuttle, F. B.	UNIV OF UTAH	NASW 2648	Ridd, M. K.	39	3139
HQ-I	Frutkin, A. W.	UNIV OF MIAMI	NGR 10-007-089	Harvey, M. L.	75	1713
HQ-JG	Argoldi, L. B.	HARVARD UNIVERSITY	NGR 22-007-203	Hershberg, P. I.	52	2092
HQ-JG	Arnoldi, L. B.	UNIV MICH-ANN ARBOR	NGR 23-005-185	French, J. R., Jr.	53	2269
HQ-KT	Ault, L. A.	GEORGE WASHINGTON U	NASW 2444	Talbot, J. M.	99	1647
HQ-KT	Holley, H. L.	INDIANA U-BLOOMINGTN	NASW 2353	Shriner, H.	99	1862
HQ-KT	Holley, H. L.	INDIANA U-BLOOMINGTN	NASW 2467	Shriner, H.	99	1863
HQ-KT	Holley, H. L.	SOUTHEASTN STATE COL	NASW 2512	Gold, H.	99	2772
HQ-KT	Zimmerman, R. R.	STANFORD UNIVERSITY	NASW 2216	Harrison	99	1257
HQ-KT	Holley, H. L.	UNIV OF CONNECTICUT	NASW 2307	Wilde, D.	99	1600
HQ-KT	Holley, H. L.	UNIV OF CONNECTICUT	NASW 2516	Wilde, D.	99	1601
HQ-KT	Orrick, D. W.	UNIV OF DENVER	NASW 2362	Kottenstette, J. P.	99	1583
HQ-KT	Holley, H. L.	UNIV OF GEORGIA	NASW 2401	Carmon, J. L.	99	1769
HQ-KT	Zimmerman, R.	UNIV OF MIAMI	NGR 10-007-113	Kline, J.	52	1715
HQ-KT	Holley, H. L.	UNIV OF NEW MEXICO	NASW 2399	Shinnick, W. A.	99	2475
HQ-KT	Holley, H. L.	UNIV OF NEW MEXICO	NASW 2534	Shinnick, W. A.	75	2476
HQ-KT	Holley, H. L.	UNIV OF PITTSBURGH	NASW 2425	Holley, E.	99	2856
HQ-KT	Holley, H. L.	UNIV OF SOUTHERN CAL	NASW 2360	Oulie, A. K.	99	1514
HQ-PA	Smolensky, S.	MASS INST OF TECH	NGL 22-009-309	Zannetos, Z. S.	45	2151

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HQ-PY	Pohly, J. G.	ALABAMA A&M UNIV	NGR 01-001-013	Lowsine, L.	41	1000
HQ-PY	Pohly, J. G.	ALABAMA A&M UNIV	NGR 01-001-017	George, M. C.	13	1001
HQ-PY	Pohly, J. G.	ALABAMA A&M UNIV	NGR 01-001-018	Manger, M. C.	39	1002
HQ-PY	Pohly, J. G.	ALABAMA A&M UNIV	NGR 01-001-020	Lee, C. T.	13	1003
HQ-PY	Pohly, J. G.	ALABAMA A&M UNIV	NGR 01-001-021	Weathers, G. D.	46	1004
HQ-PY	Pohly, J. G.	ALABAMA A&M UNIV	NGR 01-001-024	Saha, H.	41	1006
HQ-PY	Carter, C. H.	AUBURN UNIV-AUBURN	NGT 01-003-044	Vachon, R. I.	49	1023
HQ-PY	Carter, C. H.	AUBURN UNIV-AUBURN	NGT 01-003-045	O'Brien, J. F.	49	1024
HQ-PY	Pohly, J. G.	BENNETT COLLEGE-NC	NGT 34-017-001	Sayles, J. H.	99	2653
HQ-PY	Morris, J. D.	BOSTON COLLEGE	NGR 22-003-028	Bruce, B. N.	75	2070
HQ-PY	Pohly, J. G.	BOWIE STATE COLLEGE	NGR 21-027-004	Srivastava, S.	21	1987
HQ-PY	Pohly, J. G.	BOWIE STATE COLLEGE	NGT 21-027-009	Scurry, P. J.	21	1989
HQ-PY	Carter, C. H.	CASE WESTERN RESERVE	NGT 36-003-007	Thomas, R. H.	99	2706
HQ-PY	Carter, C. H.	CASE WESTERN RESERVE	NGT 36-027-011	Prahl, J. M.	49	2707
HQ-PY	Carter, C. H.	CATHOLIC UNIVERSITY	NGT 09-005-093	Fang, B. T.	49	1637
HQ-PY	Pohly, J. G.	CENTRAL ST UNIV-OHIO	NGR 36-033-001	Hartzler, E. A.	13	2712
HQ-PY	Pohly, J. G.	CENTRAL ST UNIV-OHIO	NGR 36-033-003	Craft, T. J.	51	2714
HQ-PY	Redding, E. R.	COLLEGE OF WM & MARY	NGL 47-006-055	Sher, A.	99	3160
HQ-PY	Hansing, F. D.	COLUMBIA UNIVERSITY	NGR 33-008-168	Ginzberg, E.	72	2517
HQ-PY	Carter, C. H.	COLUMBIA UNIVERSITY	NGT 33-008-013	Robey, R. C.	99	2526
HQ-PY	Vitale, J. A.	CORNELL UNIVERSITY	NGL 33-010-171	Liang, T.	39	2544
HQ-PY	Vitale, J. A.	CORNELL UNIVERSITY	NGR 33-010-071	McHanus, H. N.	49	2546
HQ-PY	Carter, C. H.	CORNELL UNIVERSITY	NGT 33-010-052	Schultz, A., Jr.	99	2565
HQ-PY	Pohly, J. G.	DELAWARE STATE COL	NGR 08-002-001	Helmy, E. M.	13	1617
HQ-PY	Pohly, J. G.	DELAWARE STATE COL	NGR 08-002-005	Helmy, E. M.	13	1619
HQ-PY	Pohly, J. G.	DILLARD UNIVERSITY	NGR 19-015-001	Rogers, R.	39	1953
HQ-PY	Pohly, J. G.	FEDERAL CITY COLLEGE	NGR 09-050-010	McDowell, H.	11	1643
HQ-PY	Pohly, J. G.	FLORIDA A&M UNIV	NGR 10-010-002	Cottrell, P. T.	59	1676
HQ-PY	Redding, E. R.	GEORGE WASHINGTON U	NGL 09-010-030	Mayo, A. L.	79	1649
HQ-PY	Vitale, J. A.	GEORGIA INST OF TECH	NGR 11-002-081	Hansen, A. G.	99	1741
HQ-PY	Vitale, J. A.	GEORGIA INST OF TECH	NGT 11-002-064	Hansen, A. G.	99	1753
HQ-PY	Pohly, J. G.	GOUCHER COLLEGE	NGT 21-123-001	Walker, K.	99	1994
HQ-PY	Pohly, J. G.	GRAMBLING COLLEGE	NGR 19-011-008	Foster, B. R.	51	1955
HQ-PY	Pohly, J. G.	GRAMBLING COLLEGE	NGR 19-011-009	Terrell, J.	13	1956
HQ-PY	Pohly, J. G.	GRAMBLING COLLEGE	NGR 19-011-012	Sabu, D. D.	43	1957
HQ-PY	Pohly, J. G.	GRAMBLING COLLEGE	NGR 19-011-013	Gajendar, N.	31	1958
HQ-PY	Pohly, J. G.	GRAMBLING COLLEGE	NGR 19-011-014	Cross, M. A.	13	1959
HQ-PY	Pohly, J. G.	HAMPTON INSTITUTE	NGR 47-020-004	Handy, J. W.	69	3167
HQ-PY	Pohly, J. G.	HAMPTON INSTITUTE	NGR 47-020-005	Hunter, C. E.	13	3168
HQ-PY	Carter, C. H.	HARVARD UNIVERSITY	NGT 22-007-008	McFarland, R. A.	99	2102
HQ-PY	Pohly, J. G.	HOWARD UNIVERSITY	NGL 09-011-046	Ferguson, G. A.	39	1664
HQ-PY	Pohly, J. G.	HOWARD UNIVERSITY	NGR 09-011-052	Kumar, C. K.	11	1667
HQ-PY	Chen, W. T.	HOWARD UNIVERSITY	NGT 09-011-051	Deloatch, E. M.	59	1671
HQ-PY	Pohly, J. G.	HOWARD UNIVERSITY	NGT 09-011-058	Cox, E. L.	99	1672
HQ-PY	Pohly, J. G.	JACKSON STATE UNIV	NGR 25-011-001	Nelson, F.	51	2335
HQ-PY	Pohly, J. G.	JACKSON STATE UNIV	NGR 25-011-002	Perkins, J.	61	2336
HQ-PY	Carter, C. H.	LEHIGH UNIVERSITY	NGT 39-007-003	Stout, R. D.	99	2818
HQ-PY	Redding, E. R.	LA STATE U-BAT ROUGE	NGL 19-001-097	Whitehurst, C. A.	39	1967
HQ-PY	Vitale, J. A.	LA STATE U-BAT ROUGE	NGL 19-001-105	Whitehurst, C. A.	39	1968
HQ-PY	Redding, E. R.	MASS INST OF TECH	NGL 22-009-019	Harrington, J. V.	99	2144
HQ-PY	Redding, E. R.	MASS INST OF TECH	NGL 22-009-638	Bridge, H. S.	99	2155
HQ-PY	Vitale, J. A.	MICHIGAN STATE UNIV	NGL 23-004-083	Boylan, M. G.	39	2238
HQ-PY	Redding, E. R.	MISSISSIPPI STATE U	NGL 25-001-040	Brown, L. R.	39	2348
HQ-PY	Vitale, J. A.	MISSISSIPPI STATE U	NGL 25-001-054	Bouchillon, C. W.	39	2349
HQ-PY	Pohly, J. G.	MOREHOUSE COLLEGE	NGR 11-008-002	Spight, C.	13	1761
HQ-PY	Pohly, J. G.	MOREHOUSE COLLEGE	NGT 11-008-004	Gayles, J. N.	99	1762
HQ-PY	Pohly, J. G.	MORGAN STATE COLLEGE	NGT 21-025-006	Proctor, N. K.	19	2010
HQ-PY	Pohly, J. G.	NM HIGHLANDS UNIV	NGT 32-010-001	Maestas, S.	99	2457

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HQ-PY	Pohly, J. G.	NORFOLK STATE COL	NGR 47-025-001	Colegate, R. L.	62	3174
HQ-PY	Pohly, J. G.	NO CAR A&T STATE U	NGR 34-012-003	Madan, R. N.	45	2659
HQ-PY	Carter, C. H.	NO CAROLINA STATE U	NGT 34-002-097	Hart, F. D.	49	2681
HQ-PY	Morris, J. D.	NORTHWESTERN UNIV	NGL 14-007-058	Radnor, M.	79	1793
HQ-PY	Morris, J. D.	NORTHWESTERN UNIV	NGL 14-007-062	Rubenstein, A. H.	99	1794
HQ-PY	Vitale, J. A.	OLD DOMINION UNIV	NGL 47-003-067	Kindle, E. C.	31	3186
HQ-PY	Carter, C. H.	OLD DOMINION UNIV	NGT 47-003-028	Goglia, G. L.	49	3200
HQ-PY	Carter, C. H.	OLD DOMINION UNIV	NGT 47-003-029	Goglia, G. L.	49	3201
HQ-PY	Vitale, J. A.	OREGON STATE UNIV	NGL 38-002-053	Schrumpf, B. J.	39	2782
HQ-PY	Pohly, J. G.	PAN AMERICAN UNIV	NGR 44-087-001	Le Master, E. W.	39	2955
HQ-PY	Carter, C. H.	PENNSYLVANIA STATE U	NGT 39-009-141	Reethof, G.	99	2843
HQ-PY	Carter, C. H.	POLY INST OF NY	NGT 33-006-003	Giordano, A. B.	99	2595
HQ-PY	Pohly, J. G.	PRAIRIE VIEW A&M U	NGR 44-033-014	Stubblefield, C. T.	43	2958
HQ-PY	Pohly, J. G.	PRAIRIE VIEW A&M U	NGR 44-033-016	Yeh, H. Y.	46	2959
HQ-PY	Vitale, J. A.	PURDUE UNIVERSITY	NGL 15-005-186	Landgrebe, D. A.	39	1883
HQ-PY	Vitale, J. A.	PURDUE UNIVERSITY	NGR 15-005-069	Modrey, J.	49	1885
HQ-PY	Pohly, J. G.	SO CAROLINA ST COL	NGR 41-006-001	Payne, J. E.	13	2888
HQ-PY	Vitale, J. A.	SO DAKOTA STATE UNIV	NGL 42-003-007	Myers, V. I.	39	2896
HQ-PY	Pohly, J. G.	SOUTHEASTN STATE COL	NGT 37-004-010	Robinson, J. L.	99	2774
HQ-PY	Redding, E. R.	SOUTHERN METHODIST U	NGL 44-007-006	Denton, J. C.	99	2982
HQ-PY	Pohly, J. G.	SO UNIV-BATON ROUGE	NGR 19-005-003	Johnson, J. A.	13	1973
HQ-PY	Pohly, J. G.	SO UNIV-BATON ROUGE	NGR 19-005-008	Watson, M. M.	43	1975
HQ-PY	Pohly, J. G.	SPELMAN COLLEGE	NGT 11-013-001	McBay, S. M.	99	1766
HQ-PY	Carter, C. H.	STANFORD UNIVERSITY	NGT 05-020-361	Pettit, J. M.	41	1305
HQ-PY	Carter, C. H.	STANFORD UNIVERSITY	NGT 05-020-409	Adams, J. L.	49	1306
HQ-PY	Carter, C. H.	STANFORD UNIVERSITY	NGT 05-020-412	Bershader, D.	49	1307
HQ-PY	Morris, J. D.	SYRACUSE UNIVERSITY	NGL 33-022-090	Barzelay, M. E.	79	2643
HQ-PY	Carter, C. H.	TALLADEGA COLLEGE	NGR 01-007-004	Morrison, R. A.	13	1026
HQ-PY	Vitale, J. A.	TEXAS A&M UNIVERSITY	NGL 44-001-001	Rouse, J. W., Jr.	39	3010
HQ-PY	Pohly, J. G.	TUSKEGEE INSTITUTE	NGR 01-005-012	Terrill, G. R.	45	1033
HQ-PY	Redding, E. R.	UNIV ALA-HUNTSVILLE	NGL 01-008-001	Rush, J. E.	99	1061
HQ-PY	Redding, E. R.	UNIV ALA-TUSCALOOSA	NGL 01-002-064	Whitehurst, R.	99	1075
HQ-PY	Carter, C. H.	UNIV ALA-TUSCALOOSA	NGT 01-002-080	Raney, D. C.	49	1076
HQ-PY	Vitale, J. A.	UNIV ALASKA-FAIRBANKS	NGL 02-001-092	Belon, A. E.	39	1084
HQ-PY	Vitale, J. A.	UNIV OF ARIZONA	NGL 03-002-313	Johnson, J. D.	39	1124
HQ-PY	Vitale, J. A.	UNIV CALIF-BERKELEY	NGL 05-003-404	Colewell, R. N.	39	1338
HQ-PY	Redding, E. R.	UNIV CALIF-BERKELEY	NGL 05-003-497	Anderson, K. A.	99	1341
HQ-PY	Redding, E. R.	UNIV CALIF-L ANGELES	NGL 05-007-003	Libby, W. F.	99	1405
HQ-PY	Redding, E. R.	UNIV OF CHICAGO	NGL 14-001-258	Simpson, J. A.	99	1821
HQ-PY	Redding, E. R.	UNIV OF CHICAGO	NGR 14-001-224	Simpson, J. A.	19	1829
HQ-PY	Redding, E. R.	UNIV OF CINCINNATI	NGL 36-004-014	Guston, R. L.	99	2747
HQ-PY	Vitale, J. A.	UNIV COLORADO-BOLDR	NGL 06-003-200	Ives, J. D.	39	1560
HQ-PY	Redding, E. R.	UNIV OF DENVER	NGL 06-004-096	Blackledge, J. P.	41	1585
HQ-PY	Carter, C. H.	UNIV OF DENVER	NGT 06-004-008	Evers, N. H.	99	1593
HQ-PY	Redding, E. R.	UNIV OF HOUSTON	NGL 44-005-021	Allred, J. C.	99	3034
HQ-PY	Redding, E. R.	UNIV OF HOUSTON	NGL 44-005-084	Huang, C. J.	21	3036
HQ-PY	Carter, C. H.	UNIV OF HOUSTON	NGT 44-005-114	Huang, C. J.	49	3046
HQ-PY	Carter, C. H.	UNIV OF HOUSTON	NGT 44-005-115	Huang, C. J.	49	3047
HQ-PY	Redding, E. R.	UNIV OF KANSAS	NGL 17-002-001	Barr, B. G.	99	1930
HQ-PY	Vitale, J. A.	UNIV OF KANSAS	NGL 17-004-024	Barr, B. G.	39	1931
HQ-PY	Carter, C. H.	UNIV OF KANSAS	NGT 17-002-044	Smith, W. P.	99	1937
HQ-PY	Carter, C. H.	UNIV MARYLAND-COL PK	NGT 21-002-254	Emad, F. P.	49	2057
HQ-PY	Pohly, J. G.	UNIV MD-EASTRN SHORE	NGR 21-119-002	Nagarajon, N.	41	2067
HQ-PY	Pohly, J. G.	UNIV MD-EASTRN SHORE	NGR 21-119-003	Singh, G.	31	2068
HQ-PY	Redding, E. R.	UNIV OF MIAMI	NGL 10-007-010	Man, E. H.	99	1709
HQ-PY	Vitale, J. A.	U MINN-MNPLS-ST PAUL	NGL 24-005-263	Cahill, L. J., Jr.	39	2316
HQ-PY	Carter, C. H.	U MINN-MNPLS-ST PAUL	NGT 24-005-012	Crawford, B., Jr.	99	2327
HQ-PY	Carter, C. H.	U MINN-MNPLS-ST PAUL	NGT 24-005-078	Anderson, G. W.	99	2328

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-PY	Vitale, J. A.	UNIV NEBRASKA-LINCLN	NGL 28-004-020	Drew, J. V.	39	2388
HQ-PY	Morris, J. D.	UNIV OF NEW MEXICO	NGL 32-004-042	Rosenthal, A. H.	75	2478
HQ-PY	Carter, C. H.	UNIV N CAR-CHPL HILL	NGT 34-003-001	Ingram, J. C.	99	2686
HQ-PY	Carter, C. H.	UNIV OF PITTSBURGH	NGT 39-011-003	Bonn, R.	99	2871
HQ-PY	Carter, C. H.	UNIV OF SOUTHERN CAL	NGT 05-018-127	Kaprielian, Z. A.	49	1522
HQ-PY	Vitale, J. A.	UNIV SO MISSISSIPPI	NGL 25-005-007	Pinson, J. W.	39	2353
HQ-PY	Morris, J. D.	UNIV TENNESSEE-KNOXV	NGR 43-001-116	James, L. B.	99	2922
HQ-PY	Carter, C. H.	UNIV TEXAS-AUSTIN	NGT 44-012-009	Ellison, F. P.	99	3084
HQ-PY	Redding, E. R.	UNIV TEXAS-DALLAS	NGL 44-004-130	Johnson, F. S.	99	3100
HQ-PY	Vitale, J. A.	UNIV TEX-PUB HEALTH	NGL 44-084-003	Rush, M.	59	3125
HQ-PY	Carter, C. H.	UNIV OF WASHINGTON	NGT 48-002-007	McCarthy, J. L.	99	3306
HQ-PY	Redding, E. R.	UNIV WISC-MADISON	NGL 50-002-001	Bock, R. M.	12	3333
HQ-PY	Vitale, J. A.	UNIV WISC-MADISON	NGL 50-002-114	Suomi, V. E.	39	3337
HQ-PY	Vitale, J. A.	UNIV WISC-MADISON	NGL 50-002-127	Clapp, J. L.	39	3338
HQ-PY	Pohly, J. G.	VIRGINIA STATE COL	NGL 47-014-009	Agrawal, D. M.	21	3275
HQ-PY	Pohly, J. G.	VIRGINIA STATE COL	NGR 47-014-005	Agrawal, K. M.	41	3277
HQ-PY	Pohly, J. G.	XAVIER UNIV-LA	NGR 19-007-002	Fulwiler, J. H.	76	1984
HQ-MM	Jones, W. L.	BOSTON UNIVERSITY	NGR 22-004-018	Fulton, G. P.	59	2071
HQ-MM	Saunders, J. F.	CATHOLIC UNIVERSITY	NGR 09-005-022	Decicco, B. T.	51	1631
HQ-MM	Vinograd, S. P.	INDIANA U-BLOOMINGTN	NGL 15-003-117	Maickel, R. P.	52	1866
HQ-MM	Lang, R. H.	MASS INST OF TECH	NGL 22-009-156	Young, L. R.	59	2148
HQ-MM	Belleville, R. E.	MASS INST OF TECH	NGR 22-009-018	Schmitt, F. O.	52	2158
HQ-MM	Brownstein, H. S.	OHIO STATE UNIV	NGT 36-008-007	Ellingson, H. V.	52	2741
HQ-MM	Brownstein, H. S.	OHIO STATE UNIV	NSR 36-008-108	Ellingson, H. V.	59	2743
HQ-MM	Belleville, R. E.	UNIV ARKANSAS-FAYETV	NGR 04-001-039	Pauly, J. E.	51	1157
HQ-MM	Saunders, J. F.	UNIV CALIF-SAN DIEGO	NGL 05-009-103	Baily, N. A.	51	1459
HQ-MM	Jones, W. L.	UNIV ILLINOIS-URBANA	NGL 14-005-074	Ades, H. W.	52	1839
HQ-MM	Saunders, J. F.	UNIV OF SOUTHERN CAL	NSR 05-018-087	Meehan, J. P.	59	1524
HQ-MM	Saunders, J. F.	VIRGINIA COMNWLTH U	NGL 47-002-005	Ham, W. T.	51	3235
HQ-MT	Huff, V. N.	HOWARD UNIVERSITY	NGR 09-011-053	Bainum, P. M.	46	1668
HQ-MT	Hall, H.	MASS INST OF TECH	NGR 22-009-735	Chapman, P. K.	13	2191
HQ-MT	Wild, J. W.	PENNSYLVANIA STATE U	NGR 39-009-210	Kaplan, M. H.	41	2838
HQ-MT	Redfield, M.	UNIV MARYLAND-COL PK	NGR 21-002-285	Ailey, C. O.	13	2032
HQ-R	Hodge, K. E.	MASS INST OF TECH	NASW 2524	Unavailable	41	2139
HQ-RA	Roudebush, W. H.	CALIF INST OF TECH	NGL 05-002-002	Liepmann, H. W.	41	1174
HQ-RA	Gessow, A.	UNIV MARYLAND-COL PK	NGR 21-002-303	Melnik, W. L.	13	2036
HQ-RD	Schwenk, F. C.	PRINCETON UNIVERSITY	NGR 31-001-185	Layton, J. P.	49	2433
HQ-RE	Pontious, C. E.	CALIF INST OF TECH	NGR 05-002-340	McCann, G. D.	49	1213
HQ-RE	Rosenfeld, S. A.	HARVARD UNIVERSITY	NGR 22-007-176	Book, R. V.	21	2090
HQ-RE	Anderton, H. L.	MASS INST OF TECH	NGL 22-009-013	Kennedy, R. S.	45	2141
HQ-RE	Rosenfeld, R. A.	MASS INST OF TECH	NGR 22-009-535	Guzman-Arenas, A.	99	2170
HQ-RE	Janow, C.	PENNSYLVANIA STATE U	NGL 39-009-023	Shearer, J. L.	49	2829
HQ-RE	Anderton, H. L.	STANFORD UNIVERSITY	NGL 05-020-103	Harris, S. E.	45	1261
HQ-RE	Kurzhals, P. R.	UNIV CALIF-BERKELEY	NGL 05-003-016	Desoer, C. A.	41	1332
HQ-RE	Kurzhals, P. R.	UNIV OF CONNECTICUT	NGL 07-002-002	Lindorff, D. P.	41	1602
HQ-RE	Pontious, C. E.	UNIV MARYLAND-COL PK	NGR 21-002-270	Miller, J.	21	2031
HQ-RE	Michaels, T. S.	UNIV TEXAS-AUSTIN	NGL 44-012-008	Tapley, B. D.	42	3061
HQ-RE	Pontious, C. E.	UNIV WISC-MADISON	NGR 50-002-160	Parmentier, R. D.	21	3342
HQ-RL	Unavailable	STANFORD UNIVERSITY	NGL 05-020-275	Karamcheti, K.	13	1268
HQ-RM	Brandon, F. D.	NORTHWESTERN UNIV	NSR 14-007-103	Radnor, M.	99	1802
HQ-RO	Enders, J. H.	MASS INST OF TECH	NASW 2412	Simpon, R.	99	2138
HQ-RP	Wasel, R. A.	CALIF INST OF TECH	NGL 05-002-005	Knauss, W. G.	13	1176
HQ-RP	Mullin, J. P.	PRINCETON UNIVERSITY	NGL 31-001-005	Jahn, R. G.	42	2421
HQ-RP	Unavailable	PURDUE UNIVERSITY	NGR 15-005-002	Zucrow, M. J.	43	1884
HQ-RP	Wasel, R. A.	UNIV OF UTAH	NGL 45-003-019	Baer, A. D.	12	3140
HQ-RP	Wasel, R. A.	UNIV OF UTAH	NGL 45-003-029	Williams, M. L.	13	3142
HQ-RP	Wasel, R. A.	UNIV OF UTAH	NGL 45-003-037	Devires, K. L.	46	3143
HQ-RR	Lundholm, J. G.	ARIZONA STATE UNIV	NSG 7019	Jacobson, D. L.	13	1093

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-RR	Thom, K.	GEORGIA INST OF TECH	NSG 7067	Williams, R.	13	1759
HQ-RR	Thom, K.	ILL INST OF TECH	NSG 7039	Weinstein, H.	13	1789
HQ-RR	Thom, K.	NO CAROLINA STATE U	NGR 34-002-177	Hassan, H. A.	13	2672
HQ-RR	Thom, K.	PRINCETON UNIVERSITY	NGR 31-001-328	Layton, J. P.	13	2447
HQ-RR	Thom, K.	STANFORD UNIVERSITY	NSG 7042	Pantell, R. H.	13	1314
HQ-RR	Thom, K.	UNIV OF FLORIDA	NGL 10-005-089	Schneider, R. T.	13	1697
HQ-RR	Unavailable	UNIV ILLINOIS-URBANA	NGR 14-005-010	Worley, W. J.	19	1842
HQ-RR	Thom, K.	UNIV MARYLAND-COL PK	NGR 21-002-408	Tidman, D. A.	21	2051
HQ-RR	Thom, K.	UNIV OF WASHINGTON	NGL 48-002-044	Hertzberg, A.	13	3289
HQ-RW	Gangler, J. J.	ALFRED UNIVERSITY	NASW 2504	Frechette, V. D.	47	2486
HQ-RW	Maltz, J.	CASE WESTERN RESERVE	NSG 7035	Manson, S. S.	47	2711
HQ-RW	Gilstad, D. A.	PURDUE UNIVERSITY	NSR 15-005-037	Dewitt, D. P.	47	1897
HQ-RW	Wilson, R. H., Jr.	SOUTHERN METHODIST U	NGR 44-007-028	Walsh, J. E.	21	2984
HQ-RW	Weinberg, I.	STANFORD UNIVERSITY	NGL 05-020-242	Little, W. A.	13	1265
HQ-RW	Weinberg, I.	TULANE UNIVERSITY	NGL 19-002-027	Hermann, A. M.	13	1981
HQ-NS	Thom, K.	CITY COLLEGE OF N Y	NGL 33-013-034	Tchen, C. M.	13	2493
HQ-NS	Miller, D. J.	MASS INST OF TECH	NGR 22-009-658	Sheridan, T. B.	46	2180
HQ-NS	Thom, K.	NO CAROLINA STATE U	NGL 34-002-017	Bennett, W. H.	13	2665
HQ-NS	Harrison, H. H.	PRINCETON UNIVERSITY	NGR 31-001-151	Kelly, A. J.	13	2431
HQ-NS	Schwenk, F. C.	PRINCETON UNIVERSITY	NGR 31-001-230	Kelly, A. J.	42	2437
HQ-NS	Harrison, H. H.	STEVENS INST OF TECH	NGL 31-003-020	Meissner, H.	13	2456
HQ-NS	Schwenk, F. C.	UNIV OF ARIZONA	NGL 03-002-006	Schultz, D. G.	45	1117
HQ-NS	Thom, K.	UNIV ILLINOIS-URBANA	NGR 14-005-183	Miley, G. H.	12	1848
HQ-SB	Jacobs, G. J.	UNIV OF CHICAGO	NGL 14-001-012	Moran, H. F.	59	1816
HQ-SG	Boggess, N. W.	BOSTON UNIVERSITY	NGR 22-004-035	Hegyi, D. J.	13	2077
HQ-SG	Boggess, N. W.	BOWLING GRN STATE U	NSG 7022	Ptak, R. L.	11	2689
HQ-SG	Kavanagh, L. D., Jr.	BRIGHAM YOUNG UNIV	NGR 45-001-011	Jones, D. E.	39	3128
HQ-SG	Roman, N. G.	CALIF INST OF TECH	NGL 05-002-007	Neugebauer, G.	11	1177
HQ-SG	Weldon, J. M.	CALIF INST OF TECH	NGL 05-002-034	Zirin, H.	11	1178
HQ-SG	Boggess, N. W.	CALIF INST OF TECH	NGL 05-002-134	Oke, J. B.	11	1182
HQ-SG	Boggess, N. W.	CALIF INST OF TECH	NGL 05-002-207	Neugebauer, G.	11	1188
HQ-SG	Weldon, J. M.	CALIF INST OF TECH	NGR 05-002-142	Leighton, R. B.	11	1194
HQ-SG	Opp, A. G.	CALIF INST OF TECH	NGR 05-002-160	Vogt, R. E.	11	1197
HQ-SG	Boggess, N. W.	CALIF INST OF TECH	NGR 05-002-256	Thorne, K. S.	11	1201
HQ-SG	Kelsall, T.	CALIF INST OF TECH	NGR 05-002-284	Garmire, G. P.	11	1203
HQ-SG	Hallenbeck, D. R.	CALIF INST OF TECH	NGR 05-002-294	Zirin, H.	11	1204
HQ-SG	Hallenbeck, D. R.	CALIF INST OF TECH	NGR 05-002-296	Garmire, G. P.	11	1205
HQ-SG	Weldon, J. M.	CALIF INST OF TECH	NGR 05-002-345	Zirin, H.	11	1214
HQ-SG	Chase, R. H.	CALIF INST OF TECH	NSR 05-002-071	Zirin, H.	11	1217
HQ-SG	Dubin, M.	CAL STATE U-FULLERTN	NGR 05-071-002	Johnson, F. M.	11	1219
HQ-SG	Kavanagh, L. D., Jr.	CATHOLIC UNIVERSITY	NGR 09-005-063	Whang, Y. C.	13	1632
HQ-SG	Roman, N. G.	COLUMBIA UNIVERSITY	NGR 33-008-102	Novick, R.	11	2512
HQ-SG	Oertel, G. K.	COLUMBIA UNIVERSITY	NGR 33-008-125	Novick, R.	11	2514
HQ-SG	Boggess, N. W.	COLUMBIA UNIVERSITY	NGR 33-008-158	Novick, R.	11	2516
HQ-SG	Hallenbeck, D. R.	COLUMBIA UNIVERSITY	NGR 33-008-183	Wolff, R. S.	11	2520
HQ-SG	Oertel, G. K.	COLUMBIA UNIVERSITY	NGR 33-008-189	Wolff, R. S.	11	2521
HQ-SG	Kelsall, T.	COLUMBIA UNIVERSITY	NGR 33-008-194	Weisskopf, M. C.	11	2523
HQ-SG	Oertel, G. K.	COLUMBIA UNIVERSITY	NGR 33-008-200	Novick, R.	11	2525
HQ-SG	Opp, A. G.	CORNELL UNIVERSITY	NGR 33-010-145	Greisen, K. I.	11	2552
HQ-SG	Boggess, N. W.	CORNELL UNIVERSITY	NGR 33-010-172	Harwit, M. O.	11	2556
HQ-SG	Schmerling, E. R.	DARTMOUTH COLLEGE	NGR 30-001-041	Laaspere, T.	31	2396
HQ-SG	Kavanagh, L. D., Jr.	GRAMBLING COLLEGE	NGR 19-011-007	Cummings, W. D.	13	1954
HQ-SG	Weldon, J. M.	HARVARD UNIVERSITY	NGL 22-007-006	Goldberg, L.	11	2083
HQ-SG	Weldon, J. M.	HARVARD UNIVERSITY	NGL 22-007-136	Dalgarno, O.	11	2086
HQ-SG	Weldon, J. M.	HARVARD UNIVERSITY	NGR 22-007-202	Goldberg, L.	11	2091
HQ-SG	Oertel, G. K.	HARVARD UNIVERSITY	NGR 22-007-257	Maxwell, A.	11	2095
HQ-SG	Boggess, N. W.	HARVARD UNIVERSITY	NGR 22-007-270	Noyes, R. W.	11	2098
HQ-SG	Kelsall, T.	HARVARD UNIVERSITY	NGR 22-007-272	Cameron, A. G.	11	2099

