

NASA-CR-173,539

JPL BIBLIOGRAPHY 39-24

NASA-CR-173539  
19840017442

# Publications of the Jet Propulsion Laboratory 1982

FOR REFERENCE

NOT TO BE TAKEN FROM THIS ROOM

September 15, 1983

LIBRARY COPY

MAY 29 1984

**NASA**

National Aeronautics and  
Space Administration

Jet Propulsion Laboratory  
California Institute of Technology  
Pasadena, California

LANGLEY RESEARCH CENTER  
LIBRARY, NASA  
HAMPTON, VIRGINIA



18 1 1 RN/JPL-BIBL-39-23  
19 1 1 RN/JPL-BIBL-39-24

DISPLAY 19/2/1

84N25510\*\* ISSUE 15 PAGE 2417 CATEGORY 82 RPT#: NASA-CR-173539  
JPL-BIBL-39-24 NAS 1.26:173539 83/09/15 26 PAGES UNCLASSIFIED

DOCUMENT

UTTL: Publications of the Jet Propulsion Laboratory 1982

CORP: Jet Propulsion Lab., California Inst. of Tech., Pasadena. AVAIL.NTIS

SAP: HC A03/MF A01

Sponsored by NASA

MAJS: /\*BIBLIOGRAPHIES/\*DATA ACQUISITION/\*DEEP SPACE NETWORK/\*EARTH RESOURCES/\*  
IMAGE PROCESSING/\*PHOTOVOLTAIC CELLS/\*REMOTE SENSING/\*SOLAR ENERGY/\*  
TELECOMMUNICATION

MINS: / ARCHITECTURE (COMPUTERS)/ COMPUTER PROGRAMS/ DATA PROCESSING/  
MICROPROCESSORS/ SOLAR ARRAYS/ VERY LONG BASE INTERFEROMETRY

ABA: M. A. C.

ABS: A bibliography of articles concerning topics on the deep space network,  
data acquisition, telecommunication, and related aerospace studies is  
presented. A sample of the diverse subjects include, solar energy remote  
sensing, computer science, Earth resources, astronomy, and satellite  
communication.

ENTER:



JPL BIBLIOGRAPHY 39-24

# Publications of the Jet Propulsion Laboratory 1982

September 15, 1983

**NASA**

National Aeronautics and  
Space Administration

**Jet Propulsion Laboratory**  
California Institute of Technology  
Pasadena, California

*N84-25510#*

This publication was prepared by the Jet Propulsion Laboratory, California Institute of Technology, under contract with the National Aeronautics and Space Administration.

## Foreword

JPL Bibliography 39-24 describes and indexes by primary author the externally distributed technical reporting, released during calendar year 1982, that resulted from scientific and engineering work performed, or managed, by the Jet Propulsion Laboratory. Three classes of publications are included:

- (1) JPL Publications (77-, 78-, 79-series, etc.), in which the information is complete for a specific accomplishment and can be tailored to wide or limited audiences and be presented in an established standard format or special format to meet unique requirements.
- (2) Articles published in the open literature.
- (3) Articles from the bimonthly *Deep Space Network (DSN) Progress Report* (42-series) and its successor, the *Telecommunications and Data Acquisition (TDA) Progress Report* (also 42-series). Each collection of articles in this class of publication beginning with 42-20 presents a periodical survey of current accomplishments by the Deep Space Network as well as other developments in Earth-based radio technology. Formerly, each collection of articles was published as a separate volume of Technical Report 32-1526.

Effective January 1977, the "JPL Publication" replaced the Technical Report, Technical Memorandum, and Special Publication. However, the discontinued classes may still appear in future issues of the Bibliography if succeeding volumes or revisions are published in their former series.

JPL personnel can obtain loan copies of external documents cited from the JPL Library. Personnel of outside organizations can obtain copies or information regarding availability of documents cited by addressing a written request to the Documentation and Material Division, Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, California 91109, or the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161.