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HQ-SG	Weldon, J. M.	HARVARD UNIVERSITY	NSG 7009	Parkinson, W. H.	11	2105
HQ-SG	Weldon, J. M.	HARVARD UNIVERSITY	NSG 7018	Noyes, R. W.	11	2106
HQ-SG	Bogges, N. W.	INDIANA U-BLOOMINGTN	NGL 15-003-002	Johnson, H. R.	11	1864
HQ-SG	Dubin, M.	JOHNS HOPKINS UNIV	NGR 21-001-001	Fastie, W. G.	11	1999
HQ-SG	Kavanagh, L. D., Jr.	JOHNS HOPKINS UNIV	NGR 21-001-119	Krimigis, S. M.	32	2004
HQ-SG	Kavanagh, L. D., Jr.	JOHNS HOPKINS UNIV	NSG 7055	Bostrom, C.	13	2006
HQ-SG	Opp, A. G.	LA STATE U-BAT ROUGE	NGR 19-001-012	Huggett, R. W.	11	1969
HQ-SG	Opp, A. G.	MASS INST OF TECH	NGL 22-009-015	Bridge, H. S.	13	2142
HQ-SG	Roman, N. G.	MASS INST OF TECH	NGR 22-009-366	Shapiro, I. I.	31	2164
HQ-SG	Bogges, N. W.	MASS INST OF TECH	NGR 22-009-526	Weiss, R.	11	2169
HQ-SG	Dubin, M.	MASS INST OF TECH	NGR 22-009-583	McCord, T. B.	11	2173
HQ-SG	Roman, N. G.	MASS INST OF TECH	NGR 22-009-730	Bradt, H.	11	2189
HQ-SG	Roman, N. G.	MASS INST OF TECH	NGR 22-009-785	Clark, G. W.	13	2197
HQ-SG	Kavanagh, L. D., Jr.	MASS INST OF TECH	NGR 22-009-786	Bridge, H. S.	13	2198
HQ-SG	Roman, N. G.	MONTANA STATE UNIV	NGR 27-001-040	Nordivedt, K., Jr.	11	2381
HQ-SG	Roman, N. G.	NEW MEX ST U-LAS CR	NGL 32-003-069	Liefeld, R. J.	11	2469
HQ-SG	Kelsall, T.	NEW YORK UNIVERSITY	NGR 33-016-196	Glassgold, A. E.	11	2587
HQ-SG	Dubin, M.	NO CAROLINA STATE U	NGR 34-002-196	Manring, E. R.	11	2680
HQ-SG	Bogges, N. W.	NORTHWESTERN UNIV	NGL 14-007-041	Huang, S. S.	11	1792
HQ-SG	Roman, N. G.	NORTHWESTERN UNIV	NGR 14-007-122	Bahng, J. D.	11	1798
HQ-SG	Schmerling, E. R.	PENNSYLVANIA STATE U	NGL 39-009-002	Ross, W. J.	13	2825
HQ-SG	Schmerling, E. R.	PENNSYLVANIA STATE U	NGL 39-009-003	Nisbet, J. S.	13	2826
HQ-SG	Schmerling, E. R.	PENNSYLVANIA STATE U	NGL 39-009-032	Kendall, B. R.	19	2830
HQ-SG	Kavanagh, L. D., Jr.	PENNSYLVANIA STATE U	NGR 39-009-218	Hale, L. C.	13	2839
HQ-SG	Kavanagh, L. D., Jr.	POLY INST OF NY	NGR 33-006-047	Gross, S. H.	13	2592
HQ-SG	Rosendhal, J. D.	PRINCETON UNIVERSITY	NGL 31-001-007	Spitzer, L., Jr.	11	2422
HQ-SG	Roman, N. G.	PRINCETON UNIVERSITY	NGR 31-001-001	Millich, F.	11	2429
HQ-SG	Sures, A. H.	PRINCETON UNIVERSITY	NGR 31-001-142	Danielson, R. E.	11	2430
HQ-SG	Sures, A. H.	PRINCETON UNIVERSITY	NGR 31-001-236	Spitzer, L., Jr.	11	2438
HQ-SG	Roman, N. G.	PRINCETON UNIVERSITY	NSR 31-001-127	Spitzer, L.	11	2450
HQ-SG	Sures, A. H.	PRINCETON UNIVERSITY	NSR 31-001-259	Morton, D. C.	11	2451
HQ-SG	Roman, N. G.	PRINCETON UNIVERSITY	NSR 31-001-901	Lowrance, J. L.	11	2454
HQ-SG	Roman, N. G.	PURDUE UNIVERSITY	NGL 15-005-003	Andrew, K. L.	11	1878
HQ-SG	Dubin, M.	RENSSELAER POLY-NY	NGL 33-018-017	Hudson, J. B.	11	2602
HQ-SG	Kavanagh, L. D., Jr.	RICE UNIVERSITY	NGL 44-006-012	Stebbing, R. F.	13	2971
HQ-SG	Kavanagh, L. D., Jr.	RICE UNIVERSITY	NGR 44-006-137	Dessler, A. J.	13	2973
HQ-SG	Opp, A. G.	RICE UNIVERSITY	NSG 7015	Clayton, D. D.	11	2978
HQ-SG	Dubin, M.	RUTGERS UNIV-NEWARK	NGR 31-004-049	Carroll, B.	13	2455
HQ-SG	Oertel, G. K.	SACRAMENTO CITY COL	NGR 05-084-002	Vorpahl, J. A.	11	1237
HQ-SG	Kavanagh, L. D., Jr.	STANFORD UNIVERSITY	NGL 05-020-008	Helliwell, R. A.	13	1259
HQ-SG	Kavanagh, L. D., Jr.	STANFORD UNIVERSITY	NGL 05-020-176	Crawford, F. W.	13	1263
HQ-SG	Weldon, J. M.	STANFORD UNIVERSITY	NGL 05-020-272	Sturrock, P. A.	13	1267
HQ-SG	Kavanagh, L. D., Jr.	STANFORD UNIVERSITY	NGR 05-020-001	Darosa, A. V.	31	1273
HQ-SG	Kavanagh, L. D., Jr.	STANFORD UNIVERSITY	NGR 05-020-407	Croft, T. A.	19	1278
HQ-SG	Opp, A. G.	STANFORD UNIVERSITY	NGR 05-020-452	Hofstadter, R.	11	1280
HQ-SG	Bogges, N. W.	STANFORD UNIVERSITY	NGR 05-020-510	Petrosian, V.	11	1282
HQ-SG	Weldon, J. M.	STANFORD UNIVERSITY	NGR 05-020-559	Wilcox, J. M.	11	1284
HQ-SG	Roman, N. G.	STANFORD UNIVERSITY	NGR 05-020-668	Sturrock, P. A.	11	1297
HQ-SG	Weldon, J. M.	STANFORD UNIVERSITY	NGR 05-020-695	Walker, A. B.	11	1301
HQ-SG	Roman, N. G.	ST U NY COL-GENESE	NGR 33-219-002	Meisel, D. D.	11	2642
HQ-SG	Weldon, J. M.	STATE U NY-STONY BRK	NGR 33-015-068	Stroke, G. W.	13	2624
HQ-SG	Opp, A. G.	STATE U NY-STONY BRK	NGR 33-015-180	Forman, M. A.	11	2633
HQ-SG	Weldon, J. M.	STATE U NY-STONY BRK	NSG 7003	Stroke, G. W.	45	2637
HQ-SG	Dubin, M.	TEMPLE UNIVERSITY	NGR 39-012-001	Bohn, J. L.	11	2846
HQ-SG	Oertel, G. K.	UNIV ALA-HUNTSVILLE	NGR 01-008-015	Rao, G. L.	11	1062
HQ-SG	Kavanagh, L. D., Jr.	UNIV ALASKA-FAIRBNKS	NGR 02-001-001	Akasofu, S. I.	13	1085
HQ-SG	Kavanagh, L. D., Jr.	UNIV ALASKA-FAIRBNKS	NGR 02-001-087	Davis, T. N.	13	1086
HQ-SG	Dubin, M.	UNIV ALASKA-FAIRBNKS	NGR 02-001-088	Wescott, E. M.	31	1087

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HQ-SG	Kavanagh, L. D., Jr.	UNIV ALASKA-FAIRBANKS	NSG 7051	Akasofu, S. I.	13	1090
HQ-SG	Aucremagne, M. J.	UNIV OF ARIZONA	NASW 2283	Meinel, A. B.	42	1114
HQ-SG	Roman, N. G.	UNIV OF ARIZONA	NGL 03-002-017	Bashkin, S.	11	1118
HQ-SG	Roman, N. G.	UNIV OF ARIZONA	NGL 03-002-032	Tift, W. G.	11	1120
HQ-SG	Dubin, M.	UNIV OF ARIZONA	NGL 03-002-081	Gehrels, A. M.	11	1121
HQ-SG	Opp, A. G.	UNIV OF ARIZONA	NGR 03-002-071	Bowen, T.	11	1125
HQ-SG	Kavanagh, L. D., Jr.	UNIV OF ARIZONA	NGR 03-002-107	Fan, C. Y.	19	1126
HQ-SG	Bogges, N. W.	UNIV OF ARIZONA	NGR 03-002-269	Low, F. J.	11	1133
HQ-SG	Sobieski, S.	UNIV OF ARIZONA	NGR 03-002-309	Weymann, R. J.	11	1134
HQ-SG	Bogges, N. W.	UNIV OF ARIZONA	NGR 03-002-371	Hoffman, W. F.	11	1141
HQ-SG	Kavanagh, L. D., Jr.	UNIV OF ARIZONA	NSG 7024	Sonett, C. P.	31	1152
HQ-SG	Schmerling, E. R.	UNIV OF AUCKLAND	NGR 52-001-001	Titheridge, J. E.	31	3377
HQ-SG	Kavanagh, L. D., Jr.	UNIV CALIF-BERKELEY	NGL 05-003-017	Anderson, K. A.	13	1333
HQ-SG	Roman, N. G.	UNIV CALIF-BERKELEY	NGL 05-003-272	Townes, C. H.	19	1336
HQ-SG	Kavanagh, L. D., Jr.	UNIV CALIF-BERKELEY	NGR 05-003-239	Anderson, K. A.	13	1342
HQ-SG	Dubin, M.	UNIV CALIF-BERKELEY	NGR 05-003-309	Cunningham, L. E.	31	1344
HQ-SG	Opp, A. G.	UNIV CALIF-BERKELEY	NGR 05-003-376	Price, P. B.	11	1345
HQ-SG	Bogges, N. W.	UNIV CALIF-BERKELEY	NGR 05-003-402	Townes, C. H.	11	1346
HQ-SG	Dubin, M.	UNIV CALIF-BERKELEY	NGR 05-003-445	Mozer, F. S.	31	1350
HQ-SG	Roman, N. G.	UNIV CALIF-BERKELEY	NGR 05-003-450	Bowyer, C. S.	11	1351
HQ-SG	Kelsall, T.	UNIV CALIF-BERKELEY	NGR 05-003-453	Silk, J. I.	11	1354
HQ-SG	Kavanagh, L. D., Jr.	UNIV CALIF-BERKELEY	NGR 05-003-480	Mozer, F. S.	13	1360
HQ-SG	Weldon, J. M.	UNIV CALIF-BERKELEY	NGR 05-003-499	Phillips, J. G.	11	1361
HQ-SG	Oertel, G. K.	UNIV CALIF-BERKELEY	NGR 05-003-510	Anderson, K. A.	11	1362
HQ-SG	Opp, A. G.	UNIV CALIF-BERKELEY	NGR 05-003-513	Heckman, H. H.	11	1364
HQ-SG	Opp, A. G.	UNIV CALIF-BERKELEY	NGR 05-003-553	Alvarez, L. W.	11	1366
HQ-SG	Kelsall, T.	UNIV CALIF-BERKELEY	NGR 05-003-578	Silk, J. I.	11	1369
HQ-SG	Mead, G.	UNIV CALIF-DAVIS	NGR 05-004-006	McIlwain, C. E.	32	1384
HQ-SG	Kavanagh, L. D., Jr.	UNIV CALIF-L ANGELES	NGL 05-007-004	Coleman, P. J., Jr.	13	1406
HQ-SG	Dubin, M.	UNIV CALIF-L ANGELES	NGL 05-007-005	Wetherill, G. W.	11	1407
HQ-SG	Weldon, J. M.	UNIV CALIF-L ANGELES	NGL 05-007-046	Alley, L. H.	11	1409
HQ-SG	Kavanagh, L. D., Jr.	UNIV CALIF-L ANGELES	NGL 05-007-190	Kennel, C. F.	13	1410
HQ-SG	Kavanagh, L. D., Jr.	UNIV CALIF-L ANGELES	NGR 05-007-276	Holzer, R. E.	13	1419
HQ-SG	Berks, F. W.	UNIV CALIF-L ANGELES	NSG 7008	Russell, C. T.	13	1440
HQ-SG	Opp, A. G.	UNIV CALIF-RIVERSIDE	NGR 05-008-022	White, R. S.	11	1444
HQ-SG	Opp, A. G.	UNIV CALIF-SAN DIEGO	NGL 05-005-003	Peterson, L. E.	13	1452
HQ-SG	Bogges, N. W.	UNIV CALIF-SAN DIEGO	NGL 05-005-004	Burbidge, G. R.	11	1453
HQ-SG	Kavanagh, L. D., Jr.	UNIV CALIF-SAN DIEGO	NGL 05-005-007	McIlwain, C. E.	13	1454
HQ-SG	Bogges, N. W.	UNIV CALIF-SAN DIEGO	NGL 05-009-230	Stein, W. A.	11	1464
HQ-SG	Schmerling, E. R.	UNIV CALIF-SAN DIEGO	NGR 05-009-075	Banks, P. M.	31	1467
HQ-SG	Schmerling, E. R.	UNIV CALIF-SAN DIEGO	NGR 05-009-076	Fejer, J. A.	13	1468
HQ-SG	Kavanagh, L. D., Jr.	UNIV CALIF-SAN DIEGO	NGR 05-009-081	Axford, W. I.	13	1469
HQ-SG	Aucremagne, M. J.	UNIV CALIF-SAN DIEGO	NGR 05-009-188	McIlwain, C. E.	11	1474
HQ-SG	Weldon, J. M.	UNIV CALIF-SAN DIEGO	NGR 05-009-226	Penner, S. S.	13	1479
HQ-SG	Schmerling, E. R.	UNIV CALIF-SAN DIEGO	NGR 05-009-256	Banks, P. M.	19	1482
HQ-SG	Schmerling, E. R.	UNIV CALIF-SAN DIEGO	NSG 7001	Doupnik, J. R.	31	1486
HQ-SG	Bogges, N. W.	UNIV CALIF-S CRUZ	NGR 05-061-015	Rank, D. M.	11	1494
HQ-SG	Opp, A. G.	UNIV OF CHICAGO	NGL 14-001-001	Parker, E. N.	11	1812
HQ-SG	Opp, A. G.	UNIV OF CHICAGO	NGL 14-001-005	Meyer, P.	11	1813
HQ-SG	Opp, A. G.	UNIV OF CHICAGO	NGL 14-001-006	Simpson, J. A.	11	1814
HQ-SG	Dubin, M.	UNIV OF CHICAGO	NGL 14-001-060	Adams, T.	11	1817
HQ-SG	Kelsall, T.	UNIV OF CHICAGO	NGR 14-001-147	Adams, T.	11	1824
HQ-SG	Weldon, J. M.	UNIV OF CHICAGO	NGR 14-001-164	Blake, R. L.	11	1825
HQ-SG	Weldon, J. M.	UNIV COLORADO-BOLDR	NGL 06-003-057	Hummer, D. G.	11	1558
HQ-SG	Dubin, M.	UNIV COLORADO-BOLDR	NGL 06-003-064	Barth, C. A.	31	1559
HQ-SG	Weldon, J. M.	UNIV COLORADO-BOLDR	NGR 06-003-069	Bruner, E. C.	11	1561
HQ-SG	Kavanagh, L. D., Jr.	UNIV COLORADO-BOLDR	NGR 06-003-092	Speiser, T. W.	13	1562
HQ-SG	Roman, N. G.	UNIV COLORADO-BOLDR	NGR 06-003-176	Lillie, C. F.	11	1565

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HQ-SG	Roman, N. G.	UNIV COLORADO-BOLDR	NGR 06-003-179	Lillie, C. F.	11	1566
HQ-SG	Calahan, H. D.	UNIV COLORADO-BOLDR	NGR 06-003-215	Speiser, T. W.	13	1572
HQ-SG	Calahan, H. D.	UNIV COLORADO-BOLDR	NGR 06-003-216	Linsky, J. L.	11	1573
HQ-SG	Dubin, M.	UNIV COLORADO-BOLDR	NGR 06-003-222	Lillie, C. F.	11	1575
HQ-SG	Kavanagh, L. D., Jr.	UNIV OF DENVER	NGR 06-004-058	Patel, V. L.	13	1586
HQ-SG	Kavanagh, L. D., Jr.	UNIV OF DENVER	NGR 06-004-060	Roederer, J. G.	13	1587
HQ-SG	Calahan, H. D.	UNIV OF DENVER	NGR 06-004-123	Patel, V. L.	13	1588
HQ-SG	Oertel, G. K.	UNIV OF FLORIDA	NGL 10-005-049	Schneider, R. T.	49	1695
HQ-SG	Hallenbeck, D. R.	UNIV OF FLORIDA	NGR 10-005-176	Carr, T. D.	11	1701
HQ-SG	Weldon, J. M.	UNIV OF HAWAII	NGL 12-001-011	Jefferies, J. T.	11	1777
HQ-SG	Weldon, J. M.	UNIV OF HAWAII	NGR 12-001-075	Jefferies, J. T.	11	1780
HQ-SG	Bogges, N. W.	UNIV OF HAWAII	NGR 12-001-111	Jefferies, J. T.	11	1783
HQ-SG	Schmerling, E. R.	UNIV OF HOUSTON	NGR 44-005-133	Sheldon, W. R.	39	3042
HQ-SG	Schmerling, E. R.	UNIV ILLINOIS-URBANA	NGR 14-005-002	Yeh, K. C.	31	1841
HQ-SG	Schmerling, E. R.	UNIV ILLINOIS-URBANA	NGR 14-005-181	Bowhill, S. A.	19	1847
HQ-SG	Rosendhal, J. D.	UNIV ILLINOIS-URBANA	NSG 7030	Swenson, G. W.	11	1858
HQ-SG	Kavanagh, L. D., Jr.	UNIV OF IOWA	NGL 16-001-002	Van Allen, J. A.	13	1917
HQ-SG	Schmerling, E. R.	UNIV OF IOWA	NGL 16-001-043	Montgomery, D. C.	13	1918
HQ-SG	Roman, N. G.	UNIV MARYLAND-BALT	NGR 21-002-010	Misner, C. W.	11	2011
HQ-SG	Kavanagh, L. D., Jr.	UNIV MARYLAND-COL PK	NGL 21-002-005	Wu, C. S.	19	2016
HQ-SG	Dubin, M.	UNIV MARYLAND-COL PK	NGR 21-002-002	Opik, E. J.	11	2021
HQ-SG	Weldon, J. M.	UNIV MARYLAND-COL PK	NGR 21-002-007	Wilkerson, T. D.	11	2022
HQ-SG	Opp, A. G.	UNIV MARYLAND-COL PK	NGR 21-002-066	Earl, J. A.	11	2023
HQ-SG	Rosendhal, J. D.	UNIV MARYLAND-COL PK	NGR 21-002-073	Griem, H. R.	11	2024
HQ-SG	Weldon, J. M.	UNIV MARYLAND-COL PK	NGR 21-002-199	Kundu, M. R.	11	2027
HQ-SG	Dubin, M.	UNIV MARYLAND-COL PK	NGR 21-002-219	Poultney, S. K.	31	2028
HQ-SG	Opp, A. G.	UNIV MARYLAND-COL PK	NGR 21-002-224	Gloeckler, G.	11	2029
HQ-SG	Bogges, N. W.	UNIV MARYLAND-COL PK	NGR 21-002-301	Currie, D. G.	11	2035
HQ-SG	Kavanagh, L. D., Jr.	UNIV MARYLAND-COL PK	NGR 21-002-386	Mathews, D. L.	11	2046
HQ-SG	Weldon, J. M.	UNIV OF MASS-AMHERST	NGL 22-010-025	Strong, J.	11	2226
HQ-SG	Weldon, J. M.	UNIV OF MASS-AMHERST	NGR 22-010-039	Hueuenin, G. R.	11	2228
HQ-SG	Weldon, J. M.	UNIV MICH-ANN ARBOR	NGL 23-005-275	Mohler, O. C.	11	2265
HQ-SG	Schmerling, E. R.	UNIV MICH-ANN ARBOR	NGR 23-005-015	Nagy, A. F.	31	2267
HQ-SG	Kavanagh, L. D., Jr.	UNIV MICH-ANN ARBOR	NGR 23-005-320	Samir, U.	13	2270
HQ-SG	Kavanagh, L. D., Jr.	UNIV MICH-ANN ARBOR	NGR 23-005-360	Sharp, W. E.	13	2271
HQ-SG	Bogges, N. W.	UNIV MICH-ANN ARBOR	NGR 23-005-464	Hiltner, W. A.	11	2272
HQ-SG	Dubin, M.	UNIV MICH-ANN ARBOR	NGR 23-005-540	Bartman, F. L.	31	2278
HQ-SG	Weldon, J. M.	UNIV MICH-ANN ARBOR	NGR 23-005-543	Teske, R. G.	11	2279
HQ-SG	Oertel, G. K.	UNIV MICH-ANN ARBOR	NGR 23-005-549	Haddock, F. T.	11	2280
HQ-SG	Oertel, G. K.	UNIV MICH-ANN ARBOR	NSG 7004	Haddock, F. T.	11	2293
HQ-SG	Kavanagh, L. D., Jr.	U MINN-MNPLS-ST PAUL	NGL 24-005-008	Winckler, J. R.	13	2312
HQ-SG	Opp, A. G.	U MINN-MNPLS-ST PAUL	NGR 24-005-050	Waddington, C. J.	11	2318
HQ-SG	Kavanagh, L. D., Jr.	U MINN-MNPLS-ST PAUL	NGR 24-005-111	Winckler, J. R.	13	2319
HQ-SG	Dubin, M.	U MINN-MNPLS-ST PAUL	NGR 24-005-196	Nier, A. O.	11	2320
HQ-SG	Kavanagh, L. D., Jr.	U MINN-MNPLS-ST PAUL	NGR 24-005-253	Cabill, L. J., Jr.	13	2323
HQ-SG	Kavanagh, L. D., Jr.	U MINN-MNPLS-ST PAUL	NSG 7005	Winckler, J. R.	13	2330
HQ-SG	Roman, N. G.	U MINN-MNPLS-ST PAUL	NSR 24-005-245	Luyten, W. J.	11	2332
HQ-SG	Weldon, J. M.	UNIV NEW HAMPSHIRE	NGL 30-002-018	Chupp, E. L.	11	2401
HQ-SG	Opp, A. G.	UNIV NEW HAMPSHIRE	NGL 30-002-021	Chupp, E. L.	11	2402
HQ-SG	Opp, A. G.	UNIV NEW HAMPSHIRE	NGR 30-002-052	Webber, W. R.	11	2403
HQ-SG	Kavanagh, L. D., Jr.	UNIV NEW HAMPSHIRE	NGR 30-002-054	Arnoldy, R. L.	13	2404
HQ-SG	Calahan, H. D.	UNIV NEW HAMPSHIRE	NGR 30-002-097	Roelof, E. C.	13	2405
HQ-SG	Weldon, J. M.	UNIV NEW HAMPSHIRE	NGR 30-002-104	Chupp, E. L.	11	2406
HQ-SG	Dubin, M.	UNIV OF NEW MEXICO	NGR 32-004-068	Peterson, A. W.	11	2483
HQ-SG	Calahan, H. D.	UNIV OF NEW MEXICO	NGR 32-004-086	Ahluwalia, H. S.	13	2484
HQ-SG	Dubin, M.	UNIV OF PITTSBURGH	NGR 39-011-113	Donahue, T. M.	31	2862
HQ-SG	Sobieski, S.	UNIV OF PITTSBURGH	NGR 39-011-150	Gerjuoy, E.	11	2866
HQ-SG	Weldon, J. M.	UNIV OF ROCHESTER	NGR 33-019-126	Clark, A.	11	2650

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HQ-SG	Kavanagh, L. D., Jr.	UNIV OF SOUTHERN CAL	NGR 05-018-181	Intriligator, D. S.	13	1520
HQ-SG	Kavanagh, L. D., Jr.	UNIV OF SOUTHERN CAL	NGR 05-018-185	Intriligator, D. S.	13	1521
HQ-SG	Weldon, J. M.	UNIV TENNESSEE-KNOXV	NSG 7049	Sellin, I. A.	11	2932
HQ-SG	Bogges, N. W.	UNIV TEXAS-AUSTIN	NGR 44-012-209	Vanden Bout, P. A.	11	3068
HQ-SG	Weldon, J. M.	UNIV TEXAS-AUSTIN	NGR 44-012-215	Lambert, D. L.	11	3069
HQ-SG	Weldon, J. M.	UNIV TEXAS-AUSTIN	NGR 44-012-258	Bengston, R. D.	13	3076
HQ-SG	Schmerling, E. R.	UNIV TEXAS-DALLAS	NGR 44-004-030	Heikkila, W. J.	31	3101
HQ-SG	Kavanagh, L. D., Jr.	UNIV TEXAS-DALLAS	NGR 44-004-120	Hanson, W. B.	13	3103
HQ-SG	Opp, A. G.	UNIV TEXAS-DALLAS	NGR 44-004-121	McCracken, K. G.	11	3104
HQ-SG	Schmerling, E. R.	UNIV TEXAS-DALLAS	NGR 44-004-124	Heikkila, W. J.	31	3105
HQ-SG	Opp, A. G.	UNIV TEXAS-DALLAS	NGR 44-004-133	Allum, F. R.	11	3106
HQ-SG	Dubin, M.	UNIV TEXAS-DALLAS	NGR 44-004-142	Tinsley, B. A.	19	3107
HQ-SG	Schmerling, E. R.	UNIV TEXAS-DALLAS	NGR 44-004-150	Heikkila, W. J.	31	3108
HQ-SG	Dubin, M.	UNIV OF TOLEDO	NGR 36-010-022	Witt, A. D.	11	2763
HQ-SG	Roman, N. G.	UNIV OF TOLEDO	NSG 7041	Witt, A. N.	11	2767
HQ-SG	Roman, N. G.	UNIV OF VIRGINIA	NGL 47-005-066	Frederick, L. W.	11	3220
HQ-SG	Dubin, M.	UNIV OF WASHINGTON	NGR 48-002-033	Hodge, P. W.	11	3291
HQ-SG	Calahan, H. D.	UNIV OF WASHINGTON	NGR 48-002-154	Parks, G. K.	13	3303
HQ-SG	Rosendhal, J. D.	UNIV WISC-MADISON	NGL 50-002-013	Code, A. D.	11	3334
HQ-SG	Roman, N. G.	UNIV WISC-MADISON	NGL 50-002-044	Kraushaar, W. L.	11	3335
HQ-SG	Kavanagh, L. D., Jr.	UNIV WISC-MADISON	NGR 50-002-162	Scherb, F.	13	3343
HQ-SG	Bogges, N. W.	UNIV WISC-MADISON	NSG 7033	Scherb, F.	11	3353
HQ-SG	Hallenbeck, D. R.	UNIV OF WYOMING	NGR 51-001-033	Hoffman, D. J.	13	3361
HQ-SG	Opp, A. G.	UNIV OF WYOMING	NGR 51-001-035	Tompkins, D. R., Jr.	13	3362
HQ-SG	Kavanagh, L. D., Jr.	WASHINGTON UNIVERSTY	NGL 26-008-057	Abrahamshrauner, B.	13	2375
HQ-SG	Opp, A. G.	WASHINGTON UNIVERSTY	NGR 26-008-001	Klarman, J.	11	2377
HQ-SG	Bogges, N. W.	WASHINGTON UNIVERSTY	NGR 26-008-069	Friedlander, M. W.	11	2378
HQ-SG	Roman, N. G.	WESLEYAN UNIVERSITY	NGR 07-006-004	Page, T.	11	1604
HQ-SG	Schmerling, E. R.	YALE UNIVERSITY	NGR 07-004-109	Walker, J. C.	31	1613
HQ-SL	Young, R. S.	BOSTON UNIVERSITY	NGR 22-004-025	Margulis, L.	32	2074
HQ-SL	Brunk, W. E.	BRIGHAM YOUNG UNIV	NGR 45-001-032	Jones, D. E.	11	3129
HQ-SL	Dwornik, S. E.	BROWN UNIVERSITY	NGR 40-002-088	Mutch, T. A.	32	2878
HQ-SL	Brunk, W. E.	CALIF INST OF TECH	NGL 05-002-003	Muhleman, D. O.	11	1175
HQ-SL	Brunk, W. E.	CALIF INST OF TECH	NGL 05-002-140	Munch, G.	11	1184
HQ-SL	Brunk, W. E.	CALIF INST OF TECH	NGR 05-002-114	Muhleman, D. O.	11	1191
HQ-SL	Dwornik, S. E.	CALIF INST OF TECH	NGR 05-002-117	Murray, B. C.	32	1192
HQ-SL	Young, R. S.	CALIF INST OF TECH	NGR 05-002-121	Horowitz, N. H.	51	1193
HQ-SL	Dwornik, S. E.	CALIF INST OF TECH	NGR 05-002-181	Leighton, R. B.	32	1198
HQ-SL	Brunk, W. E.	CALIF INST OF TECH	NGR 05-002-185	Westphal, J. A.	11	1199
HQ-SL	Dwornik, S. E.	CALIF INST OF TECH	NGR 05-002-302	Shoemaker, E. M.	32	1206
HQ-SL	Dwornik, S. E.	CALIF INST OF TECH	NGR 05-002-303	Shoemaker, E. M.	32	1207
HQ-SL	Dwornik, S. E.	CALIF INST OF TECH	NGR 05-002-305	Murray, B. C.	32	1208
HQ-SL	Young, R. S.	CALIF INST OF TECH	NGR 05-002-310	Bonner, J.	32	1210
HQ-SL	Dwornik, S. E.	CALIF INST OF TECH	NGR 05-002-316	Anderson, D. L.	32	1211
HQ-SL	Young, R. S.	CAL STATE U-FULLERTN	NGR 05-071-008	Wegner, P. A.	12	1221
HQ-SL	Tarver, P.	CORNELL UNIVERSITY	NASW 2366	Wehe, R. L.	42	2534
HQ-SL	Raring, R. H.	CORNELL UNIVERSITY	NASW 2445	Unavailable	32	2535
HQ-SL	Tarver, P.	CORNELL UNIVERSITY	NASW 2573	Wehe, R. L.	49	2536
HQ-SL	Fellows, R. F.	CORNELL UNIVERSITY	NGL 33-010-082	Sagan, C.	31	2543
HQ-SL	Fellows, R. F.	CORNELL UNIVERSITY	NGL 33-010-186	Gierasch, P. J.	31	2545
HQ-SL	Young, R. S.	CORNELL UNIVERSITY	NGR 33-010-101	Sagan, C.	12	2548
HQ-SL	Geib, D. S.	CORNELL UNIVERSITY	NGR 33-010-127	Duxbury, J. M.	51	2550
HQ-SL	Fellows, R. F.	CORNELL UNIVERSITY	NGR 33-010-161	Brice, N. M.	13	2554
HQ-SL	Brunk, W. E.	CORNELL UNIVERSITY	NGR 33-010-210	Harwit, M. O.	45	2563
HQ-SL	Dwornik, S. E.	CORNELL UNIVERSITY	NGR 33-010-220	Sagan, C.	32	2564
HQ-SL	Young, R. S.	FLORIDA STATE UNIV	NGR 10-004-041	Larock, P. A.	51	1681
HQ-SL	Brunk, W. E.	FLORIDA STATE UNIV	NGR 10-004-056	Hunt, R. H.	11	1682
HQ-SL	Fellows, R. F.	GEORGIA INST OF TECH	NGL 11-002-004	Edwards, H. D.	31	1738