## Contents

JPL Publications .....	1
Progress Reports .....	7
Open Literature .....	15



## JPL Publications

- Blackwell, R. J.,**  
*Image Processing Developments and Applications for Water Quality Monitoring and Trophic State Determination,*  
JPL Publication 82-4, March 1, 1982.
- Cannon, W. H.,**  
*A Survey of the Theory of the Earth's Rotation,*  
JPL Publication 82-38, November 1, 1981.
- Carsey, F. D., R. O. Ramseier (Atmospheric Environment Service, Ottawa, Ontario), and W. F. Weeks (U.S. Army Cold Regions Research & Engineering Lab.),**  
*Sea-Ice Mission Requirements for the U.S. FIREX and Canada RADARSAT Programs: Report of the Bilateral Ice Study Team Workshop, Cornwall, Ontario, February 11-13, 1981,*  
JPL Publication 82-24, January 1982.
- Chapman, C. P., P. D. Chapman (Everest and Jennings, Los Angeles, California), and A. H. Lewison (Simpson Electric Company, Elgin, Illinois),**  
*A Low-Power Photovoltaic System With Energy Storage for Radio Communications, Description and Design Methodology,*  
JPL Publication 82-2, January 15, 1982.  
(Prepared for the U.S. Department of Energy.)
- Chapman, P.,**  
*Performance Characteristics of an Electric Vehicle Lead-Acid Battery Pack at Elevated Temperatures,*  
JPL Publication 82-25, April 1, 1982.  
(Prepared for the U.S. Department of Energy.)
- Cimino, J. B., and C. Elachi,**  
*Shuttle Imaging Radar-A (SIR-A) Experiment,*  
JPL Publication 82-77, December 15, 1982.
- Cockrum, R. H.,**  
*A System for Measuring Thermal Activation Energy Levels in Silicon by Thermally Stimulated Capacitance,*  
JPL Publication 82-82, September 15, 1982.  
(Prepared for the U.S. Department of Energy.)
- Collins, D. J.,**  
*LIDAR and Acoustics Applications to Ocean Productivity,*  
JPL Publication 82-56, June 1, 1982.
- Cuddihy, E., W. Carroll, C. Coulbert, A. Gupta, and R. Liang,**  
*Photovoltaic Module Encapsulation Design and Materials Selection: Volume I,*  
JPL Publication 81-102, June 1, 1982.  
(Prepared for the U.S. Department of Energy.)
- Cuddihy, E.,**  
*Photovoltaic Module Encapsulation Design and Materials Selection, Volume I (Abridged),*  
JPL Publication 82-81, September 1, 1982.  
(Prepared for the U.S. Department of Energy.)
- Das, R. L., J. W. Klein, and T. W. Macie,**  
*Distributed Photovoltaic Systems: Utility Interface Issues and Their Present Status; Intermediate/Three-Phase Systems,*  
JPL Publication 82-63, September 15, 1982.  
(Prepared for the U.S. Department of Energy.)
- Daud, T., and A. H. Kachare,**  
*Advanced Czochralski Silicon Growth Technology for Photovoltaic Modules,*  
JPL Publication 82-35, September 15, 1982.  
(Prepared for the U.S. Department of Energy.)
- Demore, W. B., D. M. Golden (SRI International), R. F. Hampson (National Bureau of Standards), C. J. Howard (NOAA Environmental Research Laboratory), M. Kurylo (National Bureau of Standards), M. J. Molina, A. R. Ravishankara (Georgia Institute of Technology), and R. T. Watson,**  
*Chemical Kinetics and Photochemical Data for Use in Stratospheric Modeling: Evaluation Number 5,*  
JPL Publication 82-57, July 15, 1982.
- Deshpande, G. K., and M. D. Gangal,**  
*Evaluation of ADAM/1 Model for Advanced Coal Extraction Concepts,*  
JPL Publication 82-21, January 15, 1982.  
(Prepared for the U.S. Department of Energy.)
- Elliott, D. G.,**  
*Tests of a Two-Stage, Axial-Flow, Two-Phase Turbine,*  
JPL Publication 82-98, December 15, 1982.  
(Prepared for the U.S. Department of Energy.)
- Ferm, J. C., and P. J. Muthig,**  
*A Study of the United States Coal Resources,*  
JPL Publication 82-14, September 15, 1982.  
(Prepared for the U.S. Department of Energy.)
- Fleeter, R., A. Jakub, R. A. Petersen, V. Sarohia, and R. D. Toaz,**  
*Antimisting Kerosene Atomization and Flammability,*  
JPL Publication 82-40, July 1982.  
(Prepared for the U.S. Department of Transportation.)
- Frank, H. A.,**  
*Correlation of Design with Performance of Primary Lithium-Sulfur Oxyhalide Cells,*  
JPL Publication 82-30, June 1, 1982.
- Frickland, P. O., and J. Repar,**  
*Experimental Evaluation of the Battelle Accelerated Test Design for the Solar Array at Mead, Nebraska,*  
JPL Publication 82-52, April 6, 1982.  
(Prepared for the U.S. Department of Energy.)
- Gammell, P. M., A. Croonquist, and T. G. Wang,**  
*Stabilized Acoustic Levitation of Dense Materials Using a High-Powered Siren,*  
JPL Publication 82-92, December 15, 1982.