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-SL	Dwornik, S. E.	HAMILTON COLLEGE	NGR 33-192-001	Potter, D. B.	32	2568
HQ-SL	Hall, L. B.	HARDIN-SIMMONS UNIV	NGR 44-095-001	Foster, T. L.	51	2951
HQ-SL	Young, R. S.	HARVARD UNIVERSITY	NGL 22-007-069	Barghoorn, E. S.	32	2084
HQ-SL	Fellows, R. F.	HARVARD UNIVERSITY	NGL 22-007-228	Goody, R. M.	31	2087
HQ-SL	Fellows, R. F.	HARVARD UNIVERSITY	NGR 22-007-242	Goody, R. M.	31	2093
HQ-SL	Fellows, R. F.	HARVARD UNIVERSITY	NGR 22-007-267	McElroy, M. B.	31	2096
HQ-SL	Dwornik, S. E.	HARVARD UNIVERSITY	NGR 22-007-269	Cameron, A. G.	32	2097
HQ-SL	Young, R. S.	INDIANA U-BLOOMINGTN	NGR 15-003-118	Hayes, J. M.	32	1869
HQ-SL	Mitz, M. A.	JOHNS HOPKINS UNIV	NGR 21-001-097	Krimigis, S. M.	13	2002
HQ-SL	Fellows, R. F.	KANSAS STATE UNIV	NGL 17-001-026	Williams, D.	31	1919
HQ-SL	Brunk, W. E.	MASS INST OF TECH	NGL 22-009-016	Barrett, A. H.	32	2143
HQ-SL	Fellows, R. F.	MASS INST OF TECH	NGL 22-009-521	Lewis, J. S.	31	2153
HQ-SL	Young, R. S.	MASS INST OF TECH	NGR 22-009-005	Biemann, K.	51	2157
HQ-SL	Young, R. S.	MASS INST OF TECH	NGR 22-009-277	Rich, A.	12	2161
HQ-SL	Brunk, W. E.	MASS INST OF TECH	NGR 22-009-473	McCord, T. B.	11	2167
HQ-SL	Dwornik, S. E.	MASS INST OF TECH	NGR 22-009-625	Thomas, T. B.	32	2176
HQ-SL	Dwornik, S. E.	MASS INST OF TECH	NGR 22-009-637	McGetchin, T. R.	32	2178
HQ-SL	Brunk, W. E.	MASS INST OF TECH	NGR 22-009-672	Pettengill, G. H.	11	2181
HQ-SL	Fellows, R. F.	MASS INST OF TECH	NGR 22-009-693	Pettengill, G. H.	31	2182
HQ-SL	Fellows, R. F.	MASS INST OF TECH	NGR 22-009-694	Shapiro, I. I.	31	2183
HQ-SL	Fellows, R. F.	MASS INST OF TECH	NGR 22-009-804	Shapiro, I. I.	31	2202
HQ-SL	Young, R. S.	MICHIGAN STATE UNIV	NGR 23-004-069	Erickson, A. E.	51	2239
HQ-SL	Brunk, W. E.	NEW MEX ST U-LAS CR	NGL 32-003-001	Smith, B. A.	11	2468
HQ-SL	Dwornik, S. E.	NEW MEX ST U-LAS CR	NGR 32-003-075	Smith, B. A.	32	2470
HQ-SL	Fellows, R. F.	NEW MEX ST U-LAS CR	NGR 32-003-076	Smith, B. A.	31	2471
HQ-SL	Hall, L. B.	NO DAKOTA STATE UNIV	NGR 35-001-012	Hill, T. W.	12	2687
HQ-SL	Geib, D. S.	OREGON STATE UNIV	NGR 38-002-013	Curl, C. H.	51	2783
HQ-SL	Young, R. S.	PENNSYLVANIA STATE U	NGR 39-009-180	Casida, L. E., Jr.	51	2835
HQ-SL	Fellows, R. F.	POLY INST OF NY	NGR 33-006-068	Gross, S. H.	13	2593
HQ-SL	Young, R. S.	POLY INST OF NY	NGR 33-006-070	Eirich, F. R.	12	2594
HQ-SL	Brunk, W. E.	PRINCETON UNIVERSITY	NGR 31-001-242	Smith, W. H.	11	2439
HQ-SL	Brunk, W. E.	PRINCETON UNIVERSITY	NSG 7053	Danielson, R. E.	11	2449
HQ-SL	Tarver, P.	PRINCETON UNIVERSITY	NSR 31-001-313	Layton, J. P.	42	2453
HQ-SL	Fellows, R. F.	RENSSELAER POLY-NY	NGL 33-018-007	Harteck, P.	31	2601
HQ-SL	Tarver, P.	RENSSELAER POLY-NY	NGL 33-018-091	Yerazunis, S. W.	49	2603
HQ-SL	Geib, D. S.	RENSSELAER POLY-NY	NGR 33-018-148	Ferris, J. P.	12	2604
HQ-SL	Young, R. S.	RENSSELAER POLY-NY	NSG 7065	Wedler, F. C.	51	2610
HQ-SL	Fellows, R. F.	RICE UNIVERSITY	NSG 7043	Chamberlain, J. W.	31	2981
HQ-SL	Fellows, R. F.	ST LOUIS UNIVERSITY	NGR 26-006-042	Pailman, A. J.	11	2357
HQ-SL	Young, R. S.	SO ILL UNIV-CARBONDL	NGR 14-008-026	Yopp, J. H.	51	1803
HQ-SL	Fellows, R. F.	STANFORD UNIVERSITY	NGL 05-020-014	Howard, H. T.	31	1260
HQ-SL	Young, R. S.	STANFORD UNIVERSITY	NGR 05-020-004	Lederberg, J.	51	1274
HQ-SL	Brunk, W. E.	STANFORD UNIVERSITY	NGR 05-020-644	Bracewell, R. N.	11	1293
HQ-SL	Holt, H. E.	STANFORD UNIVERSITY	NGR 05-020-649	Howard, H. T.	32	1294
HQ-SL	Geib, D.	STATE UNIV NY-BUFFAL	NGR 33-015-002	Danielli, J. F.	12	2617
HQ-SL	Dwornik, S. E.	STATE UNIV NY-BUFFAL	NGR 33-015-108	King, J. S.	32	2618
HQ-SL	Fellows, R. F.	STATE U NY-STONY BRK	NGR 33-015-139	Varanasi, P.	31	2625
HQ-SL	Brunk, W. E.	STATE U NY-STONY BRK	NGR 33-015-141	Owen, T.	11	2627
HQ-SL	Geib, D. S.	STATE U NY-STONY BRK	NGR 33-015-169	Owen, T.	12	2632
HQ-SL	Fellows, R. F.	TEXAS A&M UNIVERSITY	NGR 44-001-117	Plass, G. N.	31	3012
HQ-SL	Dwornik, S. E.	TULANE UNIVERSITY	NGR 19-002-038	Meyer, J. D.	32	1983
HQ-SL	Young, R. S.	UNIV ALA-BIRMINGHAM	NGR 01-010-001	Lacey, J. C., Jr.	12	1035
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NASR 138	Gehrels, A. M.	31	1113
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NGL 03-002-002	Kuiper, G. P.	11	1116
HQ-SL	Fellows, R. F.	UNIV OF ARIZONA	NGL 03-002-019	Hoening, S. A.	31	1119
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NGL 03-002-122	Roemer, E.	11	1122
HQ-SL	Young, R. S.	UNIV OF ARIZONA	NGR 03-002-171	Nagy, B.	32	1128
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NGR 03-002-219	Gehrels, A. M.	11	1131

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NGR 03-002-356	Low, F. J.	11	1138
HQ-SL	Dwornik, S. E.	UNIV OF ARIZONA	NGR 03-002-370	Sonett, C. P.	32	1140
HQ-SL	Dwornik, S. E.	U ARKANSAS-MONTICELLO	NGR 04-008-001	Dehon, R. A.	32	1159
HQ-SL	Young, R. S.	UNIV CALIF-BERKELEY	NGL 05-003-003	Calvin, M.	32	1331
HQ-SL	Young, R. S.	UNIV CALIF-BERKELEY	NGL 05-003-079	McLaron, A. D.	51	1335
HQ-SL	Fellows, R. F.	UNIV CALIF-BERKELEY	NGL 05-003-286	Pimentel, G. C.	31	1337
HQ-SL	Dwornik, S. E.	UNIV CALIF-BERKELEY	NGR 05-003-302	Calvin, M.	32	1343
HQ-SL	Brunk, W. E.	UNIV CALIF-BERKELEY	NGR 05-003-452	Townes, C. H.	11	1353
HQ-SL	Young, R. S.	UNIV CALIF-BERKELEY	NGR 05-003-460	Jukes, T. H.	12	1355
HQ-SL	Young, R. S.	UNIV CALIF-L ANGELES	NGR 05-007-215	Libby, W. F.	32	1417
HQ-SL	Young, R. S.	UNIV CALIF-L ANGELES	NGR 05-007-221	Kaplan, I. R.	32	1418
HQ-SL	Dwornik, S. E.	UNIV CALIF-L ANGELES	NGR 05-007-317	Lingenfelter, R. E.	32	1422
HQ-SL	Mitz, M. A.	UNIV CALIF-L ANGELES	NGR 05-007-327	Coleman, P. J., Jr.	13	1424
HQ-SL	Young, R. S.	UNIV CALIF-L ANGELES	NGR 05-007-407	Schopf, J. W.	32	1431
HQ-SL	Fellows, R. F.	UNIV CALIF-L ANGELES	NGR 05-007-437	Kieffer, H. H.	31	1435
HQ-SL	Dwornik, S. E.	UNIV CALIF-SAN DIEGO	NGR 05-009-110	Alfven, H.	32	1471
HQ-SL	Brunk, W. E.	UNIV CALIF-SAN DIEGO	NGR 05-009-142	Gillett, F. C.	11	1472
HQ-SL	Young, R. S.	UNIV CALIF-SAN DIEGO	NGR 05-009-213	Yayanos, A. A.	51	1477
HQ-SL	Young, R. S.	UNIV CALIF-SAN DIEGO	NGR 05-009-218	Miller, S. L.	12	1478
HQ-SL	Young, R. S.	UNIV CALIF-S BARBARA	NGR 05-010-035	Cloud, P. E.	32	1491
HQ-SL	Dwornik, S. E.	UNIV CALIF-S BARBARA	NGR 05-010-062	Peale, S. J.	32	1492
HQ-SL	Dwornik, S. E.	UNIV OF CHICAGO	NGR 14-001-135	Turkevich, A. L.	32	1823
HQ-SL	Fellows, R. F.	UNIV OF CHICAGO	NGR 14-001-194	Kaplan, L. D.	31	1826
HQ-SL	Young, R. S.	UNIV OF CHICAGO	NGR 14-001-203	Anders, E.	32	1827
HQ-SL	Dwornik, S. E.	UNIV OF CHICAGO	NGR 14-001-250	Turkevich, A. L.	13	1833
HQ-SL	Brunk, W. E.	UNIV OF CINCINNATI	NGR 36-004-075	Herget, P.	11	2758
HQ-SL	Fellows, R. F.	UNIV COLORADO-BOLDR	NGL 06-003-052	Barth, C. A.	31	1557
HQ-SL	Fellows, R. F.	UNIV COLORADO-BOLDR	NGR 06-003-127	Barth, C. A.	31	1563
HQ-SL	Dwornik, S. E.	UNIV COLORADO-BOLDR	NGR 06-003-199	Peterson, J. E.	32	1568
HQ-SL	Fellows, R. F.	UNIV COLORADO-BOLDR	NGR 06-003-201	Thomas, G. E.	31	1569
HQ-SL	Fellows, R. F.	UNIV OF FLORIDA	NGL 10-005-008	Green, A. S.	31	1692
HQ-SL	Dwornik, S. E.	UNIV OF GEORGIA	NGR 11-003-033	Herz, N.	32	1770
HQ-SL	Dwornik, S. E.	UNIV OF GEORGIA	NGR 11-003-037	Howard, H. T.	32	1771
HQ-SL	Young, R. S.	UNIV OF HAWAII	NGL 12-001-042	Siegel, S. M.	51	1778
HQ-SL	Brunk, W. E.	UNIV OF HAWAII	NGL 12-001-057	Jefferies, J. T.	11	1779
HQ-SL	Brunk, W. E.	UNIV OF HAWAII	NGR 12-001-083	Sinton, W. M.	11	1781
HQ-SL	Young, R. S.	UNIV OF HAWAII	NGR 12-001-109	Folsome, C. E.	12	1782
HQ-SL	Young, R. S.	UNIV OF HOUSTON	NGR 44-005-002	Oro, J.	32	3039
HQ-SL	Young, R. S.	UNIV OF HOUSTON	NGR 44-005-091	Becker, R. S.	12	3040
HQ-SL	Dwornik, S. E.	UNIV OF HOUSTON	NGR 44-005-131	King, E. A., Jr.	32	3041
HQ-SL	Brunk, W. E.	UNIV ILLINOIS-URBANA	NGR 14-005-176	Dichel, J. R.	11	1845
HQ-SL	Young, R. S.	UNIV ILLINOIS-URBANA	NSG 7044	Woese, C. R.	12	1859
HQ-SL	Dwornik, S. E.	UNIV OF KANSAS	NGR 17-002-106	Zeller, E. J.	32	1934
HQ-SL	Young, R. S.	UNIV MARYLAND-COL PK	NGR 21-002-317	Ponnamperuma, C.	12	2038
HQ-SL	Young, R. S.	UNIV MARYLAND-COL PK	NGR 21-002-425	Ponnamperuma, C.	12	2053
HQ-SL	Brunk, W. E.	UNIV OF MASS-AMHERST	NGL 22-010-023	Irvine, W. M.	11	2225
HQ-SL	Dwornik, S. E.	UNIV OF MASS-AMHERST	NGR 22-010-054	Hartshorn, J. H.	32	2230
HQ-SL	Dwornik, S. E.	UNIV OF MASS-AMHERST	NGR 22-010-076	McGill, G. E.	32	2231
HQ-SL	Young, R. S.	UNIV OF MIAMI	NGR 10-007-008	Fox, S. W.	12	1710
HQ-SL	Young, R. S.	UNIV OF MIAMI	NGR 10-007-052	Harada, K.	12	1711
HQ-SL	Fellows, W. R.	UNIV MICH-ANN ARBOR	NGR 23-005-094	Liu, V. C.	31	2268
HQ-SL	Fellows, R. F.	UNIV MICH-ANN ARBOR	NGR 23-005-561	Casignan, G. R.	31	2281
HQ-SL	Dwornik, S. E.	UNIV MICH-ANN ARBOR	NGR 23-005-563	Smith, C. I.	32	2282
HQ-SL	Fellows, R. F.	U MINN-MNPLS-ST PAUL	NGL 24-005-009	Nier, A. O.	31	2313
HQ-SL	Hall, L. B.	U MINN-MNPLS-ST PAUL	NGL 24-005-160	Pflug, I. J.	51	2314
HQ-SL	Geib, D. S.	U MINN-MNPLS-ST PAUL	NGR 24-005-275	Swain, F. M.	12	2326
HQ-SL	Brunk, W. E.	UNIV NEBRASKA-LINCLN	NGR 28-004-021	Samson, J. A.	31	2389
HQ-SL	Dwornik, S. E.	UNIV OF NEW MEXICO	NGR 32-004-062	Elston, W. E.	32	2482

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-SL	Brunk, W. E.	UNIV OF PITTSBURGH	NGL 39-011-013	Fite, W. L.	31	2857
HQ-SL	Fellows, R. F.	UNIV OF PITTSBURGH	NGL 39-011-030	Zipf, E. C.	31	2858
HQ-SL	Mitz, M. A.	UNIV OF PITTSBURGH	NGR 39-011-134	Donahue, T. M.	12	2863
HQ-SL	Fellows, R. F.	UNIV OF PITTSBURGH	NGR 39-011-137	Biondi, M. A.	31	2864
HQ-SL	Dwornik, S. E.	UNIV OF PITTSBURGH	NGR 39-011-146	Hapke, B.	32	2865
HQ-SL	Fellows, R. F.	UNIV OF PITTSBURGH	NGR 39-011-155	Donahue, T. M.	31	2867
HQ-SL	Geib, D. S.	UNIV OF ROCHESTER	NGR 33-019-002	Vishniac, W. V.	51	2649
HQ-SL	Dwornik, S. E.	UNIV OF SANTA CLARA	NGR 05-017-037	Greeley, R.	32	1504
HQ-SL	Fellows, R. F.	UNIV OF SO CAROLINA	NGL 41-002-003	Durig, J. R.	31	2891
HQ-SL	Young, R. S.	UNIV OF SO CAROLINA	NGR 41-002-034	Rohlfing, D. L.	12	2892
HQ-SL	Fellows, R. F.	UNIV OF SOUTHERN CAL	NGR 05-018-178	Maxworthy, T.	31	1518
HQ-SL	Fellows, R. F.	UNIV OF SOUTHERN CAL	NGR 05-018-180	Judge, D. L.	31	1519
HQ-SL	Fellows, R. F.	UNIV TENNESSEE-KNOXV	NGL 43-001-006	Gailar, N. M.	31	2918
HQ-SL	Brunk, W. E.	UNIV TEXAS-AUSTIN	NGL 44-012-006	Cogdell, J. R.	11	3060
HQ-SL	Brunk, W. E.	UNIV TEXAS-AUSTIN	NGL 44-012-055	Douglas, J. N.	11	3063
HQ-SL	Brunk, W. E.	UNIV TEXAS-AUSTIN	NGR 44-012-152	Smith, H. J.	11	3065
HQ-SL	Dwornik, S. E.	UNIV TEXAS-AUSTIN	NGR 44-012-194	Ingerson, F. E.	11	3067
HQ-SL	Young, R. S.	UNIV TEXAS-AUSTIN	NGR 44-012-225	Parker, P. L.	32	3073
HQ-SL	Dwornik, S. E.	UNIV TEXAS-AUSTIN	NGR 44-012-279	Devaucouleurs, G. H.	32	3081
HQ-SL	Brunk, W. E.	UNIV TEXAS-AUSTIN	NGR 44-012-282	Mulholland, J. D.	11	3082
HQ-SL	Fellows, R. F.	UNIV TEXAS-DALLAS	NGL 44-004-001	Johnson, F. S.	31	3098
HQ-SL	Fellows, R. F.	UNIV TEXAS-DALLAS	NGL 44-004-026	Johnson, F. S.	31	3099
HQ-SL	Dwornik, S. E.	UNIV OF UTAH	NGR 45-003-095	Wilson, R. C.	32	3146
HQ-SL	Young, R. S.	UNIV OF VERMONT	NSG 7021	Thanassi, J. W.	12	3155
HQ-SL	Dwornik, S. E.	UNIV OF VIRGINIA	NGR 47-005-172	Dolan, R.	32	3225
HQ-SL	Fellows, R. F.	UNIV OF WASHINGTON	NGR 48-002-073	Leovy, C. B.	31	3292
HQ-SL	Young, R. S.	UNIV OF WASHINGTON	NGR 48-002-130	Gordon, M. P.	51	3297
HQ-SL	Brunk, W. E.	UNIV OF WASHINGTON	NGR 48-002-142	Greene, T. F.	11	3299
HQ-SL	Dwornik, S. E.	UNIV OF WASHINGTON	NGR 48-002-153	Vgolifti, F. C.	32	3302
HQ-SL	Fellows, R. F.	UNIV OF WASHINGTON	NGR 48-002-162	Leovy, C. B.	31	3304
HQ-SL	Fellows, R. F.	UNIV WISC-MADISON	NGR 50-002-140	Weinman, J. A.	31	3341
HQ-SL	Fellows, R. F.	UNIV WISC-MADISON	NGR 50-002-189	Suomi, V. E.	31	3346
HQ-SL	Dwornik, S. E.	UNIV WISC-PARKSIDE	NGR 50-009-001	Smith, E. I.	32	3355
HQ-SL	Geib, D. S.	UTAH STATE UNIV	NGR 45-002-008	Salisbury, F. B.	51	3149
HQ-SL	Young, R. S.	UTAH STATE UNIV	NSG 7038	Smith, G. G.	32	3152
HQ-SL	Fellows, R. F.	VIRGINIA POLY INST	NGL 47-004-080	McGee, H. A.	11	3248
HQ-SL	Dwornik, S. E.	VIRGINIA STATE COL	NGR 47-014-004	Gipson, M., Jr.	32	3276
HQ-SL	Dwornik, S. E.	WEST TEXAS ST UNIV	NGR 44-015-003	Underwood, J. R.	32	3126
HQ-SL	Fellows, R. F.	YALE UNIVERSITY	NGL 07-004-043	Cross, R. J., Jr.	31	1610
HQ-SL	Young, R. S.	YALE UNIVERSITY	NGR 07-004-009	Morowitz, H. J.	51	1612
HQ-SL	Dwornik, S. E.	YALE UNIVERSITY	NGR 07-004-157	Skinner, B. J.	32	1615
HQ-SM	Bryson, R. P.	ARIZONA STATE UNIV	NGL 03-001-001	Veziroglu, T. N.	32	1091
HQ-SM	Hanley, J. B.	ARIZONA STATE UNIV	NSG 7040	Larimer, J. W.	32	1094
HQ-SM	Bryson, R. P.	BOSTON UNIVERSITY	NGR 22-004-027	Brewer, T.	32	2075
HQ-SM	Kosofsky, L. J.	BROWN UNIVERSITY	NGR 40-002-116	Head, J. W.	32	2880
HQ-SM	Bryson, R. P.	CALIF INST OF TECH	NGL 05-002-069	Anderson, D. L.	32	1179
HQ-SM	Bryson, R. P.	CALIF INST OF TECH	NGL 05-002-105	Ahrens, T. J.	32	1181
HQ-SM	Bryson, R. P.	CALIF INST OF TECH	NGR 05-002-158	Ingersoll, A. P.	32	1195
HQ-SM	Bryson, R. P.	CALIF INST OF TECH	NSG 7023	Burnett, D. S.	32	1216
HQ-SM	Bryson, R. P.	CAL STATE U-S DIEGO	NSG 7026	Rehfuss, D. E.	32	1225
HQ-SM	Kosofsky, L. J.	CITY U N Y-GRAD SCHL	NSG 7028	Saxena, S. K.	32	2499
HQ-SM	Bryson, R. P.	COLLEGE VIRGIN ISLND	NGR 52-083-003	Adams, J. B.	32	3368
HQ-SM	Bryson, R. P.	COLUMBIA UNIVERSITY	NGR 33-008-106	Dalziel, I. W.	32	2513
HQ-SM	Bryson, R. P.	CORNELL UNIVERSITY	NGL 33-010-005	Gold, T.	32	2537
HQ-SM	Bryson, R. P.	CORNELL UNIVERSITY	NGR 33-010-108	Turcotte, D. L.	32	2549
HQ-SM	Bryson, R. P.	CORNELL UNIVERSITY	NGR 33-010-178	Kuckes, A. F.	32	2557
HQ-SM	Bryson, R. P.	FAIRLEIGH-DICKNSON U	NGL 31-006-010	Adams, J. B.	32	2407
HQ-SM	Kosofsky, L. J.	FAIRLEIGH-DICKNSON U	NSG 7047	Hartung, J. B.	32	2409

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-SM	Bryson, R. P.	HARVARD UNIVERSITY	NGR 22-007-175	Hays, J. F.	32	2089
HQ-SM	Bryson, R. P.	ILL INST OF TECH	NGR 14-004-049	Higgins, G. T.	39	1788
HQ-SM	Bryson, R. P.	JOHNS HOPKINS UNIV	NGR 21-001-080	Marcus, A. H.	32	2001
HQ-SM	Kosofsky, L. J.	LEHIGH UNIVERSITY	NGR 39-007-043	Goldstein, J. I.	32	2812
HQ-SM	Bryson, R. P.	MASS INST OF TECH	NGL 22-009-187	Press, F.	11	2149
HQ-SM	Bryson, R. P.	MASS INST OF TECH	NGR 22-009-350	McCord, T. B.	32	2163
HQ-SM	Bryson, R. P.	MASS INST OF TECH	NGR 22-009-790	McCord, T. B.	32	2199
HQ-SM	Kosofsky, L. J.	MASS INST OF TECH	NSG 7010	Counselman, C. C., III	11	2215
HQ-SM	Kosofsky, L. J.	MASS INST OF TECH	NSG 7048	McCord, T. B.	32	2216
HQ-SM	Bryson, R. P.	NORTHWESTERN UNIV	NGL 14-007-016	Hynek, J. A.	32	1791
HQ-SM	Bryson, R. P.	OREGON STATE UNIV	NGL 38-002-020	Schmitt, R. A.	32	2780
HQ-SM	Bryson, R. P.	PENNSYLVANIA STATE U	NGL 39-009-010	Gold, D. P.	32	2828
HQ-SM	Strickland, A. T.	PRINCETON UNIVERSITY	NGR 31-001-202	Dicke, R. H.	13	2435
HQ-SM	Bryson, R. P.	PRINCETON UNIVERSITY	NGR 31-001-274	Phinney, R. A.	32	2442
HQ-SM	Bryson, R. P.	PURDUE UNIVERSITY	NGL 15-005-140	Lipschutz, M. E.	32	1881
HQ-SM	Hanley, J. B.	RICE UNIVERSITY	NSG 7025	Reasoner, D. L.	31	2979
HQ-SM	Hanley, J. B.	RICE UNIVERSITY	NSG 7032	Michel, F. C.	31	2980
HQ-SM	Bryson, R. P.	SO DAKOTA SCHL MINES	NGR 42-001-006	Rahn, P. H.	32	2893
HQ-SM	Bryson, R. P.	STANFORD UNIVERSITY	NGL 05-020-232	Kovach, R. L.	39	1264
HQ-SM	Bryson, R. P.	STANFORD UNIVERSITY	NSG 7029	Tyler, G. L.	32	1313
HQ-SM	Kosofsky, L. J.	STATE U NY-STONY BRK	NSG 7036	Hartung, J. B.	32	2638
HQ-SM	Bryson, R. P.	TEXAS A&M UNIVERSITY	NGR 44-001-152	Rowe, M. W.	32	3014
HQ-SM	Bryson, R. P.	UNIV OF ARIZONA	NGL 03-002-191	Strom	32	1123
HQ-SM	Bryson, R. P.	UNIV OF ARIZONA	NSG 7011	Wilkening, L. L.	32	1149
HQ-SM	Hanley, J. B.	UNIV OF ARIZONA	NSG 7014	Whitaker, E. A.	32	1150
HQ-SM	Hanley, J. B.	UNIV OF ARIZONA	NSG 7020	Sonett, C. P.	32	1151
HQ-SM	Bryson, R. P.	UNIV CALIF-BERKELEY	NGR 05-003-406	Mitchell, J. K.	32	1347
HQ-SM	Bryson, R. P.	UNIV CALIF-DAVIS	NGR 05-004-074	Borg, R. J.	32	1386
HQ-SM	Bryson, R. P.	UNIV CALIF-L ANGELES	NGL 05-007-002	Kaula, W. M.	32	1404
HQ-SM	Bryson, R. P.	UNIV CALIF-L ANGELES	NGL 05-007-006	Kennedy, G. C.	32	1408
HQ-SM	Strickland, A. T.	UNIV CALIF-L ANGELES	NGR 05-007-283	Kaula, W. M.	32	1420
HQ-SM	Bryson, R. P.	UNIV CALIF-L ANGELES	NGR 05-007-329	Wasson, J. T.	32	1426
HQ-SM	Bryson, R. P.	UNIV CALIF-L ANGELES	NGR 05-007-351	Coleman, P. J., Jr.	32	1429
HQ-SM	Bryson, R. P.	UNIV CALIF-L ANGELES	NSG 7052	Kieffer, S. W.	32	1441
HQ-SM	Bryson, R. P.	UNIV CALIF-SAN DIEGO	NGL 05-009-002	Arrhenius, G.	32	1455
HQ-SM	Bryson, R. P.	UNIV CALIF-SAN DIEGO	NGL 05-009-004	Arnold, J. R.	32	1456
HQ-SM	Bryson, R. P.	UNIV CALIF-SAN DIEGO	NGL 05-009-005	Suess, H. E.	32	1457
HQ-SM	Bryson, R. P.	UNIV CALIF-SAN DIEGO	NGR 05-005-005	Arnold, J. R.	32	1465
HQ-SM	Bryson, R. P.	UNIV CALIF-SAN DIEGO	NSG 7027	Arnold, J. R.	32	1487
HQ-SM	Bryson, R. P.	UNIV CALIF-S BARBARA	NGL 05-010-019	Fisher, R. V.	32	1490
HQ-SM	Hosterman, J. W.	UNIV OF CHICAGO	NGL 14-001-010	Anders, E.	32	1815
HQ-SM	Hosterman, J. W.	UNIV OF CHICAGO	NGR 14-001-249	Grossman, L.	32	1832
HQ-SM	Strickland, A. T.	UNIV OF HAWAII	NASW 2326	Jefferies, J. T.	11	1775
HQ-SM	Strickland, A. T.	UNIV OF HAWAII	NGF 12-001-102	Jefferies, J. T.	11	1776
HQ-SM	Strickland, A. T.	UNIV OF HAWAII	NGR 12-001-127	Jefferies, J. T.	32	1784
HQ-SM	Bryson, R. P.	UNIV OF HOUSTON	NGR 44-005-188	King, E. A., Jr.	32	3045
HQ-SM	Bryson, R. P.	UNIV OF IDAHO	NGR 13-001-014	Hall, W. B.	32	1786
HQ-SM	Strickland, A. T.	UNIV MARYLAND-COL PK	NGR 21-002-267	Currie, D. G.	13	2030
HQ-SM	Kosofsky, L. J.	UNIV MARYLAND-COL PK	NSG 7017	Wasilewski, P.	32	2063
HQ-SM	Kosofsky, L. J.	UNIV MARYLAND-COL PK	NSG 7046	Adler, I.	32	2064
HQ-SM	Bryson, R. P.	UNIV OF MASS-AMHERST	NGR 22-010-052	McGill, G. E.	32	2229
HQ-SM	Bryson, R. P.	UNIV MICH-ANN ARBOR	NGR 23-005-537	Evans, B. J.	32	2276
HQ-SM	Bryson, R. P.	UNIV OF NEW MEXICO	NGL 32-004-011	Elston, W. E.	32	2477
HQ-SM	Bryson, R. P.	UNIV OF NEW MEXICO	NGL 32-004-064	Keil, K.	32	2480
HQ-SM	Bryson, R. P.	UNIV OREGON-EUGENE	NGL 38-003-010	Goles, G. G.	32	2787
HQ-SM	Bryson, R. P.	UNIV OREGON-EUGENE	NGR 38-003-020	Weill, D. F.	32	2790
HQ-SM	Kosofsky, L. J.	UNIV OF PENNSYLVANIA	NSG 7031	Friel, J. J.	32	2853
HQ-SM	Bryson, R. P.	UNIV OF PITTSBURGH	NGL 39-011-085	Hapke, B. W.	32	2860

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-SM	Bryson, R. P.	UNIV OF PITTSBURGH	NGR 39-011-156	Fuller, M.	32	2868
HQ-SM	Bryson, R. P.	UNIV OF SANTA CLARA	NSG 7013	Greeley, R.	32	1505
HQ-SM	Bryson, R. P.	UNIV TEXAS-AUSTIN	NGL 44-012-045	Clabaugh, S. E.	32	3062
HQ-SM	Strickland, A. T.	UNIV TEXAS-AUSTIN	NGR 44-012-165	Silverberg, E. C.	32	3066
HQ-SM	Strickland, A. T.	UNIV TEXAS-AUSTIN	NGR 44-012-219	Mulholland, J. D.	11	3070
HQ-SM	Hanley, J. B.	UNIV TEXAS-DALLAS	NSG 7034	Hodges, R. R., Jr.	31	3109
HQ-SM	Bryson, R. P.	UNIV OF VIRGINIA	NGR 47-005-176	Allen, R. O.	32	3226
HQ-SM	Hosterman, J. W.	WASHINGTON UNIVERSITY	NSG 7016	Hohenberg, C. M.	32	2380
HQ-SM	Strickland, A. T.	WESLEYAN UNIVERSITY	NGR 07-006-008	Faller, J. E.	13	1606
HQ-SM	Bryson, R. P.	YALE UNIVERSITY	NGL 07-004-103	Skinner, B. J.	32	1611
HQ-SM	Kosofsky, L. J.	YALE UNIVERSITY	NGR 07-004-166	Turekian, K. K.	32	1616
HQ-SS	Hovnanian	MASS INST OF TECH	NGR 22-009-102	Biemann, K.	42	2159
HQ-SS	Starr, W. L.	UNIV MO-KANSAS CITY	NAS 2-7078	Unavailable	39	2365
HQ-TN	Bavefy, J. C.	UNIV OF ROME	NASW 2135	Broglia, L.	11	3376
HQ-P	Pohly, J. G.	SO UNIV-BATON ROUGE	NGR 19-005-009	Scott, R. L.	13	1976

NASA'S UNIVERSITY PROGRAM
APPENDIX D
CROSS INDEX BY RTOP (Research and Technology Operating Plans)

Each entry represents a single grant or contract and there is one RTOP listed for each grant or contract. However, several grants or contracts may carry the same RTOP. The installation listed provided funding associated with the RTOP. A brief explanation of the RTOP system of notation appears in the prefatory pages.