**Gates, W. R.,**  
*Solar Thermal Technologies Benefits Assessment: Objectives, Methodologies, and Results for 1981,*  
JPL Publication 82-70, July 1982.  
(Prepared for the U.S. Department of Energy.)

**Gonzalez, C. C., G. M. Hill, and R. G. Ross,**  
*Photovoltaic Array—Power Conditioner Interface Characteristics,*  
JPL Publication 82-109, December 15, 1982.  
(Prepared for the U.S. Department of Energy.)

**Hewitt, R., and J. Bryant,**  
*Testing of the Eagle-Picher Nickel-Iron, the Globe ISOA Lead-Acid, and the Westinghouse Nickel-Iron Battery Subsystems in an Electric-Vehicle Environment,*  
JPL Publication 82-91, July 15, 1982.  
(Prepared for the U.S. Department of Energy.)

**Hoag, J. H., H. Habib-Agahi, M. L. Lavin, and D. W. Whipple,**  
*Resource Targets for Advanced Underground Coal Extraction Systems,*  
JPL Publication 82-15, August 1, 1982.  
(Prepared for the U.S. Department of Energy.)

**Hoehn, F. W.,**  
*Stirling Laboratory Research Engine: Preprototype Configuration Report,*  
JPL Publication 82-13, February 15, 1982.

**Huning, J. R., T. L. Logan, and J. H. Smith,**  
*Cloud Cover Estimation: Use of GOES Imagery in Development of Cloud Cover Data Base for Insolation Assessment,*  
JPL Publication 82-101, November 30, 1982.  
(Prepared for the U.S. Department of Energy.)

**Jaffe, L. D.,**  
*Optimization of Dish Solar Collectors With and Without Secondary Concentrators,*  
JPL Publication 82-103, May 15, 1982.  
(Prepared for the U.S. Department of Energy.)

**Johnston, A. R., P. L. Cassell, and R. A. Marks,**  
*Automated Mixed Traffic Vehicle System Design AMTV II: Final Report,*  
JPL Publication 82-58, January 1982.  
(Prepared for the U.S. Department of Transportation.)

**Josephs, R. H.,**  
*Analysis and Design of a 10- to 30-kW Grid-Connected Solar Power System for the JPL Fire Station and First Aid Station,*  
JPL Publication 82-51, April 15, 1982.  
(Prepared for the U.S. Department of Energy.)

**Jet Propulsion Laboratory,**  
*Annual Technical Report: Fiscal Year 1981—Solar Thermal Power Systems Project Parabolic Dish Systems Development,*

JPL Publication 82-22, March 15, 1982.  
(Prepared for the U.S. Department of Energy.)