RTOP NO.	INSTAL-LATION	INSTITUTION	ACC NO.	RTOP NO.	INSTAL-LATION	INSTITUTION	ACC NO.
010-00-00	HQ	BENNETT COLLEGE-NC	2653	117-07-03	LARC	UNIV TENNESSEE-KNOXV	2930
010-00-00	HQ	BOSTON UNIVERSITY	2078	117-07-03	LARC	VIRGINIA POLY INST	3250
010-00-00	HQ	GOUCHER COLLEGE	1994	120-00-00	LERC	COLUMBIA UNIVERSITY	2509
010-00-00	HQ	HOWARD UNIVERSITY	1672	120-00-00	LERC	CLEVELAND STATE UNIV	2715
010-00-00	HQ	MOREHOUSE COLLEGE	1762	120-00-00	LERC	NORTHEASTERN UNIV	2218
010-00-00	HQ	NM HIGHLANDS UNIV	2457	122-00-00	LERC	CITY COLLEGE OF N Y	2492
010-00-00	HQ	NORTHWESTERN UNIV	1801	122-00-00	LERC	UNIV MARYLAND-COL PK	2019
010-00-00	HQ	OKLAHOMA STATE UNIV	2770	122-00-00	HQ	ILL INST OF TECH	1787
010-00-00	HQ	SOUTHEASTN STATE COL	2774	122-00-00	HQ	PRINCETON UNIVERSITY	2437
010-00-00	HQ	SPELMAN COLLEGE	1766	124-00-00	LARC	CLARKSON COL OF TECH	2500
010-00-00	HQ	UNIV OF HOUSTON	3033	124-00-00	LARC	LA STATE U-BAT ROUGE	1965
010-00-00	HQ	UNIV MICH-ANN ARBOR	2269	124-00-00	LARC	MICHIGAN STATE UNIV	2235
010-00-00	HQ	UNIV OF UTAH	3139	124-00-00	LARC	NO CAROLINA STATE U	2667
021-01-98	ARC	OKLAHOMA STATE UNIV	2769	124-00-00	LARC	UNIV OF VIRGINIA	3221
023-02-98	LARC	HAMPTON INSTITUTE	3170	124-00-00	MSFC	PENNSYLVANIA STATE U	2821
023-02-98	LARC	HAMPTON INSTITUTE	3173	124-00-00	MSFC	UNIV N CAR-CHPL HILL	2685
023-09-98	LARC	UNIV OF KANSAS	1940	124-00-00	HQ	CASE WESTERN RESERVE	2691
023-09-98	LARC	VIRGINIA STATE COL	3280	124-00-00	HQ	PURDUE UNIVERSITY	1897
039-00-00	LERC	CASE WESTERN RESERVE	2699	125-00-00	ERC	BROWN UNIVERSITY	2875
039-00-00	HQ	HARVARD UNIVERSITY	2092	125-00-00	ERC	CALIF INST OF TECH	1180
039-00-00	HQ	OREGON STATE UNIV	2784	125-00-00	ERC	MASS INST OF TECH	2151
051-02-00	GSFC	MORGAN STATE COLLEGE	2010	125-00-00	ERC	UNIV MICH-ANN ARBOR	2264
053-04-00	WFC	UNIV MD-EASTRN SHORE	2065	125-00-00	GSFC	UNIV CALIF-SAN DIEGO	1458
073-36-06	KSC	UNIV OF FLORIDA	1688	125-00-00	GSFC	UNIV OF SOUTHERN CAL	1516
110-06-05	LARC	UNIV OF CINCINNATI	2745	125-00-00	LARC	NO CAROLINA STATE U	2666
111-05-02	LERC	UNIV MICH-ANN ARBOR	2275	125-00-00	LARC	OLD DOMINION UNIV	3182
112-02-20	HQ	PRINCETON UNIVERSITY	2431	125-00-00	LARC	RENSSELAER-CONN	1596
112-02-22	HQ	NO CAROLINA STATE U	2665	125-00-00	LARC	SOUTHERN METHODIST U	2983
112-02-23	LARC	COLLEGE OF WM & MARY	3158	125-00-00	LARC	UNIV OF NEW MEXICO	2481
112-28-20	LERC	CORNELL UNIVERSITY	2538	125-00-00	HQ	PENNSYLVANIA STATE U	2829
112-28-20	LERC	GEORGIA INST OF TECH	1743	125-00-00	HQ	STANFORD UNIVERSITY	1257
112-28-20	LERC	GEORGIA INST OF TECH	1747	125-00-00	HQ	UNIV CALIF-BERKELEY	1332
112-30-13	MSFC	UNIV OF MASS-AMHERST	2223	125-00-00	HQ	UNIV OF CONNECTICUT	1602
112-30-17	HQ	MASS INST OF TECH	2180	125-00-00	HQ	UNIV MICH-ANN ARBOR	2294
112-30-17	HQ	PRINCETON UNIVERSITY	2433	125-00-00	HQ	UNIV TEXAS-AUSTIN	3061
113-31-08	LERC	COLORADO STATE UNIV	1541	126-00-00	FRC	TEXAS A&M UNIVERSITY	3011
113-31-08	LERC	PRINCETON UNIVERSITY	2425	126-00-00	LARC	CORNELL UNIVERSITY	2542
113-31-12	MSFC	UNIV MICH-ANN ARBOR	2259	126-00-00	LARC	LOUGHBOROUGH U TECH	3374
113-31-16	LERC	TENNESSEE TECH U	2906	126-00-00	LARC	LOUGHBOROUGH U TECH	3374
113-60-53	LERC	LOWELL TECH INST	2107	126-00-00	LARC	OLD DOMINION UNIV	3184
114-03-03	MSFC	ATHENS COLLEGE	1012	126-00-00	LARC	ST LOUIS UNIVERSITY	2355
114-03-36	LERC	TEMPLE UNIVERSITY	2847	126-00-00	LARC	STANFORD UNIVERSITY	1270
114-08-01	LARC	UNIV OF WASHINGTON	3296	126-00-00	LARC	UNIV OF VIRGINIA	3222
114-08-05	LARC	UNIV MICH-ANN ARBOR	2263	126-00-00	LERC	CASE WESTERN RESERVE	2696
115-04-60	ARC	UNIV WISC-MADISON	3342	126-00-00	LERC	CASE WESTERN RESERVE	2697
115-21-10	GSFC	LAVAL UNIVERSITY	3369	126-00-00	LERC	NORTHWESTERN UNIV	1797
115-22-05	MSFC	UNIV ALA-TUSCALOOSA	1065	126-00-00	LERC	PURDUE UNIVERSITY	1887
115-25-02	MSFC	VANDERBILT UNIVERSTY	2936	126-00-00	LERC	UNIV ILLINOIS-URBANA	1846

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RTOP NO.	INSTAL-LATION	INSTITUTION	ACC NO.	RTOP NO.	INSTAL-LATION	INSTITUTION	ACC NO.
126-00-00	MSFC	PENNSYLVANIA STATE U	2822	141-93-01	HQ	INDIANA U-BLOOMINGTN	1863
127-00-00	ARC	UNIV WISC-MADISON	3336	141-93-01	HQ	SOUTHEASTN STATE COL	2772
127-00-00	ARC	WEST VIRGINIA UNIV	3309	141-93-01	HQ	SOUTHEASTN STATE COL	2773
127-00-00	ERC	BOSTON UNIVERSITY	2071	141-93-01	HQ	UNIV OF CONNECTICUT	1601
127-00-00	LARC	UNIV CALIF-SAN DIEGO	1459	141-93-01	HQ	UNIV OF GEORGIA	1769
127-00-00	LARC	VIRGINIA COMNWLTH U	3236	141-93-01	HQ	UNIV OF NEW MEXICO	2475
128-00-00	LARC	PRINCETON UNIVERSITY	2423	141-93-01	HQ	UNIV OF PITTSBURGH	2856
128-00-00	LERC	PENNSYLVANIA STATE U	2524	141-93-01	HQ	UNIV OF SOUTHERN CAL	1514
128-00-00	LERC	UNIV MICH-ANN ARBOR	2266	141-93-01	HQ	UNIV OF SOUTHERN CAL	1515
128-00-00	HQ	CALIF INST OF TECH	1176	141-93-02	GSFC	DELAWARE STATE COL	1618
128-00-00	HQ	PENNSYLVANIA STATE U	2827	141-93-02	JSC	UNIV ILLINOIS-URBANA	1838
128-00-00	HQ	PURDUE UNIVERSITY	1884	141-93-02	LARC	WEST VIRGINIA UNIV	3312
128-00-00	HQ	UNIV OF UTAH	3140	141-93-02	LERC	MASS INST OF TECH	2116
128-00-00	HQ	UNIV OF UTAH	3142	141-93-02	WFC	COLLEGE OF WM & MARY	3163
128-00-00	HQ	UNIV OF UTAH	3143	141-93-02	HQ	GEORGE WASHINGTON U	1647
129-00-00	LARC	CALIF INST OF TECH	1200	141-93-02	HQ	UNIV OF CHICAGO	1833
129-00-00	LARC	LEHIGH UNIVERSITY	2810	141-93-02	HQ	UNIV OF MIAMI	1715
129-00-00	LARC	OLD DOMINION UNIV	3187	141-93-02	HQ	UNIV OF NEW MEXICO	2476
129-00-00	LERC	CATHOLIC UNIVERSITY	1633	141-94-00	HQ	UNIV OF DENVER	1583
129-00-00	HQ	CALIF INST OF TECH	1174	141-94-00	HQ	UNIV OF DENVER	1584
129-00-00	HQ	CITY COLLEGE OF N Y	2493	141-95-01	LARC	UNIV OF WYOMING	3364
129-00-00	HQ	COLUMBIA UNIVERSITY	2510	141-95-02	ARC	STANFORD UNIVERSITY	1292
129-00-00	HQ	CORNELL UNIVERSITY	2539	141-95-02	GSFC	ST U NY-DNST MED CTR	2639
129-00-00	HQ	HARVARD UNIVERSITY	2090	150-00-00	GSFC	UNIV MARYLAND-COL PK	2026
129-00-00	HQ	MASS INST OF TECH	2170	150-00-00	GSFC	UNIV MARYLAND-COL PK	2043
129-00-00	HQ	SOUTHERN METHODIST U	2984	150-00-00	MSFC	UNIV OF SO CAROLINA	2889
129-00-00	HQ	STANFORD UNIVERSITY	1268	150-22-03	MSFC	AUBURN UNIV-AUBURN	1013
129-00-00	HQ	STATE U NY-STONY BRK	2620	150-22-03	MSFC	UNIV ALA-TUSCALOOSA	1064
129-00-00	HQ	STEVENS INST OF TECH	2456	150-22-22	GSFC	CAL STATE U-FULLERTN	1220
129-00-00	HQ	UNIV OF FLORIDA	1694	150-22-36	GSFC	SYRACUSE UNIVERSITY	2644
129-00-00	HQ	UNIV OF FLORIDA	1696	160-00-00	LARC	UNIV CALIF-RIVERSIDE	1442
129-00-00	HQ	UNIV ILLINOIS-URBANA	1842	160-00-00	HQ	UNIV COLORADO-BOLDR	1564
129-00-00	HQ	UNIV MARYLAND-COL PK	2036	160-00-00	HQ	UNIV WISC-MADISON	3337
129-00-00	HQ	UNIV MICH-ANN ARBOR	2262	160-20-51	GSFC	UNIV MO-ROLLA	2367
130-00-00	HQ	NORTHWESTERN UNIV	1802	160-20-54	LARC	GEORGE WASHINGTON U	1656
134-00-00	LERC	CASE WESTERN RESERVE	2698	160-20-54	LARC	HOFSTRA UNIVERSITY	2569
134-03-21	LARC	LEHIGH UNIVERSITY	2816	160-20-59	GSFC	PURDUE UNIVERSITY	1888
134-03-21	LARC	VIRGINIA POLY INST	3249	160-20-59	GSFC	UNIV MARYLAND-COL PK	2042
134-03-21	LERC	OHIO STATE UNIV	2729	160-44-54	GSFC	MASS INST OF TECH	2166
134-03-23	LARC	VIRGINIA POLY INST	3254	160-44-54	GSFC	UNIV OF ARIZONA	1127
134-14-01	LARC	UNIV MICH-ANN ARBOR	2291	160-44-54	GSFC	UNIV CALIF-L ANGELES	1396
134-14-06	LARC	DREXEL UNIVERSITY	2807	160-44-54	GSFC	UNIV MICH-ANN ARBOR	2295
135-19-01	LARC	MASS INST OF TECH	2145	160-44-55	GSFC	UNIV OF WASHINGTON	3295
136-00-00	LARC	MICHIGAN STATE UNIV	2240	160-44-58	MSFC	UNIV OF SO ALABAMA	1079
136-13-01	ARC	GEORGIA INST OF TECH	1723	160-44-63	LARC	NO CAROLINA STATE U	2675
136-13-01	ARC	OHIO STATE UNIV	2723	160-44-64	LARC	UNIV OF DENVER	1590
136-13-01	ARC	UNIV OF WASHINGTON	3300	160-44-64	LARC	UNIV MICH-ANN ARBOR	2277
136-13-01	LARC	UNIV CALIF-SAN DIEGO	1473	160-44-64	LARC	UNIV MICH-ANN ARBOR	2288
136-14-02	LARC	ISRAEL INST OF TECH	3375	160-44-64	LARC	UNIV NEW BRUNSWICK	3370
136-14-02	LARC	ISRAEL INST OF TECH	3375	160-44-79	ARC	CAL STATE U-SAN JOSE	1231
136-63-02	ARC	UNIV OF SANTA CLARA	1502	160-75-01	WFC	VIRGINIA POLY INST	3244
136-63-02	ARC	UNIV OF WASHINGTON	3298	160-75-01	HQ	UNIV OF MONTANA	2383
136-9X-00	ARC	NEW YORK UNIVERSITY	2576	160-75-07	MSFC	GEORGIA INST OF TECH	1730
141-00-00	GSFC	JOHNS HOPKINS UNIV	1996	160-75-13	JSC	AUSTIN STATE UNIV	2939
141-00-00	HQ	JOHNS HOPKINS UNIV	2008	160-75-15	KSC	UNIV OF FLORIDA	1690
141-00-00	HQ	UNIV OF CONNECTICUT	1600	160-75-15	MSFC	AUBURN UNIV-AUBURN	1019
141-91-00	GSFC	FEDERAL CITY COLLEGE	1644	160-75-22	ARC	CAL STATE U-SAN JOSE	1230
141-93-00	ARC	UNIV MO-KANSAS CITY	2365	160-75-27	WFC	STATE UNIV NY-BUFFAL	2615
141-93-01	HQ	INDIANA U-BLOOMINGTN	1862	160-75-29	HQ	BOSTON UNIVERSITY	2073

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160-75-55	JSC	TEXAS A&M UNIVERSITY	3008	176-21-31	LARC	MARQUETTE UNIVERSITY	3314
160-75-55	JSC	UNIV CALIF-BERKELEY	1326	176-21-31	LARC	OLD DOMINION UNIV	3191
160-75-56	JSC	COLORADO STATE UNIV	1535	176-21-31	LARC	UNIV MICH-ANN ARBOR	2290
160-75-61	MSFC	UNIV OKLAHOMA-NORMAN	2776	176-52-41	GSFC	AMERICAN UNIVERSITY	1628
160-75-79	ARC	UNIV CALIF-RIVERSIDE	1445	176-53-11	ARC	UNIV CALIF-BERKELEY	1372
160-75-80	HQ	COLORADO SCH OF MINE	1527	176-53-11	ARC	UNIV CALIF-DAVIS	1379
160-75-81	ARC	UNIV OF WASHINGTON	3283	176-53-71	MSFC	UNIV ALA-HUNTSVILLE	1053
160-75-98	KSC	UNIV OF MIAMI	1706	176-53-72	MSFC	UNIV ALA-HUNTSVILLE	1059
160-75-98	LARC	OLD DOMINION UNIV	3179	176-81-71	MSFC	UNIV ALA-HUNTSVILLE	1060
160-75-98	MSFC	UNIV ALA-TUSCALOOSA	1068	176-91-31	LARC	GEORGE WASHINGTON U	1657
160-75-99	GSFC	UNIV MARYLAND-COL PK	2049	176-91-31	LARC	UNIV OF WYOMING	3365
161-00-00	LARC	VIRGINIA POLY INST	3269	177-11-11	ARC	UNIV ILLINOIS-URBANA	1853
161-02-01	GSFC	COLUMBIA UNIVERSITY	2515	177-11-91	KSC	UNIV OF MIAMI	1708
161-02-01	GSFC	MASS INST OF TECH	2206	177-23-81	JSC	TEXAS A&M UNIVERSITY	3005
161-02-01	GSFC	UNIV MARYLAND-COL PK	2052	177-32-71	MSFC	MISSISSIPPI STATE U	2344
161-02-02	GSFC	UNIV TEXAS-AUSTIN	3083	177-32-9X	JSC	OAKLAND UNIVERSITY	2243
161-02-07	HQ	OHIO STATE UNIV	2728	177-42-81	JSC	RICE UNIVERSITY	2968
161-02-07	HQ	UNIV CALIF-L ANGELES	1439	177-42-81	JSC	TEXAS A&M UNIVERSITY	3006
161-02-08	GSFC	COLORADO STATE UNIV	1548	177-42-81	JSC	UNIV OF HOUSTON	3028
161-03-01	GSFC	UNIV MARYLAND-COL PK	2054	177-42-81	JSC	UNIV TEXAS-DALLAS	3096
161-03-02	GSFC	CITY COLLEGE OF N Y	2487	177-42-83	JSC	PURDUE UNIVERSITY	1877
161-03-03	GSFC	UNIV CALIF-SAN DIEGO	1481	177-42-83	JSC	PURDUE UNIVERSITY	1880
161-04-01	GSFC	OHIO STATE UNIV	2735	177-44-82	JSC	UNIV OF KANSAS	1924
161-05-02	GSFC	UNIV MARYLAND-COL PK	2056	177-51-61	WFC	VIRGINIA POLY INST	3245
161-05-02	WFC	UNIV MARYLAND-COL PK	2055	177-51-71	MSFC	GEORGIA INST OF TECH	1732
161-79-51	GSFC	UNIV MARYLAND-COL PK	2047	177-51-71	MSFC	NORTH GEORGIA COL	1764
161-79-68	GSFC	STANFORD UNIVERSITY	1249	177-51-82	JSC	CLEMSON UNIV-CLEMSON	2885
161-79-68	GSFC	STANFORD UNIVERSITY	1252	177-51-83	JSC	TEXAS A&M UNIVERSITY	3009
162-01-02	MSFC	WAYNE STATE UNIV	2296	177-51-84	JSC	TEXAS A&M UNIVERSITY	3007
162-01-03	MSFC	GEORGETOWN UNIV	1659	177-51-84	JSC	UNIV ARKANSAS-FAYETV	1155
162-01-03	MSFC	STATE UNIV NY-BUFFAL	2614	177-51-84	JSC	UNIV OF KANSAS	1929
164-00-00	GSFC	VIRGINIA POLY INST	3258	177-51-91	KSC	UNIV OF FLORIDA	1691
164-00-00	HQ	MASS INST OF TECH	2137	177-52-71	MSFC	AUBURN UNIV-AUBURN	1022
164-06-53	GSFC	CITY COLLEGE OF N Y	2495	177-52-71	MSFC	GEORGIA INST OF TECH	1734
164-06-58	GSFC	UNIV CALIF-BERKELEY	1365	177-52-71	MSFC	LA STATE U-BAT ROUGE	1963
164-18-54	GSFC	UNIV OF NOTRE DAME	1900	177-52-73	MSFC	UNIV TENNESSEE-KNOXV	2916
164-21-54	GSFC	VIRGINIA POLY INST	3259	177-52-75	MSFC	MISSISSIPPI STATE U	2345
164-21-58	GSFC	CITY COLLEGE OF N Y	2496	177-53-11	ARC	DE ANZA COLLEGE	1232
164-21-72	GSFC	VIRGINIA POLY INST	3252	177-53-71	MSFC	UNIV ALA-TUSCALOOSA	1071
164-21-80	GSFC	UNIV MARYLAND-COL PK	2040	177-53-71	MSFC	UNIV ALA-TUSCALOOSA	1072
175-00-00	GSFC	UNIV OF SOUTHERN CAL	1517	177-54-21	LERC	OHIO STATE UNIV	2742
175-11-41	GSFC	UNIV CALIF-L ANGELES	1425	177-54-71	MSFC	LA STATE U-BAT ROUGE	1962
175-21-31	LARC	COLORADO STATE UNIV	1549	177-55-35	LARC	UNIV OF RHODE ISLAND	2882
175-21-32	LARC	UNIV WISC-MADISON	3315	177-56-13	ARC	UNIV OF MONTANA	2384
175-21-42	GSFC	UNIV OF ARIZONA	1143	177-56-91	KSC	UNIV OF MIAMI	1707
175-21-43	GSFC	UNIV OF CHICAGO	1822	177-71-01	HQ	UNIV CALIF-BERKELEY	1338
175-31-31	LARC	NO CAROLINA STATE U	2676	177-91-00	JSC	CITY COLLEGE OF N Y	2490
175-31-31	LARC	UNIV OF KANSAS	1938	177-91-00	JSC	UNIV OKLAHOMA-NORMAN	2777
175-31-31	LARC	WEST VIRGINIA UNIV	3311	177-91-00	LARC	UNIV OF DELAWARE	1620
175-61-41	GSFC	COLORADO STATE UNIV	1539	179-11-13	MSFC	WASHINGTON ST UNIV	3307
175-61-41	GSFC	COLORADO STATE UNIV	1540	179-11-14	MSFC	UNIV ALA-HUNTSVILLE	1041
175-61-41	GSFC	HARVARD UNIVERSITY	2100	179-12-13	MSFC	RENSSELAER POLY-NY	2597
175-61-41	GSFC	UNIV MICH-ANN ARBOR	2247	179-12-13	MSFC	UNIV ALA-HUNTSVILLE	1052
175-61-41	GSFC	UNIV WISC-MADISON	3326	179-12-14	MSFC	MASS INST OF TECH	2132
175-61-71	MSFC	TEXAS A&M UNIVERSITY	2994	179-12-23	MSFC	UNIV OF SOUTHERN CAL	1511
175-61-73	MSFC	UNIV ALA-HUNTSVILLE	1057	179-13-11	MSFC	LEHIGH UNIVERSITY	2808
176-11-11	ARC	CAL STATE U-CHICO	1218	179-13-11	MSFC	UNIV OF ARIZONA	1112
176-14-31	LARC	VIRGINIA POLY INST	3272	179-14-20	MSFC	VANDERBILT UNIVERSTY	2935
176-21-31	LARC	CLEVELAND STATE UNIV	2716	179-15-10	MSFC	COLORADO STATE UNIV	1534

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179-15-12	MSFC	HOWARD UNIVERSITY	1660	185-47-32	JSC	UNIV TEXAS-AUSTIN	3053
179-53-99	MSFC	AUBURN UNIV-AUBURN	1020	185-47-55	GSFC	CATHOLIC UNIVERSITY	1636
180-06-50	GSFC	MASS INST OF TECH	2160	185-47-55	GSFC	HOWARD UNIVERSITY	1665
180-06-50	GSFC	PRINCETON UNIVERSITY	2432	185-47-56	GSFC	UNIV MICH-ANN ARBOR	2246
180-06-50	GSFC	STANFORD UNIVERSITY	1287	185-47-67	ARC	OHIO STATE UNIV	2739
180-17-53	MSFC	UNIV TENNESSEE-KNOXV	2911	185-47-69	ARC	CAL STATE U-SAN FRAN	1226
180-32-51	LARC	NO CAROLINA STATE U	2669	185-47-80	HQ	STANFORD UNIVERSITY	1260
180-70-50	MSFC	UNIV MICH-ANN ARBOR	2261	185-47-80	HQ	UNIV OF ARIZONA	1119
180-72-50	LARC	UNIV MICH-ANN ARBOR	2283	185-47-80	HQ	UNIV WISC-MADISON	3341
181-00-00	HQ	CASE WESTERN RESERVE	2706	185-47-81	HQ	CORNELL UNIVERSITY	2543
181-00-00	HQ	COLUMBIA UNIVERSITY	2526	185-47-81	HQ	CORNELL UNIVERSITY	2545
181-00-00	HQ	CORNELL UNIVERSITY	2565	185-47-81	HQ	CORNELL UNIVERSITY	2554
181-00-00	HQ	GEORGIA INST OF TECH	1753	185-47-81	HQ	GEORGIA INST OF TECH	1738
181-00-00	HQ	HARVARD UNIVERSITY	2102	185-47-81	HQ	HARVARD UNIVERSITY	2087
181-00-00	HQ	LEHIGH UNIVERSITY	2818	185-47-81	HQ	HARVARD UNIVERSITY	2093
181-00-00	HQ	NO CAROLINA STATE U	2681	185-47-81	HQ	HARVARD UNIVERSITY	2096
181-00-00	HQ	PENNSYLVANIA STATE U	2843	185-47-81	HQ	MASS INST OF TECH	2153
181-00-00	HQ	POLY INST OF NY	2595	185-47-81	HQ	POLY INST OF NY	2593
181-00-00	HQ	STANFORD UNIVERSITY	1305	185-47-81	HQ	RICE UNIVERSITY	2981
181-00-00	HQ	UNIV OF DENVER	1593	185-47-81	HQ	TEXAS A&M UNIVERSITY	3012
181-00-00	HQ	UNIV OF KANSAS	1937	185-47-81	HQ	UNIV MICH-ANN ARBOR	2268
181-00-00	HQ	U MINN-MNPLS-ST PAUL	2327	185-47-81	HQ	UNIV OF SOUTHERN CAL	1518
181-00-00	HQ	U MINN-MNPLS-ST PAUL	2328	185-47-81	HQ	UNIV TEXAS-DALLAS	3099
181-00-00	HQ	UNIV N CAR-CHPL HILL	2686	185-47-81	HQ	UNIV WISC-MADISON	3346
181-00-00	HQ	UNIV OF PITTSBURGH	2871	185-47-83	HQ	KANSAS STATE UNIV	1919
181-00-00	HQ	UNIV OF SOUTHERN CAL	1522	185-47-83	HQ	STATE U NY-STONY BRK	2625
181-00-00	HQ	UNIV TEXAS-AUSTIN	3084	185-47-83	HQ	UNIV CALIF-BERKELEY	1337
181-00-00	HQ	UNIV OF WASHINGTON	3306	185-47-83	HQ	UNIV COLORADO-BOLDR	1557
183-00-00	HQ	CORNELL UNIVERSITY	2546	185-47-83	HQ	UNIV OF SOUTHERN CAL	1519
183-00-00	HQ	GEORGE WASHINGTON U	1649	185-47-83	HQ	UNIV TENNESSEE-KNOXV	2918
183-00-00	HQ	GEORGIA INST OF TECH	1741	185-47-84	HQ	UNIV OF PITTSBURGH	2864
183-00-00	HQ	MASS INST OF TECH	2144	185-47-84	HQ	YALE UNIVERSITY	1610
183-00-00	HQ	NORTHWESTERN UNIV	1793	185-47-85	HQ	RENSSELAER POLY-NY	2601
183-00-00	HQ	NORTHWESTERN UNIV	1794	185-47-85	HQ	UNIV NEBRASKA-LINCLN	2389
183-00-00	HQ	PURDUE UNIVERSITY	1885	185-47-85	HQ	UNIV OF PITTSBURGH	2857
183-00-00	HQ	SOUTHERN METHODIST U	2982	185-47-85	HQ	UNIV OF PITTSBURGH	2858
183-00-00	HQ	SYRACUSE UNIVERSITY	2643	185-47-85	HQ	UNIV OF SO CAROLINA	2891
183-00-00	HQ	TUSKEGEE INSTITUTE	1031	185-47-85	HQ	OLD DOMINION UNIV	3203
183-00-00	HQ	UNIV ALA-TUSCALOOSA	1075	185-47-91	LARC	CALIF INST OF TECH	1206
183-00-00	HQ	UNIV OF CINCINNATI	2747	185-50-01	HQ	CALIF INST OF TECH	1192
183-00-00	HQ	UNIV OF DENVER	1585	185-50-81	HQ	CALIF INST OF TECH	1207
183-00-00	HQ	UNIV OF HOUSTON	3034	185-50-81	HQ	CALIF INST OF TECH	1211
183-00-00	HQ	UNIV OF HOUSTON	3036	185-50-81	HQ	CORNELL UNIVERSITY	2564
183-00-00	HQ	UNIV OF KANSAS	1930	185-50-81	HQ	HARVARD UNIVERSITY	2097
183-00-00	HQ	UNIV OF MIAMI	1709	185-50-81	HQ	MASS INST OF TECH	2178
183-00-00	HQ	UNIV OF MIAMI	1713	185-50-81	HQ	STANFORD UNIVERSITY	1294
183-00-00	HQ	UNIV TEXAS-DALLAS	3098	185-50-81	HQ	STATE UNIV NY-BUFFAL	2618
183-00-00	HQ	UNIV WISC-MADISON	3333	185-50-81	HQ	UNIV OF ARIZONA	1140
185-00-00	HQ	MASS INST OF TECH	2143	185-50-81	HQ	UNIV CALIF-BERKELEY	1343
185-00-00	HQ	NORTHWESTERN UNIV	1791	185-50-81	HQ	UNIV CALIF-SAN DIEGO	1471
185-00-00	HQ	STANFORD UNIVERSITY	1264	185-50-81	HQ	UNIV OF CHICAGO	1823
185-00-00	HQ	UNIV OF ARIZONA	1113	185-50-81	HQ	UNIV OF HOUSTON	3041
185-00-00	HQ	UNIV CALIF-SAN DIEGO	1465	186-00-00	HQ	CORNELL UNIVERSITY	2534
185-00-00	HQ	UNIV OF FLORIDA	1692	186-68-55	HQ	CORNELL UNIVERSITY	2535
185-00-00	HQ	U MINN-MNPLS-ST PAUL	2313	186-68-55	HQ	CORNELL UNIVERSITY	2536
185-00-00	HQ	UNIV OF WASHINGTON	3292	186-68-55	HQ	RENSSELAER POLY-NY	2603
185-00-00	HQ	VIRGINIA POLY INST	3248	186-68-60	ARC	UNIV ARKANSAS-FAYETV	1156
185-47-32	JSC	RICE UNIVERSITY	2975	186-68-63	ARC	MASS INST OF TECH	2114
185-47-32	JSC	RICE UNIVERSITY	2976	186-68-63	ARC	STANFORD UNIVERSITY	1246

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186-68-63	ARC	UNIV OF ARIZONA	1099	188-36-56	HQ	UNIV MICH-ANN ARBOR	2270
186-68-63	ARC	UNIV COLORADO-BOLDR	1553	188-36-56	HQ	UNIV TEXAS-DALLAS	3101
186-68-63	ARC	UNIV MICH-ANN ARBOR	2245	188-36-56	HQ	YALE UNIVERSITY	1613
186-68-63	ARC	U MINN-MNPLS-ST PAUL	2303	188-36-57	HQ	STANFORD UNIVERSITY	1259
186-68-63	ARC	UNIV TEXAS-DALLAS	3089	188-36-57	HQ	STANFORD UNIVERSITY	1263
186-68-63	ARC	UNIV WISC-MADISON	3317	188-38-51	GSFC	NEW YORK INST TECH	2574
186-68-63	ARC	UNIV WISC-MADISON	3318	188-38-51	GSFC	UNIV MARYLAND-COL PK	2020
186-68-63	ARC	UNIV WISC-MADISON	3319	188-38-51	HQ	CALIF INST OF TECH	1194
186-68-63	GSFC	RICE UNIVERSITY	2963	188-38-51	HQ	STATE U NY-STONY BRK	2624
186-68-63	GSFC	UNIV MICH-ANN ARBOR	2258	188-38-52	GSFC	UNIV OF DENVER	1582
186-68-63	HQ	MASS INST OF TECH	2182	188-38-52	GSFC	UNIV MARYLAND-COL PK	2018
186-68-63	HQ	MASS INST OF TECH	2183	188-38-52	GSFC	UNIV MARYLAND-COL PK	2018
186-68-64	MSFC	AUBURN UNIV-AUBURN	1017	188-38-52	HQ	CALIF INST OF TECH	1178
186-68-65	ARC	RENSSELAER POLY-NY	2607	188-38-52	HQ	STANFORD UNIVERSITY	1284
186-68-65	ARC	STANFORD UNIVERSITY	1311	188-38-52	HQ	UNIV OF HAWAII	1777
186-68-65	ARC	UNIV TEXAS-DALLAS	3090	188-38-52	HQ	UNIV MARYLAND-COL PK	2027
186-68-68	HQ	JOHNS HOPKINS UNIV	2002	188-38-52	HQ	UNIV OF MASS-AMHERST	2226
186-68-68	HQ	UNIV CALIF-L ANGELES	1424	188-38-52	HQ	UNIV OF MASS-AMHERST	2228
186-68-68	HQ	UNIV OF PITTSBURGH	2863	188-38-52	HQ	UNIV MICH-ANN ARBOR	2265
188-00-00	GSFC	NORTHEASTERN UNIV	2220	188-38-52	HQ	UNIV MICH-ANN ARBOR	2279
188-00-00	GSFC	RENSSELAER POLY-NY	2602	188-38-53	GSFC	UNIV NEW HAMPSHIRE	2400
188-00-00	GSFC	UNIV CALIF-DAVIS	1384	188-38-53	HQ	HARVARD UNIVERSITY	2083
188-00-00	GSFC	UNIV MARYLAND-COL PK	2017	188-38-53	HQ	HARVARD UNIVERSITY	2086
188-00-00	HQ	CALIF INST OF TECH	1177	188-38-53	HQ	HARVARD UNIVERSITY	2105
188-00-00	HQ	NEW MEX ST U-LAS CR	2469	188-38-53	HQ	STANFORD UNIVERSITY	1267
188-00-00	HQ	PRINCETON UNIVERSITY	2430	188-38-53	HQ	STATE U NY-STONY BRK	2637
188-00-00	HQ	PRINCETON UNIVERSITY	2450	188-38-53	HQ	UNIV CALIF-BERKELEY	1361
188-00-00	HQ	UNIV OF ARIZONA	1114	188-38-53	HQ	UNIV CALIF-SAN DIEGO	1479
188-00-00	HQ	UNIV CALIF-BERKELEY	1344	188-38-53	HQ	UNIV COLORADO-BOLDR	1558
188-00-00	HQ	UNIV CALIF-L ANGELES	1409	188-38-53	HQ	UNIV MARYLAND-COL PK	2022
188-00-00	HQ	UNIV OF CHICAGO	1817	188-38-53	HQ	UNIV NEW HAMPSHIRE	2401
188-00-00	HQ	UNIV OF FLORIDA	1695	188-38-53	HQ	UNIV OF ROCHESTER	2650
188-36-55	HQ	JOHNS HOPKINS UNIV	2004	188-38-53	HQ	UNIV TENNESSEE-KNOXV	2932
188-36-55	HQ	MASS INST OF TECH	2142	188-38-53	HQ	UNIV TEXAS-AUSTIN	3069
188-36-55	HQ	RICE UNIVERSITY	2971	188-38-53	HQ	UNIV TEXAS-AUSTIN	3076
188-36-55	HQ	UNIV OF ARIZONA	1126	188-38-64	HQ	CALIF INST OF TECH	1214
188-36-55	HQ	UNIV CALIF-BERKELEY	1333	188-38-64	HQ	HARVARD UNIVERSITY	2106
188-36-55	HQ	UNIV CALIF-L ANGELES	1406	188-41-51	GSFC	UNIV OF ARIZONA	1101
188-36-55	HQ	UNIV CALIF-L ANGELES	1410	188-41-51	GSFC	UNIV OF ROCHESTER	2648
188-36-55	HQ	UNIV CALIF-L ANGELES	1440	188-41-51	MSFC	CASE WESTERN-RESERVE	2690
188-36-55	HQ	UNIV CALIF-SAN DIEGO	1454	188-41-51	HQ	BOWLING GRN STATE U	2689
188-36-55	HQ	UNIV CALIF-SAN DIEGO	1469	188-41-51	HQ	CALIF INST OF TECH	1182
188-36-55	HQ	UNIV CALIF-SAN DIEGO	1482	188-41-51	HQ	HARVARD UNIVERSITY	2099
188-36-55	HQ	UNIV CALIF-SAN DIEGO	1486	188-41-51	HQ	NEW YORK UNIVERSITY	2587
188-36-55	HQ	UNIV OF IOWA	1917	188-41-51	HQ	NORTHWESTERN UNIV	1792
188-36-55	HQ	UNIV MARYLAND-COL PK	2016	188-41-51	HQ	PRINCETON UNIVERSITY	2422
188-36-55	HQ	U MINN-MNPLS-ST PAUL	2312	188-41-51	HQ	PRINCETON UNIVERSITY	2429
188-36-55	HQ	U MINN-MNPLS-ST PAUL	2330	188-41-51	HQ	PURDUE UNIVERSITY	1878
188-36-55	HQ	UNIV WISC-MADISON	3343	188-41-51	HQ	UNIV OF ARIZONA	1118
188-36-55	HQ	WASHINGTON UNIVERSTY	2375	188-41-51	HQ	UNIV OF ARIZONA	1120
188-36-56	MSFC	UNIV ALA-HUNTSVILLE	1038	188-41-51	HQ	UNIV CALIF-SAN DIEGO	1453
188-36-56	MSFC	UNIV ALA-HUNTSVILLE	1051	188-41-51	HQ	UNIV OF CHICAGO	1824
188-36-56	HQ	PENNSYLVANIA STATE U	2825	188-41-51	HQ	UNIV MARYLAND-COL PK	2024
188-36-56	HQ	PENNSYLVANIA STATE U	2826	188-41-51	HQ	UNIV MARYLAND-COL PK	2035
188-36-56	HQ	POLY INST OF NY	2592	188-41-51	HQ	U MINN-MNPLS-ST PAUL	2332
188-36-56	HQ	UNIV CALIF-SAN DIEGO	1467	188-41-51	HQ	UNIV OF PITTSBURGH	2866
188-36-56	HQ	UNIV CALIF-SAN DIEGO	1468	188-41-51	HQ	UNIV OF VIRGINIA	3220
188-36-56	HQ	UNIV OF IOWA	1918	188-41-52	HQ	UNIV ILLINOIS-URBANA	1858
188-36-56	HQ	UNIV MICH-ANN ARBOR	2267	188-41-53	HQ	INDIANA U-BLOOMINGTN	1864
188-36-56	HQ	UNIV MICH-ANN ARBOR	2267	188-41-54	MSFC	MASS INST OF TECH	2130

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RTOP NO.	INSTAL-LATION	INSTITUTION	ACC NO.	RTOP NO.	INSTAL-LATION	INSTITUTION	ACC NO.
188-41-54	MSFC	STANFORD UNIVERSITY	1275	188-46-57	GSFC	CATHOLIC UNIVERSITY	1634
188-41-54	MSFC	UNIV ALA-HUNTSVILLE	1048	188-46-57	HQ	CORNELL UNIVERSITY	2552
188-41-54	MSFC	UNIV ALA-TUSCALOOSA	1070	188-46-57	HQ	RICE UNIVERSITY	2978
188-41-54	HQ	CALIF INST OF TECH	1201	188-46-57	HQ	STANFORD UNIVERSITY	1280
188-41-54	HQ	MONTANA STATE UNIV	2381	188-46-57	HQ	UNIV CALIF-SAN DIEGO	1452
188-41-54	HQ	UNIV MARYLAND-BALT	2011	188-46-57	HQ	UNIV NEW HAMPSHIRE	2402
188-41-55	HQ	BOSTON UNIVERSITY	2077	188-46-64	JSC	UNIV OF HOUSTON	3032
188-41-55	HQ	CALIF INST OF TECH	1188	188-48-51	MSFC	UNIV OF MONTEVALLO	1077
188-41-55	HQ	CORNELL UNIVERSITY	2556	188-48-52	GSFC	UNIV CALIF-RIVERSIDE	1443
188-41-55	HQ	HARVARD UNIVERSITY	2098	188-48-52	GSFC	UNIV OF PITTSBURGH	2859
188-41-55	HQ	MASS INST OF TECH	2169	188-78-56	GSFC	CALIF INST OF TECH	1165
188-41-55	HQ	STANFORD UNIVERSITY	1282	188-78-56	GSFC	CALIF INST OF TECH	1166
188-41-55	HQ	ST U NY COL-GENESE0	2642	188-78-56	GSFC	JOHNS HOPKINS UNIV	1997
188-41-55	HQ	UNIV OF ARIZONA	1133	188-78-56	GSFC	PRINCETON UNIVERSITY	2417
188-41-55	HQ	UNIV OF ARIZONA	1141	188-78-56	GSFC	PRINCETON UNIVERSITY	2418
188-41-55	HQ	UNIV CALIF-BERKELEY	1336	188-78-56	GSFC	PRINCETON UNIVERSITY	2419
188-41-55	HQ	UNIV CALIF-BERKELEY	1346	188-78-56	GSFC	PRINCETON UNIVERSITY	2438
188-41-55	HQ	UNIV CALIF-SAN DIEGO	1464	188-78-56	GSFC	UNIV OF ARIZONA	1142
188-41-55	HQ	UNIV CALIF-S CRUZ	1494	188-78-56	GSFC	UNIV OF ARIZONA	1148
188-41-55	HQ	UNIV OF HAWAII	1783	188-78-56	GSFC	UNIV OF CHICAGO	1809
188-41-55	HQ	WASHINGTON UNIVERSTY	2378	188-78-56	GSFC	UNIV OF VIRGINIA	3216
188-41-57	HQ	FEDERAL CITY COLLEGE	1643	188-78-56	GSFC	UNIV WISC-MADISON	3328
188-41-59	GSFC	BOWIE STATE COLLEGE	1986	188-78-56	MSFC	UNIV WISC-MADISON	3332
188-41-59	HQ	COLUMBIA UNIVERSITY	2516	188-78-56	HQ	UNIV CALIF-SAN DIEGO	1474
188-41-59	HQ	STANFORD UNIVERSITY	1297	188-78-57	MSFC	MASS INST OF TECH	2129
188-41-59	HQ	UNIV CALIF-BERKELEY	1354	188-78-57	MSFC	UNIV OF ARIZONA	1109
188-41-59	HQ	UNIV CALIF-BERKELEY	1369	188-78-57	MSFC	UNIV OF ARIZONA	1110
188-41-60	MSFC	PRINCETON UNIVERSITY	2420	188-78-57	MSFC	UNIV OF ARIZONA	1111
188-41-64	JSC	HOUSTON BAPTIST COL	2952	188-78-57	MSFC	UNIV CALIF-L ANGELES	1399
188-41-64	JSC	LEHIGH UNIVERSITY	2814	188-78-57	MSFC	UNIV OF SANTA CLARA	1498
188-41-64	JSC	LA STATE U-SHREVEPT	1972	188-78-57	HQ	PRINCETON UNIVERSITY	2451
188-45-51	GSFC	STATE UNIV NY-ALBANY	2613	188-78-57	HQ	UNIV OF ARIZONA	1134
188-45-51	HQ	MASS INST OF TECH	2173	188-78-58	GSFC	BELOIT COLLEGE	3313
188-45-51	HQ	UNIV OF ARIZONA	1121	188-78-58	GSFC	MASS INST OF TECH	2194
188-45-51	HQ	UNIV MARYLAND-COL PK	2021	188-78-58	GSFC	PRINCETON UNIVERSITY	2444
188-45-51	HQ	UNIV OF NEW MEXICO	2483	188-78-58	GSFC	UNIV OF ARIZONA	1139
188-45-52	LARC	NEW MEX ST U-LAS CR	2458	188-78-58	GSFC	UNIV CALIF-SAN DIEGO	1480
188-45-52	LARC	UNIV TEXAS-AUSTIN	3048	188-78-58	GSFC	UNIV COLORADO-BOLDR	1574
188-45-52	HQ	UNIV CALIF-L ANGELES	1407	188-78-58	GSFC	UNIV TEXAS-AUSTIN	3077
188-45-52	HQ	UNIV MARYLAND-COL PK	2028	188-78-58	GSFC	UNIV TEXAS-AUSTIN	3078
188-45-52	HQ	UNIV MICH-ANN ARBOR	2278	188-78-58	GSFC	UNIV TEXAS-AUSTIN	3079
188-45-53	HQ	CAL STATE U-FULLERTN	1219	188-78-58	GSFC	UNIV WISC-MADISON	3349
188-45-53	HQ	UNIV OF WASHINGTON	3291	189-00-00	HQ	CATHOLIC UNIVERSITY	1631
188-46-54	GSFC	UNIV MICH-ANN ARBOR	2257	189-00-00	HQ	EMORY UNIVERSITY	1720
188-46-56	HQ	CALIF INST OF TECH	1197	189-00-00	HQ	INDIANA U-BLOOMINGTN	1867
188-46-56	HQ	LA STATE U-BAT ROUGE	1969	189-00-00	HQ	MASS INST OF TECH	2158
188-46-56	HQ	UNIV OF ARIZONA	1125	189-00-00	HQ	OREGON STATE UNIV	2783
188-46-56	HQ	UNIV CALIF-BERKELEY	1364	189-00-00	HQ	UNIV CALIF-BERKELEY	1335
188-46-56	HQ	UNIV CALIF-BERKELEY	1366	189-00-00	HQ	UNIV CALIF-L ANGELES	1411
188-46-56	HQ	UNIV CALIF-RIVERSIDE	1444	189-00-00	HQ	UNIV CALIF-SAN DIEGO	1470
188-46-56	HQ	UNIV OF CHICAGO	1812	189-00-00	HQ	UNIV OF CHICAGO	1816
188-46-56	HQ	UNIV OF CHICAGO	1813	189-00-00	HQ	UNIV OF KENTUCKY	1946
188-46-56	HQ	UNIV OF CHICAGO	1814	189-00-00	HQ	U MINN-MNPLS-ST PAUL	2317
188-46-56	HQ	UNIV MARYLAND-COL PK	2023	189-00-00	HQ	UNIV OF PENNSYLVANIA	2850
188-46-56	HQ	UNIV MARYLAND-COL PK	2029	190-00-00	HQ	UNIV CALIF-L ANGELES	1405
188-46-56	HQ	U MINN-MNPLS-ST PAUL	2318	192-55-61	ARC	STANFORD UNIVERSITY	1277
188-46-56	HQ	UNIV NEW HAMPSHIRE	2403	192-55-61	HQ	CAL STATE U-FULLERTN	1221
188-46-56	HQ	UNIV OF WYOMING	3362	192-55-61	HQ	CORNELL UNIVERSITY	2548
188-46-56	HQ	WASHINGTON UNIVERSTY	2377	192-55-61	HQ	MASS INST OF TECH	2161

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RTOP NO.	INSTAL-LATION	INSTITUTION	ACC NO.	RTOP NO.	INSTAL-LATION	INSTITUTION	ACC NO.
192-55-61	HQ	POLY INST OF NY	2594	195-00-00	HQ	UNIV CALIF-DAVIS	1386
192-55-61	HQ	RENSSELAER POLY-NY	2604	195-00-00	HQ	UNIV MARYLAND-COL PK	2034
192-55-61	HQ	STATE UNIV NY-BUFFAL	2617	195-00-00	HQ	WESLEYAN UNIVERSITY	1606
192-55-61	HQ	STATE U NY-STONY BRK	2632	195-42-60	JSC	UNIV OF HOUSTON	3044
192-55-61	HQ	TEXAS A&M UNIVERSITY	3016	195-42-64	HQ	MASS INST OF TECH	2199
192-55-61	HQ	UNIV ALA-BIRMINGHAM	1035	195-42-64	HQ	UNIV CALIF-S BARBARA	1490
192-55-61	HQ	UNIV CALIF-BERKELEY	1355	195-42-64	HQ	UNIV TEXAS-AUSTIN	3062
192-55-61	HQ	UNIV CALIF-SAN DIEGO	1478	195-42-65	HQ	CALIF INST OF TECH	1181
192-55-61	HQ	UNIV OF HAWAII	1782	195-42-65	HQ	CAL STATE U-S DIEGO	1225
192-55-61	HQ	UNIV OF HOUSTON	3040	195-42-65	HQ	UNIV CALIF-L ANGELES	1404
192-55-61	HQ	UNIV ILLINOIS-URBANA	1859	195-42-65	HQ	UNIV CALIF-SAN DIEGO	1455
192-55-61	HQ	UNIV MARYLAND-COL PK	2038	195-42-65	HQ	UNIV CALIF-SAN DIEGO	1457
192-55-61	HQ	UNIV MARYLAND-COL PK	2053	195-42-65	HQ	UNIV OF PENNSYLVANIA	2853
192-55-61	HQ	UNIV OF MIAMI	1710	195-42-65	HQ	CORNELL UNIVERSITY	2537
192-55-61	HQ	UNIV OF MIAMI	1711	195-42-66	HQ	UNIV MARYLAND-COL PK	2063
192-55-61	HQ	U MINN-MNPLS-ST PAUL	2326	195-42-66	HQ	ARIZONA STATE UNIV	1091
192-55-61	HQ	UNIV OF SO CAROLINA	2892	195-42-67	HQ	LEHIGH UNIVERSITY	2812
192-55-61	HQ	UNIV OF VERMONT	3155	195-42-67	HQ	TEXAS A&M UNIVERSITY	3014
192-55-61	HQ	UNIV OF WASHINGTON	3297	195-42-67	HQ	UNIV OF ARIZONA	1149
192-55-62	HQ	BOSTON UNIVERSITY	2074	195-42-67	HQ	UNIV CALIF-L ANGELES	1426
192-55-62	HQ	CALIF INST OF TECH	1210	195-42-67	HQ	UNIV CALIF-L ANGELES	1441
192-55-62	HQ	HARVARD UNIVERSITY	2084	195-42-67	HQ	UNIV CALIF-SAN DIEGO	1456
192-55-62	HQ	INDIANA U-BLOOMINGTN	1869	195-42-67	HQ	UNIV OF CHICAGO	1815
192-55-62	HQ	UNIV OF ARIZONA	1128	195-42-67	HQ	UNIV OF CHICAGO	1832
192-55-62	HQ	UNIV CALIF-BERKELEY	1331	195-42-67	HQ	UNIV OF HOUSTON	3045
192-55-62	HQ	UNIV CALIF-L ANGELES	1417	195-42-67	HQ	UNIV MICH-ANN ARBOR	2276
192-55-62	HQ	UNIV CALIF-L ANGELES	1418	195-42-67	HQ	UNIV OF PITTSBURGH	2868
192-55-62	HQ	UNIV CALIF-L ANGELES	1431	195-42-67	HQ	UNIV OF VIRGINIA	3226
192-55-62	HQ	UNIV CALIF-S BARBARA	1491	195-42-67	HQ	YALE UNIVERSITY	1616
192-55-62	HQ	UNIV OF CHICAGO	1827	195-42-68	HQ	PENNSYLVANIA STATE U	2828
192-55-62	HQ	UNIV OF HOUSTON	3039	195-42-68	HQ	UNIV CALIF-L ANGELES	1408
192-55-62	HQ	UNIV TEXAS-AUSTIN	3073	195-42-68	HQ	UNIV OREGON-EUGENE	2790
192-55-62	HQ	UTAH STATE UNIV	3152	195-43-50	HQ	UNIV OF HAWAII	1775
192-55-63	ARC	UNIV MO-ROLLA	2366	195-43-50	HQ	UNIV OF HAWAII	1776
192-55-63	HQ	CORNELL UNIVERSITY	2550	195-43-50	HQ	UNIV MARYLAND-COL PK	2030
192-55-63	HQ	MASS INST OF TECH	2157	196-00-00	HQ	BRIGHAM YOUNG UNIV	3129
192-55-63	HQ	MICHIGAN STATE UNIV	2239	196-00-00	HQ	UNIV CALIF-SAN DIEGO	1472
192-55-63	HQ	PENNSYLVANIA STATE U	2835	196-00-00	HQ	UNIV OF HAWAII	1781
192-55-63	HQ	STANFORD UNIVERSITY	1274	196-41-53	GSFC	STATE U NY-STONY BRK	2634
192-55-63	HQ	UNIV OF ROCHESTER	2649	196-41-53	GSFC	UNIV OF ARIZONA	1146
192-55-63	HQ	YALE UNIVERSITY	1612	196-41-53	GSFC	UNIV OF ARIZONA	1147
192-55-64	ARC	CALIF INST OF TECH	1209	196-41-53	GSFC	UNIV CALIF-BERKELEY	1371
192-55-64	HQ	CALIF INST OF TECH	1193	196-41-53	GSFC	UNIV OF DENVER	1592
192-55-64	HQ	FLORIDA STATE UNIV	1681	196-41-53	GSFC	UNIV WISC-MADISON	3350
192-55-64	HQ	RENSSELAER POLY-NY	2610	196-41-80	HQ	CALIF INST OF TECH	1175
192-55-64	HQ	SO ILL UNIV-CARBONDL	1803	196-41-80	HQ	CALIF INST OF TECH	1184
192-55-64	HQ	UNIV CALIF-SAN DIEGO	1477	196-41-80	HQ	CALIF INST OF TECH	1199
192-55-64	HQ	UNIV OF HAWAII	1778	196-41-80	HQ	CORNELL UNIVERSITY	2563
192-55-64	HQ	UTAH STATE UNIV	3149	196-41-80	HQ	MASS INST OF TECH	2167
193-58-61	HQ	U MINN-MNPLS-ST PAUL	2314	196-41-80	HQ	NEW MEX ST U-LAS CR	2468
193-58-62	HQ	HARDIN-SIMMONS UNIV	2951	196-41-80	HQ	STATE U NY-STONY BRK	2627
193-58-62	HQ	NO DAKOTA STATE UNIV	2687	196-41-80	HQ	UNIV OF ARIZONA	1116
195-00-00	GSFC	HOWARD UNIVERSITY	1662	196-41-80	HQ	UNIV OF ARIZONA	1122
195-00-00	HQ	CALIF INST OF TECH	1179	196-41-80	HQ	UNIV OF ARIZONA	1131
195-00-00	HQ	COLLEGE VIRGIN ISLND	3368	196-41-80	HQ	UNIV OF ARIZONA	1138
195-00-00	HQ	COLUMBIA UNIVERSITY	2513	196-41-80	HQ	UNIV CALIF-BERKELEY	1353
195-00-00	HQ	HARVARD UNIVERSITY	2089	196-41-80	HQ	UNIV OF HAWAII	1779
195-00-00	HQ	ILL INST OF TECH	1788	196-41-80	HQ	UNIV TEXAS-AUSTIN	3065
195-00-00	HQ	SO DAKOTA SCHL MINES	2893	196-41-80	HQ	UNIV TEXAS-AUSTIN	3082

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196-41-80	HQ	UNIV OF WASHINGTON	3299	340-00-00	LARC	NORFOLK STATE COL	3175
196-41-82	HQ	CALIF INST OF TECH	1191	340-00-00	LARC	NORFOLK STATE COL	3176
196-41-82	HQ	MASS INST OF TECH	2181	340-00-00	LARC	NORFOLK STATE COL	3177
196-41-82	HQ	STANFORD UNIVERSITY	1293	340-00-00	LARC	NO CAR A&T STATE U	2660
196-41-82	HQ	UNIV ILLINOIS-URBANA	1845	340-00-00	LARC	SHAW UNIVERSITY	2684
196-41-82	HQ	UNIV TEXAS-AUSTIN	3060	340-00-00	LARC	VIRGINIA STATE COL	3278
196-41-82	HQ	UNIV TEXAS-AUSTIN	3063	340-00-00	LARC	VIRGINIA STATE COL	3279
196-41-84	HQ	FLORIDA STATE UNIV	1682	340-00-00	LERC	CENTRAL ST UNIV-OHIO	2713
196-41-84	HQ	PRINCETON UNIVERSITY	2439	340-00-00	LERC	JACKSON STATE UNIV	2338
196-41-84	HQ	PRINCETON UNIVERSITY	2449	340-00-00	LERC	TENNESSEE STATE UNIV	2902
196-41-85	HQ	UNIV OF ARIZONA	1153	340-00-00	LERC	TENNESSEE STATE UNIV	2903
196-41-85	HQ	UNIV OF CINCINNATI	2758	340-00-00	LERC	TENNESSEE STATE UNIV	2903
196-41-85	HQ	UNIV OF MASS-AMHERST	2225	340-00-00	MSFC	ALABAMA A&M UNIV	1005
310-10-22	GSFC	UNIV OF CINCINNATI	2756	340-00-00	MSFC	ALABAMA A&M UNIV	1007
310-10-22	GSFC	UNIV TEXAS-AUSTIN	3080	340-00-00	MSFC	ALABAMA A&M UNIV	1008
310-20-32	GSFC	UNIV OF MASS-AMHERST	2224	340-00-00	MSFC	ALABAMA A&M UNIV	1009
310-40-25	GSFC	TEXAS A&M UNIVERSITY	2991	340-00-00	MSFC	ALABAMA A&M UNIV	1010
310-40-39	GSFC	CARNEGIE-MELLON UNIV	2802	340-00-00	MSFC	ALCORN STATE UNIV	2334
310-40-39	GSFC	UNIV CALIF-SAN DIEGO	1484	340-00-00	MSFC	BENEDICT COLLEGE	2883
311-04-03	WFC	UNIV ALASKA-FAIRBANKS	1082	340-00-00	MSFC	FISK UNIVERSITY	2897
311-07-13	GSFC	UNIV OF IOWA	1914	340-00-00	MSFC	FISK UNIVERSITY	2898
311-20-09	HQ	UNIV OF ROME	3376	340-00-00	MSFC	GRAMBLING COLLEGE	1960
311-20-10	GSFC	NAT POLYTECHNIC INST	3373	340-00-00	MSFC	JACKSON STATE UNIV	2337
311-20-20	GSFC	NEW MEX ST U-LAS CR	2460	340-00-00	MSFC	JACKSON STATE UNIV	2339
311-20-20	GSFC	NEW MEX ST U-LAS CR	2461	340-00-00	MSFC	KENTUCKY STATE UNIV	1944
311-20-20	GSFC	NEW MEX ST U-LAS CR	2462	340-00-00	MSFC	MISS VALLEY ST UNIV	2352
311-20-20	GSFC	NEW MEX ST U-LAS CR	2463	340-00-00	MSFC	MOREHOUSE COLLEGE	1760
311-20-20	GSFC	NEW MEX ST U-LAS CR	2464	340-00-00	MSFC	MOREHOUSE COLLEGE	1763
311-80-41	GSFC	UNIV TEXAS-AUSTIN	3075	340-00-00	MSFC	PAINE COLLEGE	1765
311-80-63	GSFC	UNIV TENNESSEE-KNOXV	2928	340-00-00	MSFC	SO UNIV-BATON ROUGE	1977
311-90-53	GSFC	CLEMSON UNIV-CLEMSON	2887	340-00-00	MSFC	TALLADEGA COLLEGE	1027
312-02-22	GSFC	UNIV OF CHILE	3372	340-00-00	MSFC	TALLADEGA COLLEGE	1029
340-00-00	ARC	CLARK COLLEGE	1718	340-00-00	MSFC	TENNESSEE STATE UNIV	2904
340-00-00	ARC	TALLADEGA COLLEGE	1028	340-00-00	MSFC	TUSKEGEE INSTITUTE	1032
340-00-00	ARC	XAVIER UNIV-LA	1985	340-00-00	MSFC	TUSKEGEE INSTITUTE	1034
340-00-00	GSFC	ALCORN STATE UNIV	2333	340-00-00	WFC	DC TEACHERS COLLEGE	1639
340-00-00	GSFC	BOWIE STATE COLLEGE	1988	340-00-00	WFC	HAMPTON INSTITUTE	3169
340-00-00	GSFC	BOWIE STATE COLLEGE	1991	340-00-00	HQ	ALABAMA A&M UNIV	1001
340-00-00	GSFC	COPPIN STATE COLLEGE	1993	340-00-00	HQ	ALABAMA A&M UNIV	1002
340-00-00	GSFC	DC TEACHERS COLLEGE	1640	340-00-00	HQ	ALABAMA A&M UNIV	1003
340-00-00	GSFC	FEDERAL CITY COLLEGE	1641	340-00-00	HQ	ALABAMA A&M UNIV	1004
340-00-00	GSFC	FEDERAL CITY COLLEGE	1645	340-00-00	HQ	ALABAMA A&M UNIV	1006
340-00-00	GSFC	FEDERAL CITY COLLEGE	1646	340-00-00	HQ	AUBURN UNIV-AUBURN	1023
340-00-00	GSFC	HOWARD UNIVERSITY	1669	340-00-00	HQ	AUBURN UNIV-AUBURN	1024
340-00-00	GSFC	HOWARD UNIVERSITY	1670	340-00-00	HQ	BISHOP COLLEGE	2950
340-00-00	GSFC	MORGAN STATE COLLEGE	2009	340-00-00	HQ	BOSTON COLLEGE	2070
340-00-00	GSFC	WASHINGTON TECH INST	1674	340-00-00	HQ	BOWIE STATE COLLEGE	1987
340-00-00	JSC	HOWARD UNIVERSITY	1673	340-00-00	HQ	BOWIE STATE COLLEGE	1989
340-00-00	JSC	PRAIRIE VIEW A&M U	2957	340-00-00	HQ	BOWIE STATE COLLEGE	1990
340-00-00	JSC	PRAIRIE VIEW A&M U	2960	340-00-00	HQ	CALIF INST OF TECH	1189
340-00-00	JSC	SO UNIV-BATON ROUGE	1978	340-00-00	HQ	CASE WESTERN RESERVE	2707
340-00-00	JSC	TEXAS SOUTHERN UNIV	3017	340-00-00	HQ	CATHOLIC UNIVERSITY	1637
340-00-00	JSC	TEXAS SOUTHERN UNIV	3018	340-00-00	HQ	CENTRAL ST UNIV-OHIO	2712
340-00-00	JSC	U ARKANSAS-PINE BLUF	1160	340-00-00	HQ	CENTRAL ST UNIV-OHIO	2714
340-00-00	KSC	BETHUNE-COOKMAN COL	1675	340-00-00	HQ	COLLEGE OF WM & MARY	3160
340-00-00	KSC	KENTUCKY STATE UNIV	1943	340-00-00	HQ	COLUMBIA UNIVERSITY	2517
340-00-00	LARC	BENNETT COLLEGE-NC	2654	340-00-00	HQ	CORNELL UNIVERSITY	2544
340-00-00	LARC	HAMPTON INSTITUTE	3171	340-00-00	HQ	DELAWARE STATE COL	1617
340-00-00	LARC	HAMPTON INSTITUTE	3172	340-00-00	HQ	DELAWARE STATE COL	1619
340-00-00	LARC	HAMPTON INSTITUTE	3172	340-00-00	HQ	DILLARD UNIVERSITY	1953