**Jet Propulsion Laboratory,**  
*Deep Space Telecommunications Systems Engineering,*  
JPL Publication 82-76, July 1982.

**Jet Propulsion Laboratory,**  
*FIREX Mission Requirements Document for Nonrenewable Resources,*  
JPL Publication 82-46, June 15, 1982.

**Jet Propulsion Laboratory,**  
*FIREX Mission Requirements Document for Renewable Resources,*  
JPL Publication 82-47, June 15, 1982.

**Jet Propulsion Laboratory,**  
*Land Mobile Satellite Service (LMSS): A Conceptual System Design and Identification of the Critical Technologies. Part I: Executive Summary,*  
JPL Publication 82-19, Part 1, February 15, 1982.

**Jet Propulsion Laboratory,**  
*Land Mobile Satellite Service (LMSS): A Conceptual System Design and Identification of the Critical Technologies. Part II: Technical Report,*  
JPL Publication 82-19, Part 2, February 15, 1982.

**Jet Propulsion Laboratory,**  
*Parabolic Dish Solar Thermal Power Annual Program Review Proceedings (December 8–10, 1981),*  
JPL Publication 82-66, July 15, 1982.  
(Prepared for the U.S. Department of Energy.)

**Jet Propulsion Laboratory,**  
*Photovoltaic Systems Test Facilities: Existing Capabilities Compilation,*  
JPL Publication 81-14, Rev. 1, March 1, 1982.  
(Prepared for the U.S. Department of Energy.)

**Jet Propulsion Laboratory,**  
*Proceedings of the Low-Cost Solar Array Wafering Workshop, 8–10 June, 1981, The Pointe, Phoenix, Arizona,*  
JPL Publication 82-9, February 1, 1982.  
(Prepared for the U.S. Department of Energy.)

**Jet Propulsion Laboratory,**  
*Proceedings of the NASA Workshop on Registration and Rectification,*  
JPL Publication 82-23, June 1, 1982.

**Jet Propulsion Laboratory,**  
*Proceedings of the Second International Colloquium on Drops and Bubbles, Monterey, California, November 19–21, 1981,*  
JPL Publication 82-7, March 1, 1982.

**Jet Propulsion Laboratory,**  
*Progress Report 19 for the Period July to November 1981 and Proceedings of the 19th Project Integration Meeting,*  
JPL Publication 82-11.  
(Prepared for the U.S. Department of Energy.)

**Jet Propulsion Laboratory,**  
*Progress Report 20 for the Period November 1981 to April 1982 and Proceedings of the 20th Project Integration Meeting,*  
JPL Publication 82-48.  
(Prepared for the U.S. Department of Energy.)

**Jet Propulsion Laboratory,**  
*Science Requirements for Free-Flying Imaging Radar (FIREX) Experiment for Sea Ice, Renewable Resources, Nonrenewable Resources, and Oceanography,*  
JPL Publication 82-32, June 1, 1982.

**Jet Propulsion Laboratory,**  
*Seasat Final Report, Volume I: Program Summary,*  
JPL Publication 80-38, Vol. 1, September 15, 1980.

**Jet Propulsion Laboratory,**  
*Shuttle Active-Microwave Experiments (SAMEX) Program: Executive Summary,*  
JPL Publication 82-59, July 1, 1982.

**Jet Propulsion Laboratory,**  
*Solar Thermal Technology, Annual Technical Progress Report FY 1981, Volume I: Executive Summary,*  
JPL Publication 82-60, June 1982, Vol. 1.  
(Prepared for the U.S. Department of Energy.)

**Jet Propulsion Laboratory,**  
*Solar Thermal Technology, Annual Technical Progress Report FY 1981, Volume II: Technical,*  
JPL Publication 82-60, June 1982, Vol. 2.  
(Prepared for the U.S. Department of Energy.)

**Jet Propulsion Laboratory,**  
*Starprobe Scientific Rationale, A Report of the Ad Hoc Working Groups,*  
JPL Publication 82-49, June 15, 1982.