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RTOP NO.	INSTAL-LATION	INSTITUTION	ACC NO.	RTOP NO.	INSTAL-LATION	INSTITUTION	ACC NO.
340-00-00	HQ	FLORIDA A&M UNIV	1676	340-00-00	HQ	UNIV OF NEW MEXICO	2478
340-00-00	HQ	FLORIDA A&M UNIV	1677	340-00-00	HQ	UNIV SO MISSISSIPPI	2353
340-00-00	HQ	GRAMBLING COLLEGE	1955	340-00-00	HQ	UNIV TENNESSEE-KNOXV	2922
340-00-00	HQ	GRAMBLING COLLEGE	1957	340-00-00	HQ	UNIV TEXAS-DALLAS	3100
340-00-00	HQ	GRAMBLING COLLEGE	1958	340-00-00	HQ	UNIV TEX-PUB HEALTH	3125
340-00-00	HQ	GRAMBLING COLLEGE	1959	340-00-00	HQ	UNIV WISC-MADISON	3338
340-00-00	HQ	HAMPTON INSTITUTE	3167	340-00-00	HQ	VIRGINIA COMNWLTH U	3235
340-00-00	HQ	HOWARD UNIVERSITY	1661	340-00-00	HQ	VIRGINIA STATE COL	3275
340-00-00	HQ	HOWARD UNIVERSITY	1664	340-00-00	HQ	VIRGINIA STATE COL	3277
340-00-00	HQ	HOWARD UNIVERSITY	1666	340-00-00	HQ	WASHINGTON UNIVERSTY	2374
340-00-00	HQ	HOWARD UNIVERSITY	1667	340-00-00	HQ	XAVIER UNIV-LA	1984
340-00-00	HQ	HOWARD UNIVERSITY	1668	340-00-00	HQ	CORNELL UNIVERSITY	2553
340-00-00	HQ	HOWARD UNIVERSITY	1671	352-02-01	ARC	STATE U NY-STONY BRK	2626
340-00-00	HQ	JACKSON STATE UNIV	2335	352-02-01	ARC	UNIV CALIF-BERKELEY	1348
340-00-00	HQ	JACKSON STATE UNIV	2336	352-02-01	ARC	UNIV OF CHICAGO	1828
340-00-00	HQ	LA STATE U-BAT ROUGE	1967	352-02-01	ARC	UNIV TEXAS-AUSTIN	3074
340-00-00	HQ	LA STATE U-BAT ROUGE	1968	352-02-01	ARC	UNIV OF WYOMING	3363
340-00-00	HQ	MASS INST OF TECH	2155	352-02-01	ARC	UNIV ALASKA-FAIRBNKS	1088
340-00-00	HQ	MICHIGAN STATE UNIV	2238	352-02-02	ARC	CALIF INST OF TECH	1202
340-00-00	HQ	MISSISSIPPI STATE U	2348	352-02-03	ARC	CORNELL UNIVERSITY	2547
340-00-00	HQ	MISSISSIPPI STATE U	2349	352-02-03	ARC	MASS INST OF TECH	2185
340-00-00	HQ	MOREHOUSE COLLEGE	1761	352-02-03	ARC	POMONA COLLEGE	1236
340-00-00	HQ	NORFOLK STATE COL	3174	352-02-03	ARC	STATE U NY-STONY BRK	2631
340-00-00	HQ	NO CAR A&T STATE U	2659	352-02-03	ARC	UNIV OF ARIZONA	1135
340-00-00	HQ	NO CAR A&T STATE U	2661	352-02-03	ARC	UNIV OF ARIZONA	1136
340-00-00	HQ	OLD DOMINION UNIV	3186	352-02-03	ARC	UNIV OF ARIZONA	1137
340-00-00	HQ	OLD DOMINION UNIV	3200	352-02-03	ARC	UNIV OF ARIZONA	1145
340-00-00	HQ	OLD DOMINION UNIV	3201	352-02-03	ARC	UNIV CALIF-BERKELEY	1363
340-00-00	HQ	OREGON STATE UNIV	2782	352-02-03	ARC	UNIV CALIF-SAN DIEGO	1466
340-00-00	HQ	PAN AMERICAN UNIV	2955	352-02-03	ARC	UNIV OF CHICAGO	1831
340-00-00	HQ	PAN AMERICAN UNIV	2956	352-02-03	ARC	U MINN-MNPLS-ST PAUL	2324
340-00-00	HQ	PRAIRIE VIEW A&M U	2958	352-02-03	ARC	U MINN-MNPLS-ST PAUL	2325
340-00-00	HQ	PRAIRIE VIEW A&M U	2959	352-02-03	ARC	U MINN-MNPLS-ST PAUL	2329
340-00-00	HQ	PURDUE UNIVERSITY	1883	352-02-03	ARC	UNIV OREGON-EUGENE	2791
340-00-00	HQ	SO CAROLINA ST COL	2888	352-02-03	ARC	UNIV OREGON-EUGENE	2792
340-00-00	HQ	SO DAKOTA STATE UNIV	2896	352-02-03	ARC	UNIV OF ROCHESTER	2651
340-00-00	HQ	SO UNIV-BATON ROUGE	1974	352-02-03	ARC	U MINN-MNPLS-ST PAUL	2331
340-00-00	HQ	SO UNIV-BATON ROUGE	1975	352-03-00	HQ	UNIV OF HAWAII	1773
340-00-00	HQ	SO UNIV-BATON ROUGE	1976	366-00-00	ARC	UNIV ILLINOIS-URBANA	1835
340-00-00	HQ	STANFORD UNIVERSITY	1306	366-00-00	ARC	GEORGIA INST OF TECH	1724
340-00-00	HQ	STANFORD UNIVERSITY	1307	367-00-00	LERC	OHIO STATE UNIV	2738
340-00-00	HQ	TALLADEGA COLLEGE	1026	369-04-06	HQ	UNIV OF KANSAS	1920
340-00-00	HQ	TEXAS A&M UNIVERSITY	3010	369-05-07	LARC	COLUMBIA UNIVERSITY	2502
340-00-00	HQ	TUSKEGEE INSTITUTE	1033	369-07-01	WFC	OHIO STATE UNIV	2726
340-00-00	HQ	UNIV ALA-HUNTSVILLE	1061	369-07-01	WFC	UNIV TEXAS-AUSTIN	3050
340-00-00	HQ	UNIV ALA-TUSCALOOSA	1076	383-00-00	HQ	BOSTON UNIVERSITY	2075
340-00-00	HQ	UNIV ALASKA-FAIRBNKS	1084	383-00-00	HQ	JOHNS HOPKINS UNIV	2001
340-00-00	HQ	UNIV OF ARIZONA	1124	383-00-00	HQ	PRINCETON UNIVERSITY	2435
340-00-00	HQ	UNIV CALIF-BERKELEY	1341	383-00-00	HQ	PURDUE UNIVERSITY	1881
340-00-00	HQ	UNIV OF CHICAGO	1821	383-00-00	HQ	UNIV OF MASS-AMHERST	2229
340-00-00	HQ	UNIV OF CHICAGO	1829	383-09-37	HQ	UNIV OREGON-EUGENE	2787
340-00-00	HQ	UNIV COLORADO-BOLDR	1560	383-09-50	HQ	CALIF INST OF TECH	1195
340-00-00	HQ	UNIV OF KANSAS	1931	383-09-50	HQ	UNIV OF ARIZONA	1123
340-00-00	HQ	UNIV MARYLAND-COL PK	2057	383-09-50	HQ	UNIV CALIF-BERKELEY	1347
340-00-00	HQ	UNIV MD-EASTRN SHORE	2066	383-09-50	HQ	UNIV OF IDAHO	1786
340-00-00	HQ	UNIV MD-EASTRN SHORE	2067	383-09-50	HQ	UNIV OF NEW MEXICO	2477
340-00-00	HQ	UNIV MD-EASTRN SHORE	2068	383-09-53	HQ	FAIRLEIGH-DICKNSON U	2407
340-00-00	HQ	U MINN-MNPLS-ST PAUL	2316	383-09-53	HQ	PRINCETON UNIVERSITY	2442
340-00-00	HQ	UNIV NEBRASKA-LINCLN	2388	383-09-53	HQ	YALE UNIVERSITY	1611

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383-09-56	HQ	CORNELL UNIVERSITY	2549	384-50-80	HQ	UNIV CALIF-L ANGELES	1422
383-09-56	HQ	CORNELL UNIVERSITY	2557	384-50-80	HQ	UNIV CALIF-S BARBARA	1492
383-09-56	HQ	MASS INST OF TECH	2149	384-50-80	HQ	UNIV COLORADO-BOLDR	1568
383-09-56	HQ	MASS INST OF TECH	2163	384-50-80	HQ	UNIV OF GEORGIA	1771
383-09-57	HQ	OREGON STATE UNIV	2780	384-50-80	HQ	UNIV OF KANSAS	1934
383-09-57	HQ	UNIV OF NEW MEXICO	2480	384-50-80	HQ	UNIV OF MASS-AMHERST	2230
383-09-61	GSFC	DUKE UNIVERSITY	2657	384-50-80	HQ	UNIV OF MASS-AMHERST	2231
383-20-01	HQ	UNIV OF SANTA CLARA	1505	384-50-80	HQ	UNIV MICH-ANN ARBOR	2282
383-20-02	HQ	BROWN UNIVERSITY	2880	384-50-80	HQ	UNIV OF NEW MEXICO	2482
383-20-02	HQ	FAIRLEIGH-DICKNSON U	2409	384-50-80	HQ	UNIV OF PITTSBURGH	2865
383-20-02	HQ	MASS INST OF TECH	2216	384-50-80	HQ	UNIV OF SANTA CLARA	1504
383-20-02	HQ	WASHINGTON UNIVERSTY	2380	384-50-80	HQ	UNIV TEXAS-AUSTIN	3067
383-20-03	HQ	MASS INST OF TECH	2215	384-50-80	HQ	UNIV TEXAS-AUSTIN	3081
383-20-03	HQ	RICE UNIVERSITY	2979	384-50-80	HQ	UNIV OF UTAH	3146
383-20-03	HQ	RICE UNIVERSITY	2980	384-50-80	HQ	UNIV OF VIRGINIA	3225
383-20-03	HQ	STANFORD UNIVERSITY	1313	384-50-80	HQ	UNIV OF WASHINGTON	3302
383-20-03	HQ	UNIV OF ARIZONA	1150	384-50-80	HQ	UNIV WISC-PARKSIDE	3355
383-20-03	HQ	UNIV OF ARIZONA	1151	384-50-80	HQ	VIRGINIA STATE COL	3276
383-20-03	HQ	UNIV CALIF-L ANGELES	1429	384-50-80	HQ	WEST TEXAS ST UNIV	3126
383-20-03	HQ	UNIV TEXAS-DALLAS	3109	384-50-80	HQ	YALE UNIVERSITY	1615
383-20-04	HQ	ARIZONA STATE UNIV	1094	384-50-80	HQ	MASS INST OF TECH	2164
383-20-04	HQ	CALIF INST OF TECH	1216	385-00-00	HQ	UNIV ALASKA-FAIRBNKS	1085
383-20-04	HQ	CITY U N Y-GRAD SCHL	2499	385-00-00	HQ	UNIV COLORADO-BOLDR	1562
383-20-04	HQ	STATE U NY-STONY BRK	2638	385-00-00	HQ	UNIV OF WYOMING	3361
383-20-04	HQ	UNIV CALIF-SAN DIEGO	1487	385-36-00	GSFC	UNIV MARYLAND-COL PK	2025
383-20-04	HQ	UNIV MARYLAND-COL PK	2064	385-36-00	GSFC	UNIV MARYLAND-COL PK	2033
383-25-03	JSC	CALIF INST OF TECH	1172	385-36-00	LARC	UNIV CALIF-L ANGELES	1433
383-25-03	JSC	COLUMBIA UNIVERSITY	2506	385-36-00	HQ	BRIGHAM YOUNG UNIV	3128
383-25-03	JSC	MASS INST OF TECH	2135	385-36-00	HQ	CATHOLIC UNIVERSITY	1632
383-25-03	JSC	RICE UNIVERSITY	2965	385-36-00	HQ	DARTMOUTH COLLEGE	2396
383-25-03	JSC	UNIV OF HOUSTON	3026	385-36-00	HQ	GRAMBLING COLLEGE	1954
383-25-03	JSC	UNIV TEXAS-DALLAS	3095	385-36-00	HQ	JOHNS HOPKINS UNIV	2006
383-25-03	JSC	UNIV TEXAS-GALVESTON	3114	385-36-00	HQ	MASS INST OF TECH	2198
383-30-01	JSC	UNIV CALIF-BERKELEY	1327	385-36-00	HQ	RICE UNIVERSITY	2973
383-30-01	JSC	UNIV CALIF-L ANGELES	1402	385-36-00	HQ	STANFORD UNIVERSITY	1273
383-30-01	JSC	UNIV OF UTAH	3137	385-36-00	HQ	STANFORD UNIVERSITY	1278
383-30-02	JSC	U ARKANSAS-MONTICELLO	1158	385-36-00	HQ	UNIV ALASKA-FAIRBNKS	1090
383-30-02	JSC	UNIV CALIF-L ANGELES	1403	385-36-00	HQ	UNIV OF ARIZONA	1152
383-30-02	JSC	WOODSHOLE OCEAN INST	2232	385-36-00	HQ	UNIV OF AUCKLAND	3377
384-00-00	HQ	UNIV OF GEORGIA	1770	385-36-00	HQ	UNIV CALIF-BERKELEY	1360
384-47-66	ARC	STANFORD UNIVERSITY	1241	385-36-00	HQ	UNIV CALIF-L ANGELES	1419
384-47-81	HQ	MASS INST OF TECH	2202	385-36-00	HQ	UNIV COLORADO-BOLDR	1572
384-47-81	HQ	NEW MEX ST U-LAS CR	2471	385-36-00	HQ	UNIV OF DENVER	1586
384-47-81	HQ	ST LOUIS UNIVERSITY	2357	385-36-00	HQ	UNIV OF DENVER	1587
384-47-81	HQ	UNIV CALIF-L ANGELES	1435	385-36-00	HQ	UNIV OF DENVER	1588
384-47-81	HQ	UNIV OF CHICAGO	1826	385-36-00	HQ	UNIV ILLINOIS-URBANA	1841
384-47-81	HQ	UNIV COLORADO-BOLDR	1563	385-36-00	HQ	UNIV MARYLAND-COL PK	2046
384-47-81	HQ	UNIV COLORADO-BOLDR	1569	385-36-00	HQ	UNIV NEW HAMPSHIRE	2405
384-47-81	HQ	UNIV MICH-ANN ARBOR	2281	385-36-00	HQ	UNIV OF NEW MEXICO	2484
384-47-81	HQ	UNIV OF PITTSBURGH	2867	385-36-00	HQ	UNIV OF SOUTHERN CAL	1520
384-47-81	HQ	UNIV OF WASHINGTON	3304	385-36-00	HQ	UNIV OF SOUTHERN CAL	1521
384-50-80	HQ	BROWN UNIVERSITY	2878	385-36-00	HQ	UNIV TEXAS-DALLAS	3103
384-50-80	HQ	CALIF INST OF TECH	1198	385-36-00	HQ	UNIV TEXAS-DALLAS	3108
384-50-80	HQ	CALIF INST OF TECH	1208	385-36-00	HQ	UNIV OF WASHINGTON	3303
384-50-80	HQ	HAMILTON COLLEGE	2568	385-38-00	HQ	CALIF INST OF TECH	1204
384-50-80	HQ	MASS INST OF TECH	2176	385-38-00	HQ	COLUMBIA UNIVERSITY	2514
384-50-80	HQ	NEW MEX ST U-LAS CR	2470	385-38-00	HQ	COLUMBIA UNIVERSITY	2520
384-50-80	HQ	TULANE UNIVERSITY	1983	385-38-00	HQ	COLUMBIA UNIVERSITY	2521
384-50-80	HQ	U ARKANSAS-MONTICELLO	1159	385-38-00	HQ	COLUMBIA UNIVERSITY	2525

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385-38-00	HQ	HARVARD UNIVERSITY	2095	388-10-02	JSC	BROWN UNIVERSITY	2881
385-38-00	HQ	SACRAMENTO CITY COL	1237	388-10-02	JSC	CALIF INST OF TECH	1185
385-38-00	HQ	STANFORD UNIVERSITY	1301	388-10-02	JSC	CALIF INST OF TECH	1186
385-38-00	HQ	UNIV ALA-HUNTSVILLE	1062	388-10-02	JSC	CALIF INST OF TECH	1187
385-38-00	HQ	UNIV CALIF-BERKELEY	1362	388-10-02	JSC	CALIF INST OF TECH	1212
385-38-00	HQ	UNIV COLORADO-BOLDR	1573	388-10-02	JSC	OREGON STATE UNIV	2781
385-38-00	HQ	UNIV MICH-ANN ARBOR	2280	388-10-02	JSC	PENNSYLVANIA STATE U	2836
385-38-00	HQ	UNIV MICH-ANN ARBOR	2293	388-10-02	JSC	RICE UNIVERSITY	2972
385-38-00	HQ	UNIV NEW HAMPSHIRE	2406	388-10-02	JSC	STATE U NY-STONY BRK	2623
385-41-00	GSFC	UNIV COLORADO-BOLDR	1556	388-10-02	JSC	UNIV CALIF-BERKELEY	1339
385-41-00	HQ	CALIF INST OF TECH	1205	388-10-02	JSC	UNIV CALIF-BERKELEY	1349
385-41-00	HQ	COLUMBIA UNIVERSITY	2523	388-10-02	JSC	UNIV CALIF-L ANGELES	1414
385-41-00	HQ	MASS INST OF TECH	2197	388-10-02	JSC	UNIV CALIF-SAN DIEGO	1461
385-41-00	HQ	NORTHWESTERN UNIV	1798	388-10-02	JSC	UNIV CALIF-SAN DIEGO	1462
385-41-00	HQ	UNIV COLORADO-BOLDR	1566	388-10-02	JSC	UNIV OF CHICAGO	1818
385-41-00	HQ	UNIV OF FLORIDA	1701	388-10-02	JSC	UNIV OF CHICAGO	1819
385-41-00	HQ	UNIV MICH-ANN ARBOR	2272	388-10-02	JSC	U MINN-MNPLS-ST PAUL	2315
385-41-00	HQ	UNIV TEXAS-AUSTIN	3068	388-10-02	JSC	U MINN-MNPLS-ST PAUL	2321
385-41-00	HQ	UNIV OF TOLEDO	2767	388-10-02	JSC	UNIV OREGON-EUGENE	2789
385-41-00	HQ	UNIV WISC-MADISON	3353	388-10-02	JSC	UNIV TENNESSEE-KNOXV	2919
385-45-00	ARC	BOSTON COLLEGE	2069	388-10-02	JSC	COLUMBIA UNIVERSITY	2518
385-45-00	GSFC	CAL STATE U-S DIEGO	1224	388-10-03	JSC	COLUMBIA UNIVERSITY	2519
385-45-00	HQ	NO CAROLINA STATE U	2680	388-10-03	JSC	CORNELL UNIVERSITY	2551
385-45-00	HQ	RUTGERS UNIV-NEWARK	2455	388-10-03	JSC	DUKE UNIVERSITY	2658
385-45-00	HQ	TEMPLE UNIVERSITY	2846	388-10-03	JSC	FAIRLEIGH-DICKNSON U	2408
385-45-00	HQ	UNIV TEXAS-DALLAS	3107	388-10-03	JSC	JOHNS HOPKINS UNIV	2007
385-45-00	HQ	UNIV OF TOLEDO	2763	388-10-03	JSC	MASS INST OF TECH	2171
385-46-00	HQ	STATE U NY-STONY BRK	2633	388-10-03	JSC	QUEENS COLLEGE	2596
385-46-00	HQ	UNIV TEXAS-DALLAS	3104	388-10-03	JSC	STATE UNIV NY-BUFFAL	2616
385-46-00	HQ	UNIV TEXAS-DALLAS	3106	388-10-03	JSC	UNIV CALIF-BERKELEY	1340
385-50-00	GSFC	UNIV OF ARIZONA	1100	388-10-03	JSC	UNIV CALIF-L ANGELES	1413
387-30-01	HQ	UNIV CALIF-L ANGELES	1420	388-10-03	JSC	UNIV CALIF-S BARBARA	1493
387-30-01	HQ	UNIV OF HAWAII	1784	388-10-03	JSC	UNIV COLORADO-BOLDR	1567
387-30-01	HQ	UNIV TEXAS-AUSTIN	3066	388-10-03	JSC	U MINN-MNPLS-ST PAUL	2322
387-30-01	HQ	UNIV TEXAS-AUSTIN	3070	388-10-03	JSC	UNIV OF PITTSBURGH	2861
388-10-01	JSC	BRYN MAWR COLLEGE	2794	388-10-03	JSC	UNIV OF UTAH	3144
388-10-01	JSC	CALIF INST OF TECH	1190	388-10-03	JSC	INDIANA U-BLOOMINGTN	1868
388-10-01	JSC	CASE WESTERN RESERVE	2695	388-10-04	JSC	UNIV CALIF-L ANGELES	1421
388-10-01	JSC	COLUMBIA UNIVERSITY	2524	388-10-04	JSC	COLUMBIA UNIVERSITY	2508
388-10-01	JSC	HARVARD UNIVERSITY	2088	404-02-02	GSFC	STATE U NY-STONY BRK	2630
388-10-01	JSC	LEHIGH UNIVERSITY	2813	404-02-02	GSFC	STATE U NY-STONY BRK	2636
388-10-01	JSC	LEHIGH UNIVERSITY	2815	404-02-02	GSFC	CITY COLLEGE OF N Y	2494
388-10-01	JSC	MASS INST OF TECH	2172	405-02-02	GSFC	STATE U NY-STONY BRK	2621
388-10-01	JSC	MASS INST OF TECH	2179	405-02-02	GSFC	UNIV OF ARIZONA	1129
388-10-01	JSC	PRINCETON UNIVERSITY	2428	405-02-02	GSFC	COLUMBIA UNIVERSITY	2522
388-10-01	JSC	PURDUE UNIVERSITY	1889	408-02-01	GSFC	CITY COLLEGE OF N Y	2497
388-10-01	JSC	RICE UNIVERSITY	2974	408-02-02	GSFC	LONG ISLAND UNIV	2573
388-10-01	JSC	STATE U NY-STONY BRK	2622	408-02-02	GSFC	NEW YORK UNIVERSITY	2579
388-10-01	JSC	UNIV OF ARIZONA	1144	408-02-02	GSFC	NEW YORK UNIVERSITY	2583
388-10-01	JSC	UNIV OF CHICAGO	1820	408-02-02	GSFC	UNIV MICH-ANN ARBOR	2251
388-10-01	JSC	UNIV OF HOUSTON	3038	490-01-04	GSFC	VIRGINIA POLY INST	3266
388-10-01	JSC	UNIV OF MASS-AMHERST	2227	492-04-15	GSFC	NEW MEX ST U-LAS CR	2467
388-10-01	JSC	UNIV OF NEW MEXICO	2479	492-22-00	KSC	CASE WESTERN RESERVE	2692
388-10-01	JSC	UNIV OREGON-EUGENE	2788	501-00-00	LERC	MASS INST OF TECH	2113
388-10-01	JSC	UNIV TEXAS-DALLAS	3102	501-01-02	ARC	PRINCETON UNIVERSITY	2415
388-10-01	JSC	UNIV OF WASHINGTON	3301	501-01-02	ARC	CASE WESTERN RESERVE	2693
388-10-01	JSC	WASHINGTON UNIVERSTY	2376	501-01-06	LERC	LEHIGH UNIVERSITY	2809
388-10-02	ARC	UNIV CALIF-L ANGELES	1391	501-01-06	LERC	MASS INST OF TECH	2140
388-10-02	JSC	ARIZONA STATE UNIV	1092	501-01-06	LERC	MASS INST OF TECH	2213

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501-01-06	LERC	PENNSYLVANIA STATE U	2845	501-08-10	MSFC	APPALACHIAN STATE U	2652
501-01-06	LERC	STATE U NY-STONY BRK	2628	501-08-10	MSFC	COLORADO STATE UNIV	1533
501-01-06	LERC	UNIV OF KENTUCKY	1947	501-08-10	MSFC	GEORGIA INST OF TECH	1729
501-02-01	LARC	MASS INST OF TECH	2195	501-08-10	MSFC	TEXAS A&M UNIVERSITY	2995
501-03-02	LARC	MASS INST OF TECH	2156	501-08-10	MSFC	UNIV OKLAHOMA-NORMAN	2775
501-03-02	LARC	OHIO UNIVERSITY	2744	501-08-10	MSFC	UNIV TENNESSEE-KNOXV	2913
501-03-02	LARC	PRINCETON UNIVERSITY	2427	501-08-10	MSFC	UNIV TENNESSEE-KNOXV	2913
501-03-11	ARC	MASS INST OF TECH	2146	501-08-10	WFC	VIRGINIA POLY INST	3247
501-03-11	ARC	PRINCETON UNIVERSITY	2443	501-09-02	LARC	MEMPHIS ST UNIV	2900
501-03-11	ARC	STANFORD UNIVERSITY	1258	501-09-02	LARC	MEMPHIS ST UNIV	2901
501-03-11	ARC	UNIV OF SANTA CLARA	1499	501-09-02	HQ	UNIV ILLINOIS-URBANA	1839
501-03-11	ARC	UTAH STATE UNIV	3150	501-15-81	ARC	PURDUE UNIVERSITY	1892
501-03-11	ARC	UTAH STATE UNIV	3151	501-15-81	ARC	STANFORD UNIVERSITY	1299
501-04-01	ARC	UNIV OF SANTA CLARA	1503	501-15-81	ARC	UNIV CALIF-L ANGELES	1423
501-04-01	LARC	GEORGE WASHINGTON U	1651	501-15-82	LARC	GEORGE WASHINGTON U	1652
501-04-01	LARC	GEORGE WASHINGTON U	1654	501-15-82	LARC	OLD DOMINION UNIV	3190
501-04-01	LARC	MICHIGAN STATE UNIV	2242	501-15-82	LARC	UNIV OF CINCINNATI	2752
501-04-01	LARC	NEW YORK UNIVERSITY	2584	501-15-82	LARC	UNIV COLORADO-BOLDR	1579
501-04-01	LARC	PENNSYLVANIA STATE U	2831	501-15-82	LARC	UNIV OF VIRGINIA	3227
501-04-01	LARC	PURDUE UNIVERSITY	1891	501-15-82	LARC	VIRGINIA POLY INST	3251
501-04-01	LERC	GEORGIA INST OF TECH	1725	501-15-83	LERC	CARNEGIE-MELLON UNIV	2805
501-04-01	LERC	GEORGIA INST OF TECH	1757	501-15-83	LERC	CASE WESTERN RESERVE	2710
501-04-01	LERC	PENNSYLVANIA STATE U	2819	501-15-83	LERC	MASS INST OF TECH	2203
501-04-01	LERC	PENNSYLVANIA STATE U	2844	501-15-83	LERC	PENNSYLVANIA STATE U	2841
501-04-01	LERC	PURDUE UNIVERSITY	1871	501-15-83	LERC	PENNSYLVANIA STATE U	2842
501-04-01	LERC	PURDUE UNIVERSITY	1895	501-15-83	LERC	PRINCETON UNIVERSITY	2445
501-04-01	LERC	UNIV ILLINOIS-URBANA	1844	501-15-83	LERC	UNIV OF CINCINNATI	2749
501-04-01	LERC	UNIV OF SOUTHERN CAL	1508	501-15-83	LERC	UNIV ILLINOIS-URBANA	1850
501-04-01	LERC	UNIV OF SOUTHERN CAL	1523	501-15-83	LERC	UNIV MICH-ANN ARBOR	2286
501-04-03	LARC	GEORGIA INST OF TECH	1744	501-15-83	LERC	UNIV TENNESSEE-KNOXV	2926
501-04-03	LARC	GEORGIA INST OF TECH	1749	501-15-83	LERC	UNIV TENNESSEE-KNOXV	2927
501-04-03	LARC	NEW YORK UNIVERSITY	2581	501-15-83	LERC	UNIV OF TOLEDO	2764
501-04-03	LARC	VIRGINIA POLY INST	3239	501-16-00	ARC	CAL STATE U-SAN JOSE	1228
501-04-03	LERC	CALIF INST OF TECH	1183	501-17-00	ARC	STANFORD UNIVERSITY	1243
501-04-03	LERC	MASS INST OF TECH	2152	501-17-00	ARC	UNIV OF CINCINNATI	2746
501-06-01	LARC	GEORGIA INST OF TECH	1746	501-17-00	ARC	WASHINGTON UNIVERSTY	2370
501-06-01	LARC	GEORGIA INST OF TECH	1754	501-21-20	HQ	GEORGE WASHINGTON U	1648
501-06-01	LARC	NEW YORK UNIVERSITY	2582	501-21-21	ARC	NO CAROLINA STATE U	2671
501-06-01	LARC	PURDUE UNIVERSITY	1893	501-21-21	ARC	STANFORD UNIVERSITY	1295
501-06-01	LARC	UNIV OF KANSAS	1935	501-21-21	ARC	UNIV NEBRASKA-LINCLN	2390
501-06-02	ARC	IOWA STATE UNIV	1901	501-21-21	LERC	PENNSYLVANIA STATE U	2833
501-06-02	ARC	STANFORD UNIVERSITY	1289	501-21-21	LERC	SYRACUSE UNIVERSITY	2645
501-06-04	ARC	MASS INST OF TECH	2174	501-21-21	LERC	UNIV COLORADO-BOLDR	1576
501-06-04	LARC	UNIV OF VIRGINIA	3223	501-21-21	LERC	UNIV OF KENTUCKY	1952
501-06-05	LARC	MISSISSIPPI STATE U	2351	501-21-22	ARC	PRINCETON UNIVERSITY	2412
501-06-05	LARC	TEXAS A&M UNIVERSITY	3015	501-21-22	ARC	UNIV CALIF-BERKELEY	1373
501-06-05	LARC	UNIV MICH-ANN ARBOR	2273	501-21-22	ARC	UNIV OF UTAH	3132
501-06-07	LARC	UNIV MICH-ANN ARBOR	2284	501-21-22	LARC	OLD DOMINION UNIV	3183
501-06-08	ARC	UNIV OF WASHINGTON	3290	501-21-22	LARC	UNIV SO MISSISSIPPI	2354
501-06-08	LARC	MICHIGAN STATE UNIV	2241	501-21-22	LARC	VIRGINIA COMNWLTH U	3237
501-06-09	ARC	UNIV OF WASHINGTON	3294	501-21-22	LARC	VIRGINIA POLY INST	3271
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501-06-12	ARC	HARVEY MUDD COLLEGE	1234	501-21-23	LARC	UNIV OF CINCINNATI	2753
501-06-12	ARC	UNIV CALIF-BERKELEY	1352	501-21-23	LERC	CASE WESTERN RESERVE	2701
501-06-13	LARC	FLORIDA STATE UNIV	1683	501-22-01	LARC	GEORGIA INST OF TECH	1740
501-08-10	FRC	UNIV CALIF-L ANGELES	1438	501-22-02	LARC	GEORGIA INST OF TECH	1748
501-08-10	LARC	OLD DOMINION UNIV	3210	501-22-02	LARC	LEHIGH UNIVERSITY	2811
501-08-10	LARC	UNIV OF PENNSYLVANIA	2851	501-22-02	LARC	NO CAROLINA STATE U	2674
				501-22-02	LARC	OLD DOMINION UNIV	3192

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501-22-02	LARC	VIRGINIA POLY INST	3270	502-01-01	ARC	UNIV CALIF-L ANGELES	1437
501-22-02	LARC	YOUNGSTOWN STATE U	2768	502-01-01	HQ	PRINCETON UNIVERSITY	2447
501-22-03	LARC	UNIV OF BRIDGEPORT	1597	502-01-02	ARC	UNIV OREGON-EUGENE	2793
501-22-03	LARC	UNIV OF KANSAS	1936	502-01-02	LERC	CASE WESTERN RESERVE	2709
501-22-03	LARC	VIRGINIA POLY INST	3257	502-01-02	LERC	NORTHWESTERN UNIV	1795
501-22-03	LARC	VIRGINIA POLY INST	3267	502-01-02	LERC	NORTHWESTERN UNIV	1800
501-22-03	LERC	TEXAS A&M UNIVERSITY	3013	502-01-02	LERC	RENSSELAER POLY-NY	2609
501-22-04	LARC	CLEMSON UNIV-CLEMSON	2886	502-01-02	HQ	STANFORD UNIVERSITY	1265
501-22-04	LARC	COLUMBIA UNIVERSITY	2527	502-01-02	HQ	TULANE UNIVERSITY	1981
501-22-04	LARC	MASS INST OF TECH	2209	502-01-03	LARC	AMERICAN UNIVERSITY	1630
501-22-04	LARC	OLD DOMINION UNIV	3205	502-01-03	LARC	BROWN UNIVERSITY	2879
501-22-04	LARC	PRINCETON UNIVERSITY	2426	502-01-03	LARC	CARNEGIE-MELLON UNIV	2799
501-22-04	LARC	STANFORD UNIVERSITY	1266	502-01-03	LARC	COLLEGE OF WM & MARY	3164
501-22-04	LARC	UNIV CALIF-L ANGELES	1430	502-01-03	LARC	OLD DOMINION UNIV	3189
501-22-04	LARC	UNIV TENNESSEE-KNOXV	2920	502-01-03	LARC	MASS INST OF TECH	2147
501-22-04	LARC	VIRGINIA POLY INST	3240	502-01-03	MSFC	ALFRED UNIVERSITY	2486
501-22-05	ARC	PRINCETON UNIVERSITY	2434	502-01-03	HQ	RICE UNIVERSITY	2970
501-22-05	ARC	UNIV TEXAS-AUSTIN	3071	502-01-04	LERC	UNIV OF WASHINGTON	3286
501-22-10	LARC	PRINCETON UNIVERSITY	2441	502-01-06	LERC	STANFORD UNIVERSITY	1298
501-23-11	LARC	VA MILITARY INSTITUT	3238	502-01-06	LERC	UNIV MARYLAND-COL PK	2062
501-23-21	FRC	UNIV OF KANSAS	1933	502-01-07	LERC	HIRAM COLLEGE	2718
501-23-32	LARC	UNIV OF KANSAS	1939	502-03-11	GSFC	HARVARD UNIVERSITY	2085
501-23-32	LARC	UNIV MICH-ANN ARBOR	2289	502-03-11	GSFC	MASS INST OF TECH	2192
501-24-01	LARC	GEORGIA INST OF TECH	1755	502-03-11	GSFC	YALE UNIVERSITY	1609
501-24-01	LARC	UNIV ILLINOIS-URBANA	1851	502-03-12	HQ	MASS INST OF TECH	2141
501-24-01	LARC	UNIV OF KANSAS	1932	502-03-12	HQ	STANFORD UNIVERSITY	1261
501-24-01	LARC	VIRGINIA POLY INST	3262	502-03-31	HQ	CALIF INST OF TECH	1213
501-24-01	LERC	WICHITA STATE UNIV	1941	502-03-32	HQ	UNIV MARYLAND-COL PK	2031
501-24-02	LERC	CORNELL UNIVERSITY	2566	502-03-51	LARC	COLLEGE OF WM & MARY	3165
501-24-02	LERC	UNIV CALIF-BERKELEY	1374	502-03-51	LARC	OLD DOMINION UNIV	3178
501-24-03	LERC	UNIV OF CINCINNATI	2754	502-03-52	LARC	UNIV OF NOTRE DAME	1899
501-24-05	LERC	CASE WESTERN RESERVE	2704	502-03-52	LARC	UNIV OF VIRGINIA	3234
501-24-05	LERC	PURDUE UNIVERSITY	1894	502-03-53	LARC	NO CAROLINA STATE U	2670
501-24-06	LERC	UNIV ILLINOIS-URBANA	1840	502-03-53	LARC	RENSSELAER POLY-NY	2608
501-24-07	LERC	BUCKNELL UNIVERSITY	2795	502-03-53	LARC	UNIV COLORADO-BOLDR	1577
501-24-07	LERC	BUCKNELL UNIVERSITY	2796	502-03-53	LARC	UNIV COLORADO-BOLDR	1578
501-24-07	LERC	STANFORD UNIVERSITY	1262	502-04-01	LERC	COLORADO STATE UNIV	1545
501-24-07	LERC	STATE U NY-STONY BRK	2629	502-04-01	LERC	COLORADO STATE UNIV	1551
501-24-08	LERC	PURDUE UNIVERSITY	1890	502-04-14	HQ	PRINCETON UNIVERSITY	2421
501-24-09	LERC	STANFORD UNIVERSITY	1247	502-04-25	LERC	CAL STATE U-SACRAMEN	1223
501-24-10	LERC	CAL STATE U-NRTHRDGE	1222	502-04-25	LERC	CATHOLIC UNIVERSITY	1635
501-24-10	LERC	MISSISSIPPI STATE U	2350	502-04-25	LERC	COLORADO STATE UNIV	1538
501-24-10	LERC	NORTHWESTERN UNIV	1796	502-04-25	LERC	GEORGIA INST OF TECH	1739
501-24-10	LERC	ROSE-HULMAN INST TEC	1898	502-04-25	LERC	GEORGIA INST OF TECH	1750
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501-26-01	FRC	MASS INST OF TECH	2154	502-04-25	LERC	UNIV COLORADO-BOLDR	1571
501-26-01	FRC	UNIV CALIF-L ANGELES	1415	502-04-35	LERC	COLORADO STATE UNIV	1546
501-26-02	ARC	UNIV OF WASHINGTON	3293	502-04-35	LERC	CORNELL UNIVERSITY	2560
501-29-02	ARC	MASS INST OF TECH	2190	502-04-35	LERC	CORNELL UNIVERSITY	2561
501-29-12	LARC	NO CAROLINA STATE U	2677	502-04-35	LERC	UNIV MARYLAND-COL PK	2050
501-29-12	LARC	OLD DOMINION UNIV	3197	502-04-36	LARC	NO CAROLINA STATE U	2682
501-31-90	ARC	UNIV CALIF-BERKELEY	1318	502-04-41	LARC	NO CAROLINA STATE U	2662
501-38-11	LARC	CHRISTPHR NEWPRT COL	3156	502-05-50	LERC	MASS INST OF TECH	2214
501-38-11	LARC	CHRISTPHR NEWPRT COL	3157	502-05-50	LERC	NO CAROLINA STATE U	2679
501-38-11	LARC	HAMPTON INSTITUTE	3166	502-05-50	LERC	UNIV OF FLORIDA	1705
501-38-12	LERC	RENSSELAER POLY-NY	2605	502-05-50	LERC	WAYNE STATE UNIV	2297
501-38-13	LARC	UNIV ILLINOIS-URBANA	1854	502-05-50	LERC	WAYNE STATE UNIV	2298

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502-05-51	LERC	UNIV OF FLORIDA	1693	502-25-71	LERC	UNIV OF CINCINNATI	2760
502-05-51	LERC	UNIV OF PITTSBURGH	2873	502-25-72	GSFC	DUKE UNIVERSITY	2656
502-07-01	ARC	UNIV OF SANTA CLARA	1501	502-27-01	ARC	BROWN UNIVERSITY	2876
502-10-01	LARC	MASS INST OF TECH	2208	502-27-01	ARC	UNIV OF TULSA	2778
502-10-01	LARC	NO CAROLINA STATE U	2683	502-27-01	LARC	CHESAPEAKE COLLEGE	1992
502-10-01	LARC	OLD DOMINION UNIV	3202	502-27-01	LARC	OLD DOMINION UNIV	3212
502-10-01	LARC	OLD DOMINION UNIV	3206	502-27-01	LARC	OLD DOMINION UNIV	3212
502-10-01	LARC	UNIV ILLINOIS-URBANA	1856	502-28-04	LERC	PENNSYLVANIA STATE U	2834
502-10-01	LARC	VANDERBILT UNIVERSTY	2938	502-28-04	LERC	UNIV ILLINOIS-URBANA	1857
502-10-01	HQ	ILL INST OF TECH	1789	502-28-04	LERC	UNIV OF KENTUCKY	1950
502-10-01	HQ	STANFORD UNIVERSITY	1314	502-28-04	LERC	UNIV MARYLAND-COL PK	2039
502-10-01	HQ	UNIV OF FLORIDA	1697	502-31-50	ARC	STANFORD UNIVERSITY	1304
502-10-01	HQ	UNIV OF WASHINGTON	3289	502-31-50	LARC	TEXAS A&M UNIVERSITY	2988
502-10-02	LERC	UNIV OF CINCINNATI	2750	502-31-50	HQ	UNIV OF WASHINGTON	3282
502-11-01	LERC	UNIV ILLINOIS-URBANA	1852	502-31-51	LERC	UNIV TENNESSEE-KNOXV	2925
502-11-11	ARC	UNIV CALIF-BERKELEY	1367	502-32-01	LARC	CALIF INST OF TECH	1215
502-12-01	HQ	ARIZONA STATE UNIV	1093	502-32-01	LARC	OLD DOMINION UNIV	3209
502-21-20	LERC	UNIV CALIF-BERKELEY	1368	502-32-02	LARC	GEORGE WASHINGTON U	1653
502-21-20	LERC	UNIV OF PITTSBURGH	2870	502-32-02	LARC	UNIV TENNESSEE-KNOXV	2929
502-21-24	LERC	GEORGIA INST OF TECH	1742	502-32-02	LARC	UNIV TEXAS-AUSTIN	3085
502-21-24	LERC	UNIV CALIF-L ANGELES	1428	502-33-83	LARC	OHIO STATE UNIV	2732
502-21-27	ARC	COLORADO STATE UNIV	1543	502-33-83	LARC	OHIO STATE UNIV	2734
502-21-27	ARC	WASHINGTON ST UNIV	3308	502-35-62	LERC	GEORGIA INST OF TECH	1751
502-21-27	MSFC	AUBURN UNIV-AUBURN	1015	502-35-62	LERC	UNIV OF KENTUCKY	1951
502-21-32	LARC	OLD DOMINION UNIV	3195	502-37-01	LARC	NEW YORK UNIVERSITY	2585
502-22-01	LARC	UNIV CALIF-L ANGELES	1427	502-37-01	LARC	NO CAROLINA STATE U	2678
502-22-01	LARC	UNIV OF VIRGINIA	3224	502-37-01	LARC	UNIV OF CINCINNATI	2757
502-22-03	LERC	BROWN UNIVERSITY	2877	502-37-02	ARC	STANFORD UNIVERSITY	1286
502-22-03	LERC	CARNEGIE-MELLON UNIV	2798	502-37-02	LARC	VIRGINIA POLY INST	3261
502-22-03	LERC	CARNEGIE-MELLON UNIV	2803	503-04-01	LERC	UNIV OF ARIZONA	1130
502-22-03	LERC	CARNEGIE-MELLON UNIV	2804	503-04-01	HQ	UNIV OF ARIZONA	1117
502-22-03	LERC	CASE WESTERN RESERVE	2711	503-10-01	LARC	PRINCETON UNIVERSITY	2448
502-22-03	LERC	COLORADO STATE UNIV	1536	503-10-01	HQ	GEORGIA INST OF TECH	1759
502-22-03	LERC	LEHIGH UNIVERSITY	2817	503-10-03	LERC	KENT STATE UNIV	2719
502-22-03	LERC	UNIV OF MIAMI	1716	503-10-03	LERC	UNIV OF CINCINNATI	2748
502-22-09	LERC	PRINCETON UNIVERSITY	2440	503-10-03	HQ	NO CAROLINA STATE U	2672
502-22-10	LARC	UNIV OF CINCINNATI	2755	503-10-03	HQ	UNIV ILLINOIS-URBANA	1848
502-22-10	LARC	UNIV OF MIAMI	1717	503-10-03	HQ	UNIV MARYLAND-COL PK	2051
502-22-11	ARC	UNIV MARYLAND-COL PK	2041	503-10-04	LERC	UNIV OF CINCINNATI	2751
502-22-11	LARC	HARVARD UNIVERSITY	2103	504-09-02	LARC	NO CAROLINA STATE U	2668
502-22-11	LARC	OHIO STATE UNIV	2737	504-09-02	LARC	OLD DOMINION UNIV	3208
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502-23-32	GSFC	CARNEGIE-MELLON UNIV	2801	504-29-01	ARC	SOUTHERN METHODIST U	2986
502-23-32	GSFC	UNIV CALIF-SAN DIEGO	1485	504-29-02	ARC	UNIV OF UTAH	3147
502-23-32	GSFC	UNIV TENNESSEE-KNOXV	2931	504-29-03	ARC	UNIV CALIF-SAN DIEGO	1475
502-23-32	GSFC	YALE UNIVERSITY	1608	504-29-11	LARC	COLUMBIA UNIVERSITY	2511
502-23-43	GSFC	DARTMOUTH COLLEGE	2397	504-29-12	LARC	UNIV OF VIRGINIA	3230
502-23-51	MSFC	MISSISSIPPI STATE U	2342	504-29-14	LARC	MASS INST OF TECH	2184
502-23-51	MSFC	TEXAS A&M UNIVERSITY	2993	504-29-21	FRC	UNIV OF VIRGINIA	3229
502-23-51	MSFC	VANDERBILT UNIVERSTY	2934	504-39-11	LARC	CASE WESTERN RESERVE	2708
502-23-56	LARC	OLD DOMINION UNIV	3193	504-39-11	LARC	GEORGIA INST OF TECH	1745
502-23-56	LARC	UNIV COLORADO-BOLDR	1570	598-85-00	LERC	HIRAM COLLEGE	2717
502-23-56	LARC	WASHINGTON UNIVERSTY	2379	599-85-00	LARC	UNIV MICH-ANN ARBOR	2285
502-24-16	LERC	GEORGIA INST OF TECH	1726	599-85-00	LARC	VIRGINIA POLY INST	3260
502-24-82	JSC	UNIV MICH-ANN ARBOR	2287	599-85-00	LERC	COLORADO STATE UNIV	1530
502-24-88	LARC	UNIV MARYLAND-COL PK	2058	599-85-00	HQ	HAMPTON INSTITUTE	3168
502-25-53	LERC	UNIV OF FLORIDA	1702	601-13-00	GSFC	MASS INST OF TECH	2120
				601-13-00	GSFC	UNIV WISC-MADISON	3327

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607-00-00	GSFC	UNIV MICH-ANN ARBOR	2254	641-14-03	GSFC	INDIANA U-BLOOMINGTN	1861
607-06-00	LARC	TENNESSEE TECH U	2905	641-14-03	GSFC	STANFORD UNIVERSITY	1250
607-06-00	LARC	UNIV OF UTAH	3141	641-14-03	GSFC	STANFORD UNIVERSITY	1251
607-07-00	WFC	UNIV OF DAYTON	2761	641-14-03	GSFC	UNIV OF IOWA	1915
607-07-00	WFC	UNIV OF UTAH	3134	641-14-03	GSFC	UNIV OF MONTANA	2382
607-07-00	WFC	UNIV OF UTAH	3135	641-14-03	GSFC	UNIV OF UTAH	3133
607-12-00	GSFC	UNIV MICH-ANN ARBOR	2252	641-14-03	GSFC	UNIV OF WYOMING	3358
610-11-00	GSFC	UNIV CALIF-L ANGELES	1416	641-14-04	GSFC	TEXAS TECH UNIV	3019
611-13-00	GSFC	COLORADO STATE UNIV	1552	641-14-04	GSFC	UNIV ALA-TUSCALOOSA	1063
611-13-00	GSFC	MASS INST OF TECH	2188	641-14-05	GSFC	LONG ISLAND UNIV	2570
611-13-00	GSFC	UNIV OF ARIZONA	1102	641-14-07	GSFC	AMERICAN UNIVERSITY	1626
611-13-00	GSFC	UNIV ILLINOIS-URBANA	1837	641-14-07	GSFC	OLD DOMINION UNIV	3180
611-13-00	GSFC	UNIV MARYLAND-COL PK	2045	641-14-07	GSFC	OREGON STATE UNIV	2779
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611-13-00	GSFC	UNIV WISC-MADISON	3329	641-14-07	GSFC	PURDUE UNIVERSITY	1874
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630-00-00	GSFC	STANFORD UNIVERSITY	1248	641-14-07	GSFC	UNIV OF ARIZONA	1104
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630-22-00	GSFC	U MINN-MNPLS-ST PAUL	2308	641-14-07	GSFC	UNIV TENNESSEE-KNOXV	2910
630-22-00	GSFC	UNIV NEW HAMPSHIRE	2399	641-14-07	GSFC	UNIV WISC-MADISON	3324
630-52-00	LARC	MASS INST OF TECH	2111	641-14-07	GSFC	TEXAS A&M UNIVERSITY	3003
630-52-00	LARC	NEW YORK UNIVERSITY	2575	641-14-08	JSC	AMERICAN UNIVERSITY	1627
636-00-00	GSFC	UNIV ILLINOIS-URBANA	1849	641-14-08	GSFC	MISSISSIPPI STATE U	2340
636-00-00	GSFC	UNIV OF PERU	3378	641-14-08	GSFC	UNIV TENNESSEE-KNOXV	2909
636-00-00	LARC	NORTHWESTERN UNIV	1799	641-14-08	GSFC	UNIV OF ARIZONA	1106
636-18-00	GSFC	OHIO STATE UNIV	2733	641-14-09	GSFC	UNIV OF VERMONT	3153
636-18-71	LARC	OHIO STATE UNIV	2736	642-12-00	LARC	OLD DOMINION UNIV	3207
638-00-00	LARC	COLLEGE OF WM & MARY	3159	642-12-00	LARC	UNIV OF WYOMING	3356
638-00-00	LARC	GEORGE WASHINGTON U	1650	643-10-00	GSFC	CITY COLLEGE OF N Y	2498
638-10-00	LARC	COLORADO STATE UNIV	1528	643-10-00	GSFC	GEORGIA INST OF TECH	1758
638-10-00	LARC	DREXEL UNIVERSITY	2806	643-10-00	GSFC	OHIO STATE UNIV	2725
638-10-00	LARC	UNIV OF DENVER	1591	643-10-00	GSFC	UNIV TEXAS-AUSTIN	3049
638-10-00	LARC	UNIV OF WYOMING	3366	643-10-00	GSFC	VIRGINIA POLY INST	3243
638-10-00	LARC	VIRGINIA POLY INST	3241	643-60-00	GSFC	CASE WESTERN RESERVE	2705
640-04-04	JSC	NEW MEX ST U-LAS CR	2466	643-60-00	GSFC	PURDUE UNIVERSITY	1896
641-00-00	GSFC	UNIV OF WYOMING	3359	643-60-00	GSFC	UNION COLLEGE	2646
641-14-00	GSFC	NO CAROLINA STATE U	2663	643-60-00	LERC	UNIV OF TOLEDO	2762
641-14-00	GSFC	UNIV OF DELAWARE	1621	645-20-01	LARC	OLD DOMINION UNIV	3211
641-14-00	GSFC	VIRGINIA POLY INST	3242	645-20-01	LARC	STANFORD UNIVERSITY	1308
641-14-01	GSFC	CORNELL UNIVERSITY	2530	645-20-01	LARC	UNIV MARYLAND-COL PK	2060
641-14-01	GSFC	CORNELL UNIVERSITY	2531	645-20-01	LARC	UNIV WISC-MADISON	3351
641-14-01	GSFC	MICHIGAN STATE UNIV	2236	645-25-08	GSFC	OHIO STATE UNIV	2724
641-14-01	GSFC	MISSISSIPPI STATE U	2341	645-50-01	LARC	OLD DOMINION UNIV	3196
641-14-01	GSFC	PURDUE UNIVERSITY	1872	683-73-06	LARC	OLD DOMINION UNIV	3199
641-14-01	GSFC	PURDUE UNIVERSITY	1873	684-30-90	MSFC	AUBURN UNIV-AUBURN	1021
641-14-01	GSFC	SO DAKOTA STATE UNIV	2894	684-89-00	HQ	PRINCETON UNIVERSITY	2453
641-14-01	GSFC	TEXAS A&M UNIVERSITY	2992	686-10-00	HQ	UNIV OF PITTSBURGH	2860
641-14-01	GSFC	UNIV ALASKA-FAIRBNKS	1081	720-00-00	LARC	OHIO STATE UNIV	2731
641-14-01	GSFC	UNIV OF ARIZONA	1105	720-00-00	LERC	CASE WESTERN RESERVE	2694
641-14-01	GSFC	UNIV CALIF-BERKELEY	1322	721-00-00	ARC	STANFORD UNIVERSITY	1283
641-14-01	GSFC	UNIV OF KANSAS	1923	721-00-00	LARC	PURDUE UNIVERSITY	1879
641-14-01	GSFC	UNIV NEBRASKA-LINCLN	2385	742-73-01	LARC	MASS INST OF TECH	2196
641-14-01	GSFC	UNIV OF NEVADA-RENO	2392	743-32-11	LARC	BOSTON UNIVERSITY	2076
641-14-01	GSFC	UNIV TENNESSEE-KNOXV	2908	743-34-22	ARC	UNIV OF DENVER	1581
641-14-02	GSFC	DARTMOUTH COLLEGE	2394	743-34-22	LERC	MASS INST OF TECH	2165

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743-34-22	LERC	UNIV OF PITTSBURGH	2869	770-18-03	ARC	CAL STATE U-SAN JOSE	1227
743-36-11	ARC	TUFTS UNIVERSITY	2222	790-00-00	LARC	COLLEGE OF WM & MARY	3161
743-65-31	LARC	CORNELL UNIVERSITY	2562	791-91-51	LARC	PENNSYLVANIA STATE U	2840
743-65-31	LARC	MASS INST OF TECH	2175	791-91-51	HQ	MASS INST OF TECH	2138
743-65-31	LARC	NEW YORK UNIVERSITY	2580	791-93-03	ARC	MASS INST OF TECH	2115
759-00-00	LERC	UNIV OF PITTSBURGH	2854	791-93-03	ARC	MASS INST OF TECH	2211
760-17-00	ARC	POLY INST OF NY	2591	791-93-03	ARC	STANFORD UNIVERSITY	1245
760-17-00	ARC	PRINCETON UNIVERSITY	2413	791-93-03	ARC	UNIV CALIF-BERKELEY	1317
760-17-00	ARC	TEXAS A&M UNIVERSITY	2989	791-93-51	HQ	MASS INST OF TECH	2139
760-17-01	ARC	CORNELL UNIVERSITY	2540	797-00-00	ARC	FOOTHILL COLLEGE	1233
760-17-01	ARC	STANFORD UNIVERSITY	1309	797-00-00	ARC	ROCKEFELLER UNIV	2611
760-17-01	LARC	AUBURN UNIV-AUBURN	1025	797-00-00	ARC	UNIV CALIF-L ANGELES	1392
760-60-01	ARC	UNIV MICH-ANN ARBOR	2292	797-00-00	ARC	UNIV ILLINOIS-URBANA	1836
760-60-01	LARC	NO CAROLINA STATE U	2673	797-00-00	ARC	UTAH STATE UNIV	3148
760-60-01	LARC	PRINCETON UNIVERSITY	2411	797-00-00	ARC	CORNELL UNIVERSITY	2532
760-60-01	LARC	VIRGINIA POLY INST	3263	802-31-00	GSFC	UNIV MARYLAND-COL PK	2014
760-60-05	FRC	UNIV OF KANSAS	1922	802-31-00	GSFC	BRIGHAM YOUNG UNIV	3127
760-61-02	LARC	UNIV MO-ROLLA	2369	811-22-00	ARC	CALIF INST OF TECH	1163
760-61-02	LARC	UNIV OF VIRGINIA	3232	811-22-00	ARC	NEW YORK UNIVERSITY	2577
760-61-02	LARC	UNIV OF WASHINGTON	3287	811-22-00	ARC	UNIV OF ARIZONA	1096
760-61-02	LARC	UNIV OF WASHINGTON	3288	811-22-00	ARC	UNIV OF ARIZONA	1098
760-62-01	LARC	OLD DOMINION UNIV	3185	811-22-00	ARC	UNIV CALIF-L ANGELES	1390
760-62-01	LARC	OLD DOMINION UNIV	3204	811-22-00	ARC	UNIV CALIF-SAN DIEGO	1446
760-62-01	LARC	UNIV OF FLORIDA	1698	811-22-00	ARC	UNIV OF CHICAGO	1804
760-63-00	LARC	GEORGIA INST OF TECH	1752	811-22-00	ARC	UNIV OF IOWA	1904
760-63-00	LARC	UNIV CALIF-L ANGELES	1432	811-22-00	ARC	UNIV OF SOUTHERN CAL	1506
760-63-00	LARC	UNIV ILLINOIS-URBANA	1843	811-22-00	ARC	UNIV OF SOUTHERN CAL	1507
760-63-00	LARC	WICHITA STATE UNIV	1942	811-22-00	ARC	UNIV NEW HAMPSHIRE	2398
760-63-02	LARC	MASS INST OF TECH	2204	811-22-00	GSFC	UNIV OF ARIZONA	1097
760-63-02	LARC	PENNSYLVANIA STATE U	2832	811-23-00	ARC	BROWN UNIVERSITY	2874
760-63-02	LARC	UNIV OF KANSAS	1921	815-20-00	LARC	CALIF INST OF TECH	1161
760-63-02	LARC	UNIV WISC-MILWAUKEE	3354	815-20-00	LARC	CALIF INST OF TECH	1162
760-63-03	ARC	MASS INST OF TECH	2112	815-20-00	LARC	CORNELL UNIVERSITY	2528
760-64-01	ARC	NEW YORK UNIVERSITY	2589	815-20-00	LARC	FLORIDA STATE UNIV	1680
760-64-01	ARC	STANFORD UNIVERSITY	1296	815-20-00	LARC	HARVARD UNIVERSITY	2079
760-64-01	ARC	UNIV MARYLAND-COL PK	2048	815-20-00	LARC	INDIANA U-BLOOMINGTN	1860
760-64-01	ARC	VIRGINIA POLY INST	3274	815-20-00	LARC	MASS INST OF TECH	2108
760-64-60	LARC	NEW YORK UNIVERSITY	2590	815-20-00	LARC	MASS INST OF TECH	2109
760-64-60	LARC	VIRGINIA POLY INST	3265	815-20-00	LARC	MASS INST OF TECH	2110
760-66-01	LARC	NEW YORK UNIVERSITY	2586	815-20-00	LARC	OHIO STATE UNIV	2721
760-66-01	LARC	UNIV TENNESSEE-KNOXV	2924	815-20-00	LARC	POMONA COLLEGE	1235
760-72-01	LARC	UNIV OF VIRGINIA	3233	815-20-00	LARC	PRINCETON UNIVERSITY	2410
766-71-02	ARC	NORTHEASTERN UNIV	2217	815-20-00	LARC	STANFORD UNIVERSITY	1238
766-71-02	ARC	PRINCETON UNIVERSITY	2414	815-20-00	LARC	STANFORD UNIVERSITY	1239
766-72-01	FRC	UNIV CALIF-L ANGELES	1393	815-20-00	LARC	STANFORD UNIVERSITY	1240
766-75-02	LARC	MASS INST OF TECH	2207	815-20-00	LARC	STATE U NY-STONY BRK	2619
766-75-02	LARC	OKLAHOMA STATE UNIV	2771	815-20-00	LARC	TEXAS A&M UNIVERSITY	2987
766-75-02	LARC	RENSSELAER POLY-NY	2606	815-20-00	LARC	UNIV OF HOUSTON	3021
766-75-02	LARC	VIRGINIA POLY INST	3264	815-20-00	LARC	U MINN-MNPLS-ST PAUL	2301
766-75-02	LARC	VIRGINIA POLY INST	3268	815-20-00	LARC	UNIV OF NEW MEXICO	2472
768-81-01	LARC	UNIV OF VIRGINIA	3213	815-20-00	LARC	UNIV OF ROCHESTER	2647
768-81-02	LARC	SOUTHERN METHODIST U	2985	815-20-00	LARC	UNIV TEXAS-DALLAS	3088
768-81-02	LARC	UNIV OF VIRGINIA	3214	815-20-00	LARC	UNIV OF UTAH	3131
768-83-05	ARC	STANFORD UNIVERSITY	1302	815-20-00	LARC	UNIV OF WASHINGTON	3281
770-00-00	LERC	TEXAS A&M UNIVERSITY	2990	821-22-00	GSFC	MASS INST OF TECH	2118
770-18-01	LERC	NEW YORK UNIVERSITY	2588	821-22-00	GSFC	UNIV CALIF-SAN DIEGO	1447
770-18-01	LERC	UNIV OF NEW MEXICO	2473	821-22-00	GSFC	UNIV CALIF-SAN DIEGO	1448
770-18-01	LERC	UNIV OF PITTSBURGH	2872	821-22-00	GSFC	U MINN-MNPLS-ST PAUL	2304
770-18-01	LERC	UNIV OF SO ALABAMA	1080	821-31-00	GSFC	UNIV WISC-MADISON	3323