**Jet Propulsion Laboratory,**  
*Summary of Flat-Plate Solar Array Project Documentation—Abstracts of Published Documents, 1975 to June 1982,*  
JPL Publication 82-79, September 15, 1982.  
(Prepared for the U.S. Department of Energy.)

**Jet Propulsion Laboratory,**  
*The SIR-B Science Plan Imaging Radar Science Working Group,*  
JPL Publication 82-78, December 1, 1982.

**Jet Propulsion Laboratory,**  
*Workshop on an Assessment of Gas-Side Fouling in Fossil Fuel Exhaust Environments,*

JPL Publication 82-67.  
(Prepared for the U.S. Department of Energy.)

**Jet Propulsion Laboratory,**  
*Workshop on Closed System Ecology: Summary Report,*  
JPL Publication 82-64, July 15, 1982.

**Jet Propulsion Laboratory,**  
*26-Meter Antenna S-X Conversion Project,*  
JPL Publication 82-26, March 15, 1982.

**Kalvinskas, J., and D. Daly,**  
*Coal Desulfurization by Chlorinolysis Production and Combustion Test Evaluation of Product Coals: Final Report,*  
JPL Publication 82-72, April 30, 1982.  
(Prepared for the U.S. Department of Energy.)

**Key, R. W., E. Mettler, M. H. Milman, and D. B. Schaechter,**  
*Spacecraft Drag-Free Technology Development, On-Board Estimation and Control Synthesis,*  
JPL Publication 82-45, May 15, 1982.

**Lam, A. Y.,**  
*LSI/VLSI Design for Testability Analysis and General Approach,*  
JPL Publication 82-50, June 1, 1982.  
(Prepared for the Naval Ocean Systems Center, San Diego, California.)

**Larkin, W. E.,**  
*Telecommunications and Data Acquisition Systems Support for the Viking 1975 Mission to Mars: 1 June 1978 to 30 April 1980,*  
JPL Publication 82-18, April 15, 1982.

**Levine, N., and M. Slonski,**  
*A Survey of Manufacturers of Solar Thermal Energy Systems,*  
JPL Publication 82-94, August 1982.  
(Prepared for the U.S. Department of Energy.)

**Liang, R. H., S. Di Stefano, and A. Gupta,**  
*Photothermal Characterization of Encapsulant Materials for Photovoltaic Modules,*  
JPL Publication 82-42, June 1, 1982.  
(Prepared for the U.S. Department of Energy.)

**Lin, E. I.,**  
*Regional Applicability and Potential of Salt-Gradient Solar Ponds in the United States, Volume I: Executive Summary,*  
JPL Publication 82-10, Vol. 1, March 1, 1982.  
(Prepared for the U.S. Department of Energy.)

**Lin, E. I., R. H. Barbieri, R. L. French, M. G. Hurick, S. C. Jones, N. Levine, J. C. McMurrin, P. H. Richter, M. J. Singer, A. L. Walton, and Y. C. Wu,**  
*Regional Applicability and Potential of Salt-Gradient Solar Ponds in the United States, Volume II: Detailed Report,*

JPL Publication 82-10, Vol. 2, March 15, 1982.  
(Prepared for the U.S. Department of Energy.)

**Lohman, G. M.,**  
*Generic Functional Requirements for a NASA General-Purpose Data Base Management System,*  
JPL Publication 82-6, October 1, 1981.

**Marner, W. J.,**  
*An Assessment of Gas-Side Fouling in Cement Plants,*  
JPL Publication 82-83, September 1982.  
(Prepared for the U.S. Department of Energy.)

**McKay, R.,**  
*Helical Screw Expander Evaluation Project: Final Report,*  
JPL Publication 82-5, March 1, 1982.  
(Prepared for the U.S. Department of Energy.)

**Miles, R. F.,**  
*Introduction to SIMRAND: SIMulation of Research AND Development Project,*  
JPL Publication 82-20, March 1, 1982.  
(Prepared for the U.S. Department of Energy.)

**Mitchell, J. L.,**  
*The Nature of Large-Scale Turbulence in the Jovian Atmosphere,*  
JPL Publication 82-34, January 15, 1982.

**Mokashi, A. R.,**  
*Price Estimates for the Production of Wafers from Silicon Ingots,*  
JPL Publication 82-65, September 15, 1982.  
(Prepared for the U.S. Department of Energy.)

**Moran, C., and R. Bjorklund,**  
*Propellant/Material Compatibility Program and Results: Ten-Year Milestone,*  
JPL Publications 82-62, July 15, 1982.

**Nauda, A. (Bucknell University, Lewisburg, Pennsylvania),**  
*A Study of the Selection of Microcomputer Architectures to Automate Planetary Spacecraft Power Systems,*  
JPL Publication 82-1, January 1, 1982.

**Pandey, P. C., and S. Kniffen,**  
*Evaluation of the Potential of One to Three Seasat-SMMR Channels in Retrieving Sea Surface Temperature,*  
JPL Publication 82-89, November 15, 1982.

**Pandey, P. C.,**  
*Precipitable Water: Its Linear Retrieval Using Leaps and Bounds Procedure and Its Global Distribution from Seasat SMMR Data,*  
JPL Publication 82-96, December 1, 1982.

**Perlman, M., and J. J. Lee,**  
*Reed-Solomon Encoders—Conventional vs Berlekamp's*

*Architecture,*  
JPL Publication 82-71, December 1, 1982.

**Price, T. W., R. J. Freeman, M. F. Pompa, and T. W. Shain,**  
*Vehicle Test Report: Batronic Pickup Truck,*  
JPL Publication 82-8, January 1, 1982.  
(Prepared for the U.S. Department of Energy.)

**Price, T. W., and V. A. Wirth,**  
*Vehicle Test Report: Jet Industries Electra Van 600,*  
JPL Publication 82-36, February 15, 1982.  
(Prepared for the U.S. Department of Energy.)

**Renzetti, N. A., A. L. Berman, J. F. Jordan, J. A. Wackley, and T. P. Yunck,**  
*The Deep Space Network—An Instrument for Radio Navigation of Deep Space Probes,*  
JPL Publication 82-102, December 15, 1982.

**Renzetti, N. A., R. D. Shaffer, R. M. Taylor, and P. R. Wolken,**  
*The Deep Space Network—An Instrument for Radio Astronomy Research,*  
JPL Publication 82-68, August 1, 1982.

**Rice, R. F.,**  
*End-to-End Imaging Information Rate Advantages of Various Alternative Communication Systems,*  
JPL Publication 82-61, September 1, 1982.

**Richter, R.,**  
*Basic Investigation Into the Electrical Performance of Solid Electrolyte Membranes,*  
JPL Publication 82-75, August 15, 1982.

**Sergeyevsky, A. B., and G. C. Snyder,**  
*Interplanetary Mission Design Handbook, Volume I, Part 3, Earth to Jupiter Ballistic Mission Opportunities, 1985–2005,*  
JPL Publication 82-43, December 1, 1982.

**Smokler, M. I.,**  
*User Handbook for Block IV Silicon Solar Cell Modules,*  
JPL Publication 82-73, September 1, 1982.  
(Prepared for the U.S. Department of Energy.)

**Stelzried, C. T.,**  
*The Deep Space Network—Noise Temperature Concepts, Measurements, and Performance,*  
JPL Publication 82-33, September 15, 1982.

**Stephanopoulos, M. F., and G. E. Voecks,**  
*Conversion of Hydrocarbons for Fuel Cell Applications, Part I: Autothermal Reforming of Sulfur-Free and Sulfur-Containing Hydrocarbon Liquids, Part II: Steam Reforming of n-Hexane on Pellet and Monolithic Catalyst Beds,*  
JPL Publication 82-37, October 1981.  
(Prepared for the U.S. Department of Energy.)