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821-32-00	GSFC	COLUMBIA UNIVERSITY	2501	861-00-00	GSFC	CARNEGIE-MELLON UNIV	2797
821-32-00	GSFC	UNIV COLORADO-BOLDR	1554	861-00-00	GSFC	CARNEGIE-MELLON UNIV	2800
821-32-00	GSFC	UNIV WISC-MADISON	3322	861-41-00	GSFC	UNIV OF IOWA	1907
823-11-00	GSFC	CORNELL UNIVERSITY	2555	861-41-00	GSFC	UNIV WISC-MADISON	3321
823-12-00	GSFC	UNIV OF IOWA	1910	861-42-00	GSFC	CALIF INST OF TECH	1164
823-12-00	GSFC	U MINN-MNPLS-ST PAUL	2306	861-42-00	GSFC	MASS INST OF TECH	2117
831-00-00	HQ	WESLEYAN UNIVERSITY	1604	861-42-00	GSFC	UNIV OF CHICAGO	1808
831-22-00	GSFC	UNIV WISC-MADISON	3320	861-42-00	GSFC	UNIV OF IOWA	1906
831-42-00	GSFC	PRINCETON UNIVERSITY	2416	861-42-00	GSFC	UNIV OF IOWA	1911
831-43-00	GSFC	HARVARD UNIVERSITY	2101	861-42-00	GSFC	UNIV MARYLAND-COL PK	2012
831-43-00	GSFC	JOHNS HOPKINS UNIV	2005	861-52-00	GSFC	UNIV CALIF-BERKELEY	1319
831-43-00	GSFC	UNIV CALIF-BERKELEY	1370	861-52-00	GSFC	UNIV OF CHICAGO	1807
831-43-00	GSFC	UNIV CALIF-L ANGELES	1436	861-52-00	GSFC	UNIV OF IOWA	1905
831-43-00	GSFC	UNIV OF DENVER	1594	861-52-00	GSFC	UNIV MICH-ANN ARBOR	2248
831-43-00	GSFC	UNIV OF FLORIDA	1703	861-52-00	GSFC	U MINN-MNPLS-ST PAUL	2309
831-43-00	GSFC	UNIV NEBRASKA-LINCLN	2391	861-62-00	GSFC	UNIV CALIF-BERKELEY	1320
831-43-00	GSFC	UNIV TEXAS-AUSTIN	3086	861-62-00	GSFC	UNIV CALIF-BERKELEY	1321
831-43-00	GSFC	UNIV OF TOLEDO	2765	861-62-00	GSFC	UNIV CALIF-L ANGELES	1395
831-43-00	GSFC	UNIV OF TOLEDO	2766	861-62-00	GSFC	UNIV OF IOWA	1912
831-43-00	GSFC	UNIV OF WASHINGTON	3305	861-62-00	GSFC	UNIV OF IOWA	1913
831-43-00	JSC	HOUSTON BAPTIST COL	2953	861-62-00	GSFC	UNIV MARYLAND-COL PK	2013
832-00-00	GSFC	UNIV OF ARIZONA	1108	863-11-00	LARC	UNIV OF IOWA	1902
832-12-00	GSFC	CALIF INST OF TECH	1167	863-11-00	LARC	UNIV OF IOWA	1903
832-12-00	GSFC	LA STATE U-BAT ROUGE	1961	863-11-00	LARC	U MINN-MNPLS-ST PAUL	2302
832-12-00	GSFC	STANFORD UNIVERSITY	1253	868-11-00	GSFC	VIRGINIA POLY INST	3256
832-12-00	MSFC	CALIF INST OF TECH	1168	870-42-00	GSFC	UNIV OF IOWA	1909
832-12-00	MSFC	CALIF INST OF TECH	1169	872-12-00	GSFC	UNIV TEXAS-DALLAS	3091
832-12-00	MSFC	COLUMBIA UNIVERSITY	2503	872-12-00	GSFC	UNIV TEXAS-DALLAS	3092
832-12-00	MSFC	COLUMBIA UNIVERSITY	2504	874-32-00	GSFC	UNIV MICH-ANN ARBOR	2249
832-12-00	MSFC	COLUMBIA UNIVERSITY	2505	877-11-00	GSFC	VIRGINIA POLY INST	3255
832-12-00	MSFC	MASS INST OF TECH	2124	877-12-00	GSFC	STANFORD UNIVERSITY	1254
832-12-00	MSFC	MASS INST OF TECH	2125	878-12-00	GSFC	MASS INST OF TECH	2119
832-12-00	MSFC	MASS INST OF TECH	2131	878-21-00	GSFC	GEORGE WASHINGTON U	1655
832-12-00	MSFC	UNIV CALIF-BERKELEY	1323	878-21-00	HQ	PRINCETON UNIVERSITY	2452
832-12-00	MSFC	UNIV CALIF-BERKELEY	1325	879-00-00	HQ	CALIF INST OF TECH	1203
832-12-00	MSFC	UNIV CALIF-SAN DIEGO	1450	879-10-00	WFC	RICE UNIVERSITY	2964
832-12-00	MSFC	UNIV OF CHICAGO	1810	879-11-00	GSFC	UNIV MARYLAND-COL PK	2037
832-12-00	MSFC	U MINN-MNPLS-ST PAUL	2310	879-11-00	GSFC	UNIV MICH-ANN ARBOR	2253
832-12-00	MSFC	UNIV OF MONTEVALLO	1078	879-11-00	GSFC	UNIV MICH-ANN ARBOR	2256
832-12-00	MSFC	WASHINGTON UNIVERSTY	2372	879-11-00	GSFC	UNIV NEBRASKA-LINCLN	2386
841-00-00	GSFC	RICE UNIVERSITY	2962	879-11-00	GSFC	UNIV OF VIRGINIA	3217
841-00-00	GSFC	UNIV OF CHICAGO	1805	879-11-00	WFC	UNIV ILLINOIS-URBANA	1847
841-00-00	GSFC	UNIV OF CHICAGO	1806	879-11-00	HQ	COLUMBIA UNIVERSITY	2512
841-00-00	GSFC	UNIV OF NEW MEXICO	2474	879-11-00	HQ	HARVARD UNIVERSITY	2091
849-00-00	HQ	MASS INST OF TECH	2159	879-11-00	HQ	JOHNS HOPKINS UNIV	1999
852-22-00	GSFC	HARVARD UNIVERSITY	2081	879-11-00	HQ	MASS INST OF TECH	2189
852-22-00	GSFC	JOHNS HOPKINS UNIV	1995	879-11-00	HQ	PENNSYLVANIA STATE U	2830
852-22-00	GSFC	UNIV COLORADO-BOLDR	1555	879-11-00	HQ	PENNSYLVANIA STATE U	2839
852-22-00	GSFC	UNIV MICH-ANN ARBOR	2250	879-11-00	HQ	PRINCETON UNIVERSITY	2454
852-22-00	GSFC	UNIV MICH-ANN ARBOR	2255	879-11-00	HQ	UNIV ALASKA-FAIRBNKS	1086
852-22-00	GSFC	U MINN-MNPLS-ST PAUL	2307	879-11-00	HQ	UNIV ALASKA-FAIRBNKS	1087
852-22-00	GSFC	UNIV TEXAS-DALLAS	3093	879-11-00	HQ	UNIV CALIF-BERKELEY	1342
852-22-00	GSFC	UNIV TEXAS-DALLAS	3094	879-11-00	HQ	UNIV CALIF-BERKELEY	1345
852-22-00	GSFC	UNIV TEXAS-DALLAS	3094	879-11-00	HQ	UNIV CALIF-BERKELEY	1350
852-22-00	GSFC	YALE UNIVERSITY	1607	879-11-00	HQ	UNIV CALIF-BERKELEY	1351
855-12-00	HQ	OHIO STATE UNIV	2730	879-11-00	HQ	UNIV OF CHICAGO	1825
855-33-00	WFC	CITY COLLEGE OF N Y	2488	879-11-00	HQ	UNIV COLORADO-BOLDR	1559
855-33-00	WFC	UNIV CALIF-L ANGELES	1397	879-11-00	HQ	UNIV COLORADO-BOLDR	1561
857-12-00	GSFC	UNIV OF IOWA	1908	879-11-00	HQ	UNIV COLORADO-BOLDR	1565
857-12-00	GSFC	U MINN-MNPLS-ST PAUL	2305				

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879-11-00	HQ	UNIV COLORADO-BOLDR	1575	914-40-00	JSC	UNIV OF DELAWARE	1624
879-11-00	HQ	UNIV OF HAWAII	1780	914-40-00	JSC	UNIV OF KENTUCKY	1948
879-11-00	HQ	UNIV OF HOUSTON	3042	914-40-00	JSC	UNIV MARYLAND-COL PK	2015
879-11-00	HQ	UNIV MICH-ANN ARBOR	2271	914-40-00	JSC	UNIV OF MIAMI	1712
879-11-00	HQ	U MINN-MNPLS-ST PAUL	2319	914-40-00	JSC	UNIV TEXAS-GALVESTON	3117
879-11-00	HQ	U MINN-MNPLS-ST PAUL	2320	914-40-00	JSC	UNIV WISC-MADISON	3339
879-11-00	HQ	U MINN-MNPLS-ST PAUL	2323	914-40-00	JSC	WESLEYAN UNIVERSITY	1605
879-11-00	HQ	UNIV NEW HAMPSHIRE	2404	914-49-00	ARC	UNIV OF SANTA CLARA	1500
879-11-00	HQ	UNIV OF PITTSBURGH	2862	914-49-00	JSC	JOHNS HOPKINS UNIV	1998
879-11-00	HQ	UNIV TEXAS-DALLAS	3105	914-49-00	JSC	RICE UNIVERSITY	2966
879-11-00	HQ	UNIV WISC-MADISON	3334	914-49-00	JSC	ST U NY COL-GENESE0	2641
879-11-00	HQ	UNIV WISC-MADISON	3335	914-49-00	JSC	UNIV OF VIRGINIA	3218
879-21-00	GSFC	NEW MEX ST U-LAS CR	2465	914-49-00	JSC	WOODSHOLE OCEAN INST	2233
879-40-00	ARC	NEW MEX ST U-LAS CR	2459	914-49-00	JSC	PORTLAND STATE UNIV	2785
883-00-00	ARC	U TEX HEALTH CTR-DAL	3118	914-50-00	MSFC	ALBANY MED COLLEGE	2485
904-00-00	MSFC	MASS INST OF TECH	2122	914-50-00	JSC	BAYLOR UNIV-MED COL	2941
904-00-00	HQ	OHIO STATE UNIV	2743	914-50-00	JSC	RICE UNIVERSITY	2969
908-44-38	JSC	UNIV OF UTAH	3145	914-50-00	JSC	TEXAS A&M UNIVERSITY	2999
908-51-21	MSFC	MASS INST OF TECH	2123	914-50-00	JSC	UNIV OF HOUSTON	3024
908-54-33	MSFC	UNIV ALA-HUNTSVILLE	1045	914-50-00	JSC	UNIV OF HOUSTON	3025
908-91-00	HQ	MASS INST OF TECH	2191	914-50-00	JSC	UNIV OF HOUSTON	3037
909-00-00	KSC	FLORIDA INST OF TECH	1679	914-50-00	JSC	UNIV OREGON-EUGENE	2786
909-00-00	KSC	UNIV OF FLORIDA	1687	914-50-00	JSC	UNIV TEXAS-AUSTIN	3064
909-41-02	JSC	UNIV TEXAS-AUSTIN	3056	924-23-00	JSC	NORTHWESTERN UNIV	1790
909-41-07	JSC	UNIV MO-COLUMBIA	2362	933-00-00	MSFC	GEORGIA INST OF TECH	1727
909-44-02	JSC	TUSKEGEE INSTITUTE	1030	933-00-00	MSFC	MISSISSIPPI STATE U	2343
909-44-29	JSC	CITY COLLEGE OF N Y	2491	933-00-00	MSFC	UNIV TENNESSEE-KNOXV	2921
909-52-47	MSFC	UNIV MICH-ANN ARBOR	2260	933-50-00	MSFC	LA STATE U-BAT ROUGE	1966
909-55-05	MSFC	AUBURN UNIV-AUBURN	1018	933-50-00	MSFC	MISSISSIPPI STATE U	2347
909-55-05	MSFC	UNIV TENNESSEE-KNOXV	2915	933-50-00	MSFC	UNIV ALA-HUNTSVILLE	1039
909-55-47	MSFC	UNIV ALA-HUNTSVILLE	1043	933-50-00	MSFC	UNIV OF GEORGIA	1767
909-62-47	KSC	FLORIDA TECH UNIV	1685	945-82-00	HQ	UNIV OF SOUTHERN CAL	1524
909-64-09	KSC	UNIV OF ARIZONA	1115	948-60-90	JSC	BAYLOR UNIV-MED COL	2943
909-64-09	KSC	UNIV OF FLORIDA	1700	948-60-90	JSC	HARVARD UNIVERSITY	2082
909-64-13	KSC	UNIV OF SO CAROLINA	2890	948-60-90	JSC	UNIV CALIF-DAVIS	1382
909-64-36	KSC	FLORIDA INST OF TECH	1678	948-60-90	JSC	U TEX CANCER CENTER	3087
909-64-42	KSC	GEORGIA INST OF TECH	1737	948-60-90	JSC	UNIV TEX-PUB HEALTH	3122
909-64-47	KSC	FLORIDA TECH UNIV	1684	948-60-90	JSC	VANDERBILT UNIVERSTY	2937
909-72-47	LARC	OLD DOMINION UNIV	3194	948-60-90	JSC	WASHINGTON UNIVERSTY	2373
909-94-24	HQ	UNIV MARYLAND-COL PK	2032	948-60-91	JSC	BAYLOR UNIV-MED COL	2940
914-00-00	ARC	UNIV CALIF-L ANGELES	1389	948-60-91	JSC	BAYLOR UNIV-MED COL	2945
914-00-00	JSC	OHIO STATE UNIV	2727	948-60-91	JSC	FORDHAM UNIVERSITY	2567
914-00-00	JSC	UNIV SAN FRANCISCO	1497	948-60-91	JSC	UNIV MO-COLUMBIA	2359
914-14-00	JSC	UNIV OF SOUTHERN CAL	1512	948-60-91	JSC	UNIV TEXAS-GALVESTON	3112
914-40-00	ARC	BRIGHAM YOUNG UNIV	3130	948-60-91	JSC	UNIV TEXAS-GALVESTON	3113
914-40-00	GSFC	STATE U NY-STONY BRK	2635	948-63-82	JSC	MICHIGAN STATE UNIV	2237
914-40-00	GSFC	UNIV MARYLAND-COL PK	2044	948-63-82	JSC	MISSISSIPPI STATE U	2346
914-40-00	GSFC	VIRGINIA POLY INST	3253	948-63-82	JSC	SO DAKOTA STATE UNIV	2895
914-40-00	JSC	CALIF INST OF TECH	1196	948-63-82	JSC	UNIV OF KANSAS	1926
914-40-00	JSC	COLLEGE VIRGIN ISLND	3367	948-63-83	ARC	UNIV CALIF-BERKELEY	1315
914-40-00	JSC	COLORADO STATE UNIV	1542	948-63-83	ARC	UNIV CALIF-BERKELEY	1316
914-40-00	JSC	COLUMBIA UNIVERSITY	2507	948-63-83	JSC	COLORADO SCH OF MINE	1526
914-40-00	JSC	MASS INST OF TECH	2134	948-63-83	JSC	DARTMOUTH COLLEGE	2395
914-40-00	JSC	PURDUE UNIVERSITY	1882	948-63-83	JSC	PENNSYLVANIA STATE U	2823
914-40-00	JSC	STANFORD UNIVERSITY	1255	948-63-83	JSC	PRESCOTT COLLEGE	1095
914-40-00	JSC	STANFORD UNIVERSITY	1291	948-63-83	JSC	UNIV OF IOWA	1916
914-40-00	JSC	UNIV OF ARIZONA	1132	948-63-83	JSC	UNIV OF NEVADA-RENO	2393
914-40-00	JSC	UNIV CALIF-L ANGELES	1412	948-63-83	JSC	UNIV TEXAS-AUSTIN	3055
914-40-00	JSC	UNIV CALIF-SAN DIEGO	1463	948-63-83	JSC	UNIV OF UTAH	3138

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948-63-83	JSC	UNIV OF WYOMING	3360	953-37-00	MSFC	UNIV ALA-HUNTSVILLE	1054
948-63-83	MSFC	NO CAROLINA STATE U	2664	953-37-00	MSFC	UNIV OF GEORGIA	1768
948-63-84	JSC	UNIV OF DELAWARE	1623	961-21-00	JSC	LA STATE U-BAT ROUGE	1964
948-63-85	JSC	CORNELL UNIVERSITY	2533	961-50-00	JSC	UNIV TEX-PUB HEALTH	3123
948-63-85	JSC	PURDUE UNIVERSITY	1875	961-51-00	JSC	TEXAS A&M UNIVERSITY	3002
948-63-85	JSC	PURDUE UNIVERSITY	1876	964-50-00	MSFC	UNIV ALA-HUNTSVILLE	1036
948-63-85	LARC	AMERICAN UNIVERSITY	1625	964-50-00	MSFC	UNIV SAN FRANCISCO	1496
948-63-86	JSC	LONG ISLAND UNIV	2572	966-30-00	JSC	UNIV ALASKA-FAIRBNKS	1083
948-63-86	JSC	STANFORD UNIVERSITY	1256	966-30-00	JSC	UNIV CALIF-BERKELEY	1328
948-63-86	JSC	UNIV OF HOUSTON	3031	966-30-00	JSC	UNIV CALIF-BERKELEY	1329
948-63-86	JSC	UNIV OF KANSAS	1925	966-30-00	JSC	UNIV OF PITTSBURGH	2855
948-63-86	JSC	UNIV OF KANSAS	1927	966-30-00	JSC	UNIV OF WYOMING	3357
948-70-70	MSFC	STATE UNIV NY-ALBANY	2612	966-30-00	LARC	UNIV OF WYOMING	3357
948-80-80	ARC	STANFORD UNIVERSITY	1242	966-30-00	MSFC	MASS INST OF TECH	2133
948-80-80	JSC	AMERICAN UNIVERSITY	1629	966-30-00	MSFC	RENSSELAER POLY-NY	2599
948-80-80	JSC	CALIF INST OF TECH	1173	966-30-00	MSFC	UNIV CALIF-L ANGELES	1401
948-80-80	JSC	UNIV CALIF-BERKELEY	1330	966-30-00	MSFC	UNIV OF UTAH	3136
948-80-80	JSC	UNIV OF CHICAGO	1811	970-00-00	ARC	UNIV CALIF-DAVIS	1380
948-80-80	JSC	UNIV OF SOUTHERN CAL	1513	970-00-00	JSC	UNIV NEBRASKA-LINCLN	2387
948-80-80	JSC	UNIV TEXAS-AUSTIN	3054	970-11-11	HQ	MASS INST OF TECH	2148
948-80-80	JSC	UNIV TEXAS-AUSTIN	3058	970-14-01	HQ	GEORGE WASHINGTON U	1658
948-80-80	JSC	UNIV TEXAS-AUSTIN	3059	970-14-01	HQ	INDIANA U-BLOOMINGTN	1866
948-80-80	MSFC	HARVARD UNIVERSITY	2080	970-14-01	HQ	OHIO STATE UNIV	2741
948-80-81	JSC	UNIV OF KANSAS	1928	970-14-01	HQ	STANFORD UNIVERSITY	1272
948-80-81	MSFC	UNIV WISC-MADISON	3330	970-14-01	HQ	UNIV ARKANSAS-FAYETV	1157
948-80-82	MSFC	UNIV CALIF-BERKELEY	1324	970-14-01	HQ	UNIV CALIF-SAN FRAN	1488
948-90-95	MSFC	GEORGIA INST OF TECH	1728	970-21-11	ARC	EMORY UNIVERSITY	1722
948-90-95	MSFC	MASS INST OF TECH	2127	970-21-11	ARC	INDIANA U-BLOOMINGTN	1865
948-90-95	MSFC	MASS INST OF TECH	2128	970-21-11	ARC	MASS INST OF TECH	2150
948-90-95	MSFC	RENSSELAER POLY-NY	2598	970-21-11	ARC	MASS INST OF TECH	2205
948-90-95	MSFC	UNIV ALA-HUNTSVILLE	1044	970-21-11	ARC	MASS INST OF TECH	2212
948-90-95	MSFC	UNIV ALA-HUNTSVILLE	1050	970-21-11	ARC	ST LOUIS UNIVERSITY	2358
948-90-95	MSFC	UNIV ALA-TUSCALOOSA	1069	970-21-11	ARC	STANFORD UNIVERSITY	1279
948-90-95	MSFC	UNIV CALIF-L ANGELES	1398	970-21-11	ARC	UNIV CALIF-L ANGELES	1434
948-90-95	MSFC	UNIV OF CONNECTICUT	1598	970-21-11	ARC	UNIV CALIF-SAN DIEGO	1476
948-90-95	MSFC	UNIV OF SOUTHERN CAL	1510	970-21-11	ARC	UNIV OF CHICAGO	1830
948-90-95	MSFC	UNIV WISC-MADISON	3331	970-21-11	ARC	U COLORADO-DENV MEDL	1580
951-00-00	JSC	UNIV OF HOUSTON	3046	970-21-11	ARC	UNIV ILLINOIS-URBANA	1855
951-00-00	JSC	UNIV OF HOUSTON	3047	970-21-11	ARC	UNIV OF VERMONT	3154
951-00-00	JSC	UNIV OF WASHINGTON	3285	970-21-11	ARC	UNIV OF VIRGINIA	3228
951-00-00	MSFC	ATHENS COLLEGE	1011	970-21-11	ARC	UPPSALA UNIVERSITY	3379
951-00-00	MSFC	UNIV ALA-HUNTSVILLE	1042	970-21-12	ARC	CORNELL UNIVERSITY	2558
951-00-00	MSFC	UNIV TENNESSEE-KNOXV	2917	970-21-12	ARC	HOWARD UNIVERSITY	1663
951-15-00	MSFC	AUBURN UNIV-AUBURN	1014	970-21-12	ARC	STANFORD UNIVERSITY	1269
951-15-00	MSFC	AUBURN UNIV-AUBURN	1016	970-21-12	ARC	UNIV TEXAS-GALVESTON	3116
951-15-00	MSFC	COLORADO STATE UNIV	1531	970-21-13	ARC	UNIV CALIF-SAN DIEGO	1460
951-15-00	MSFC	COLORADO STATE UNIV	1532	970-21-14	ARC	ST LOUIS UNIVERSITY	2356
951-15-00	MSFC	GRAMBLING COLLEGE	1956	970-21-14	ARC	STANFORD UNIVERSITY	1281
951-15-00	MSFC	LA STATE U-NEW ORLNS	1970	970-21-14	ARC	STANFORD UNIVERSITY	1310
951-15-00	MSFC	SO UNIV-BATON ROUGE	1973	970-21-14	ARC	UNIV CALIF-BERKELEY	1357
951-15-00	MSFC	TULANE UNIVERSITY	1980	970-21-14	ARC	WAYNE STATE UNIV	2299
951-15-00	MSFC	UNIV ALA-HUNTSVILLE	1047	970-21-16	ARC	STANFORD UNIVERSITY	1285
951-15-00	MSFC	UNIV OF FLORIDA	1686	970-21-17	ARC	CATHOLIC UNIVERSITY	1638
951-15-00	MSFC	UNIV TEXAS-AUSTIN	3051	970-21-25	ARC	UNIV CALIF-IRVINE	1388
951-16-00	GSFC	UNIV OF ARIZONA	1107	970-21-25	ARC	UNIV CALIF-SAN FRAN	1489
951-16-00	JSC	UNIV OF HOUSTON	3043	970-21-25	ARC	UNIV WISC-MADISON	3344
951-16-00	MSFC	UNIV ALA-HUNTSVILLE	1040	970-21-25	ARC	UNIV WISC-MADISON	3347
951-16-00	MSFC	UNIV ALA-TUSCALOOSA	1073	970-21-25	ARC	UNIV WISC-MADISON	3352
953-00-00	KSC	UNIV OF FLORIDA	1689	970-21-35	ARC	YALE UNIVERSITY	1614
						WEST VIRGINIA UNIV	3310

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970-21-51	ARC	JOHNS HOPKINS UNIV	2003	970-23-30	ARC	UNIV WISC-MADISON	3345
970-21-52	ARC	MASS INST OF TECH	2177	970-24-01	ARC	COLORADO STATE UNIV	1547
970-21-52	ARC	MASS INST OF TECH	2187	970-24-01	ARC	MASS INST OF TECH	2200
970-21-52	ARC	NORTHEASTERN UNIV	2219	970-24-04	ARC	BAYLOR UNIV-MED COL	2949
970-21-52	ARC	UNIV CALIF-DAVIS	1377	970-24-04	ARC	RICE UNIVERSITY	2961
970-21-52	ARC	UNIV OF FLORIDA	1699	970-51-11	JSC	BAYLOR UNIV-MED COL	2946
970-21-53	ARC	OHIO STATE UNIV	2740	970-51-11	JSC	PENNSYLVANIA STATE U	2837
970-21-53	ARC	UNIV OF KENTUCKY	1949	970-51-12	JSC	BOSTON UNIVERSITY	2072
970-21-61	ARC	COLORADO STATE UNIV	1529	970-51-12	JSC	TUFTS UNIVERSITY	2221
970-21-61	ARC	COLORADO STATE UNIV	1537	970-51-12	JSC	UNIV TEXAS-DALLAS	3097
970-21-61	ARC	EMORY UNIVERSITY	1719	970-51-12	JSC	U TEX HEALTH CTR-SA	3121
970-21-61	ARC	EMORY UNIVERSITY	1721	970-51-12	JSC	U TEX HEALTH CTR-DAL	3119
970-21-61	ARC	HARVARD UNIVERSITY	2094	970-51-14	JSC	BAYLOR UNIV-MED COL	2944
970-21-61	ARC	OHIO STATE UNIV	2722	970-51-14	JSC	BAYLOR UNIV-MED COL	2947
970-21-61	ARC	UNIV CALIF-BERKELEY	1334	970-51-14	JSC	HARDING COLLEGE	1154
970-21-61	ARC	UNIV CALIF-DAVIS	1375	970-51-14	JSC	MASS INST OF TECH	2136
970-21-61	ARC	UNIV CALIF-DAVIS	1378	970-51-14	JSC	UNIV MO-COLUMBIA	2360
970-21-61	ARC	UNIV CALIF-DAVIS	1383	970-51-14	JSC	UNIV OF WASHINGTON	3284
970-21-61	ARC	UNIV CALIF-DAVIS	1387	970-51-14	JSC	BAYLOR UNIV-MED COL	2948
970-21-61	ARC	UNIV OF FLORIDA	1704	970-51-15	JSC	UNIV ILLINOIS-CHICGO	1834
970-21-61	ARC	UNIV OF HAWAII	1772	970-51-16	JSC	BAYLOR UNIV-MED COL	2942
970-21-61	ARC	UNIV MICH-ANN ARBOR	2244	970-51-16	JSC	ST U NY-UPST MED CTR	2640
970-21-61	ARC	UNIV MO-COLUMBIA	2363	970-51-16	JSC	UNIV CALIF-DAVIS	1381
970-21-61	ARC	UNIV OF PENNSYLVANIA	2848	970-51-16	JSC	UNIV OF MIAMI	1714
970-21-61	ARC	UNIV OF VIRGINIA	3215	970-51-16	JSC	UNIV TEXAS-GALVESTON	3115
970-21-61	ARC	UNIV OF VIRGINIA	3231	970-51-16	JSC	U TEX HEALTH CTR-SA	3120
970-21-61	ARC	UNIV WISC-MADISON	3316	970-51-16	JSC	UNIV OF CONNECTICUT	1599
970-21-62	ARC	BOWLING GRN STATE U	2688	970-51-25	JSC	UNIV OF HOUSTON	3030
970-21-62	ARC	CORNELL UNIVERSITY	2529	970-51-25	JSC	U TENNESSEE-MEMPHIS	2933
970-21-62	ARC	STANFORD UNIVERSITY	1244	970-51-35	JSC	UNIV OF PENNSYLVANIA	2849
970-21-62	ARC	UNIV OF PENNSYLVANIA	2852	970-51-45	JSC	LA STATE U-NEW ORLNS	1971
970-21-62	ARC	UNIV SAN FRANCISCO	1495	970-51-45	JSC	STANFORD UNIVERSITY	1290
970-21-63	ARC	DUKE UNIVERSITY	2655	970-51-45	JSC	UNIV TEX-DENTAL BRCH	3110
970-21-63	ARC	INDIANA U-INDIANAPLS	1870	970-51-45	JSC	UNIV TEX-DENTAL BRCH	3111
970-21-63	ARC	TULANE UNIVERSITY	1979	970-51-51	JSC	UNIV TEXAS-AUSTIN	3072
970-21-63	ARC	UNIV OF HOUSTON	3022	970-51-62	JSC	TEXAS A&M UNIVERSITY	3004
970-22-20	ARC	CASE WESTERN RESERVE	2702	970-51-62	JSC	UNIV OF HOUSTON	3029
970-22-20	ARC	UNIV MO-ROLLA	2368	970-51-63	JSC	COLLEGE OF WM & MARY	3162
970-22-21	ARC	CASE WESTERN RESERVE	2700	970-51-63	JSC	COLORADO STATE UNIV	1544
970-22-21	ARC	GEORGIA INST OF TECH	1756	970-51-63	JSC	TEXAS A&M UNIVERSITY	2998
970-22-21	ARC	KENT STATE UNIV	2720	970-51-63	JSC	UNIV OF HOUSTON	3035
970-22-21	ARC	MASS INST OF TECH	2186	970-52-20	JSC	OLD DOMINION UNIV	3181
970-22-21	ARC	MASS INST OF TECH	2193	970-52-21	JSC	RICE UNIVERSITY	2967
970-22-21	ARC	UNIV CALIF-BERKELEY	1359	970-52-21	JSC	UNIV MO-COLUMBIA	2361
970-22-21	ARC	UNIV OF DENVER	1589	970-52-23	JSC	CLEMSON UNIV-CLEMSON	2884
970-22-23	ARC	CAL STATE U-SAN JOSE	1229	970-52-24	JSC	TEXAS A&M UNIVERSITY	3001
970-22-23	ARC	MASS INST OF TECH	2201	970-52-24	JSC	UNIV OF HOUSTON	3023
970-22-24	ARC	WORCESTER POLY INST	2234	970-52-24	JSC	U MINN-MNPLS-ST PAUL	2311
970-22-30	ARC	STANFORD UNIVERSITY	1303	970-52-24	JSC	TEXAS TECH UNIV	3020
970-22-30	ARC	UNIV CALIF-BERKELEY	1356	970-53-30	JSC	UNIV OF KENTUCKY	1945
970-23-20	ARC	STANFORD UNIVERSITY	1276	970-54-01	JSC	UNIV TEX-PUB HEALTH	3124
970-23-30	ARC	CASE WESTERN RESERVE	2703	970-63-20	MSFC	GEORGIA INST OF TECH	1736
970-23-30	ARC	COLORADO STATE UNIV	1550	970-63-20	MSFC	MASS INST OF TECH	2126
970-23-30	ARC	STANFORD UNIVERSITY	1288	970-63-20	MSFC	UNIV TENNESSEE-KNOXV	2912
970-23-30	ARC	STANFORD UNIVERSITY	1300	970-63-20	MSFC	UNIV TENNESSEE-KNOXV	2914
970-23-30	ARC	STANFORD UNIVERSITY	1312	970-71-61	WFC	UNIV CALIF-DAVIS	1385
970-23-30	ARC	UNIV CALIF-SAN DIEGO	1483	972-50-00	MSFC	GEORGIA INST OF TECH	1733
970-23-30	ARC	UNIV MO-COLUMBIA	2364	975-50-01	JSC	UNIV OF HOUSTON	3027

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975-61-05	MSFC	UNIV ALA-HUNTSVILLE	1055
975-72-48	LARC	RICE UNIVERSITY	2977
975-84-10	MSFC	UNIV ALA-HUNTSVILLE	1049
975-84-25	HQ	CALIF INST OF TECH	1217
975-90-95	LARC	OLD DOMINION UNIV	3188
975-90-95	MSFC	MASS INST OF TECH	2168
975-90-95	MSFC	TEXAS A&M UNIVERSITY	2997
975-90-95	MSFC	UNIV ALA-HUNTSVILLE	1056
975-90-95	MSFC	UNIV ALA-TUSCALOOSA	1067
975-90-95	MSFC	UNIV CALIF-L ANGELES	1400
976-30-00	MSFC	CITY COLLEGE OF N Y	2489
976-30-00	MSFC	NEW YORK UNIVERSITY	2578
977-10-64	ARC	CORNELL UNIVERSITY	2559
977-10-64	ARC	UNIV ALASKA-FAIRBNKS	1089
977-22-03	MSFC	GEORGIA INST OF TECH	1731
981-60-00	HQ	PENNSYLVANIA STATE U	2838
982-52-00	MSFC	ALABAMA A&M UNIV	1000
982-52-00	MSFC	UNIV ALA-HUNTSVILLE	1046
982-52-00	MSFC	UNIV TENNESSEE-KNOXV	2923
982-52-00	MSFC	WASHINGTON UNIVERSTY	2371
983-15-00	MSFC	CALIF INST OF TECH	1171
983-15-00	MSFC	UNIV ALA-HUNTSVILLE	1037
984-15-00	MSFC	UNIV TEXAS-AUSTIN	3052
986-15-00	JSC	MEMPHIS ST UNIV	2899
986-15-00	JSC	TEXAS A&M UNIVERSITY	3000
986-15-00	JSC	UNIV TEXAS-AUSTIN	3057
986-15-00	JSC	VIRGINIA POLY INST	3246
986-25-00	MSFC	GEORGIA INST OF TECH	1735
986-25-00	MSFC	TEXAS A&M UNIVERSITY	2996
986-25-00	MSFC	UNIV ALA-TUSCALOOSA	1074
989-10-00	ARC	HARVARD UNIVERSITY	2104
989-10-00	ARC	MASS INST OF TECH	2210
989-10-00	JSC	HOUSTON BAPTIST COL	2954
989-10-00	LARC	UNIV MARYLAND-COL PK	2059
989-10-00	LARC	UNIV MARYLAND-COL PK	2061
996-00-00	MSFC	CALIF INST OF TECH	1170
996-00-00	MSFC	JOHNS HOPKINS UNIV	2000
996-00-00	MSFC	UNIV CALIF-SAN DIEGO	1451
996-00-00	MSFC	UNIV OF HAWAII	1774