**Steurer, W. H.,**  
*Extraterrestrial Materials Processing,*  
JPL Publication 82-41, April 15, 1982.

**Sue, M. K.,**  
*Feasibility of Simultaneous Operation of Passive Remote  
Microwave Sensors and Active Services Occupying Adjacent  
Frequency Bands,*  
JPL Publication 82-27, May 1, 1982.

**Swanson, L.,**  
*A Comparison of Frame Synchronization Methods,*  
JPL Publication 82-100, December 15, 1982.

**Swift, H. F. (Physics Applications Inc., Dayton, Ohio),  
R. Bamford, and R. Chen,**  
*Designing Dual-Plate Meteoroid Shields—A New Analysis,*  
JPL Publication 82-39, March 1, 1982.

**Tada, H. Y. (TRW Systems Group), B. E. Anspaugh, J. R.  
Carter (TRW Systems Group), and R. G. Downing,**  
*Solar Cell Radiation Handbook, Third Edition,*  
JPL Publication 82-69, November 1, 1982.

**Truong, T. K., L. J. Deutsch, and I. S. Reed,**  
*The VLSI Design of a Single Chip Reed-Solomon Encoder,*  
JPL Publication 82-84, November 15, 1982.

**Turner, R. H., G. C. Birur, and C. Daksla,**  
*Retrofit Energy Conservation in Residential Buildings in  
Southern California,*  
JPL Publication 82-55, June 15, 1982.  
(Prepared for the Southern California Edison Company.)

**Von Roos, O. H.,**  
*An Investigation of Impurity Centers in Semiconductors of  
Variable Composition, Part I: General Theory and Some  
Applications,*  
JPL Publication 82-88, October 15, 1982.

(Prepared for the U.S. Air Force Wright Aeronautical  
Laboratories.)

**Von Roos, O. H.,**  
*Mathematical Analysis of the Photovoltage Decay (PVD)  
Method for Minority Carrier Lifetime Measurements,*  
JPL Publication 82-3, February 15, 1982.  
(Prepared for the U.S. Department of Energy.)

**Wen, L.,**  
*An Investigation of the Effect of Wind Cooling on Photovoltaic  
Arrays,*  
JPL Publication 82-28.  
(Prepared for the U.S. Department of Energy.)

**Wu, Y. C., J. Harris, H. E. Marsh, M. J. Singer, and A. L.  
Walton,**  
*Solar Pond Power Plant Feasibility Study for Davis,  
California,*  
JPL Publication 82-16, February 15, 1982.  
(Prepared for the City of Davis, California.)

**Zeldin, B.,**  
*Environmental Control Subsystems for Electric and Hybrid  
Vehicles: A Study Evaluation Report,*  
JPL Publication 82-17, April 15, 1982.  
(Prepared for the U.S. Department of Energy.)

**Zimmerman, W., R. Aster, J. Harris, and J. High,**  
*Automation of the Longwall Mining System,*  
JPL Publication 82-99, November 1, 1982.  
(Prepared for the U.S. Department of Energy.)

**Zimmerman, W. F.,**  
*Health and Safety Evaluation of a Modified Tunnel Borer  
Design for Application to Single-Entry Coal Mine  
Development,*  
JPL Publication 82-12, February 15, 1982.  
(Prepared for the U.S. Department of Energy.)



## Progress Reports

**Adkins, C. L., and E. K. Goto,**

“Deep Space Network Utilization for Flight Projects, Calendar Year 1981,”

*The Telecommunications and Data Acquisition Progress Report 42-71: July through September 1982,*  
pp. 143–147, November 15, 1982.

**Baher, F.,**

“Field Interface Module for Antenna Control Assembly,”

*The Telecommunications and Data Acquisition Progress Report 42-69: March and April 1982,*  
pp. 107–112, June 15, 1982.

**Bartok, C. D.,**

“Analysis of DSN PPM Support During Voyager 2 Saturn Encounter,”

*The Telecommunications and Data Acquisition Progress Report 42-68: January and February 1982,*  
pp. 139–150, April 15, 1982.

**Berman, A. L., W. H. Hietzke, and J. A. Wackley,**

“Direct Comparison of Viking 2.3-GHz Signal Phase Fluctuation and Columnar Electron Density Between 2 and 160 Solar Radii,”

*The Telecommunications and Data Acquisition Progress Report 42-71: July through September 1982,*  
pp. 117–128, November 15, 1982.

**Berman, A. L., J. C. McKinney, and D. J. Mudgway,**

“The 1986 Launch of the Galileo Spacecraft via the Space Transportation System,”

*The Telecommunications and Data Acquisition Progress Report 42-72: October through December 1982,*  
pp. 186–199, February 15, 1983.

**Berman, A. O., W. E. Larkin, and J. C. McKinney,**

“Deep Space Payload Launches via the Space Transportation System,”

*The Telecommunications and Data Acquisition Progress Report 42-70: May and June 1982,*  
pp. 21–36, August 15, 1982.

**Brockman, M. H.,**

“The Effect of Partial Coherence in Receiving System Noise Temperature on Array Gain for Telemetry and Radio Frequency Carrier Reception for Receiving Systems with Unequal Predetection Signal-to-Noise Ratios,”

*The Telecommunications and Data Acquisition Progress Report 42-72: October through December 1982,*  
pp. 95–117, February 15, 1983.

**Brunder, G. J.,**

“Provision of 9.6-kbps Wideband Data Rate Capability in the DSN,”

*The Telecommunications and Data Acquisition Progress Report 42-69: March and April 1982,*  
pp. 189–193, June 15, 1982.

**Burford, A.,**

“Field Repair of Microprocessor-Based Equipment,”

*The Telecommunications and Data Acquisition Progress Report 42-69: March and April 1982,*  
pp. 194–196, June 15, 1982.

**Burford, A. L.,**

“Mark IVA Microprocessor Support,”

*The Telecommunications and Data Acquisition Progress Report 42-71: July through September 1982,*  
pp. 148–153, April 15, 1982.

**Burt, R.,**

“Mark IV—A DSCC Telemetry System Description,”

*The Telecommunications and Data Acquisition Progress Report 42-68: January and February 1982,*  
pp. 130–138, April 15, 1982.

**Carpenter, J., C. T. Chian, and S. Rocci,**

“The Fabrication and Surface Tolerance Measurements of the JPL Clear Aperture Microwave Antenna,”

*The Telecommunications and Data Acquisition Progress Report 42-71: July through September 1982,*  
pp. 104–116, November 15, 1982.

**Chaney, W. D.,**

“The DSN VLBI System Mark IV-86,”

*The Telecommunications and Data Acquisition Progress Report 42-70: May and June 1982,*  
pp. 16–20, August 15, 1982.

**Charng, T.,**

“Optimum Equipment Maintenance/Replacement Policy, Part 2, Markov Decision Approach,”

*The Telecommunications and Data Acquisition Progress Report 42-67: November and December 1981,*  
pp. 75–89, February 15, 1982.

**Charng, T., and F. Lansing,**

“Review of Corrosion Causes and Corrosion Control in a Technical Facility,”

*The Telecommunications and Data Acquisition Progress Report 42-69: March and April 1982,*  
pp. 145–156, June 15, 1982.

**Chen, W. C., and B. W. Baker,**

“Evaluation of Waveguide Coating Materials,”

*The Telecommunications and Data Acquisition Progress Report 42-68: January and February 1982,*  
pp. 68–71, April 15, 1982.

**Clauss, R. C., M. M. Franco, and S. D. Slobin,**

“K<sub>A</sub>-Band Weather-Dependent System Performance Estimates for Goldstone,”

*The Telecommunications and Data Acquisition Progress Report 42-71: July through September 1982,*  
pp. 60–65, November 15, 1982.

- De Groot, N. F.,**  
 "Analysis, Prediction and Control of Radio Frequency Interference with Respect to the DSN,"  
*The Telecommunications and Data Acquisition Progress Report 42-69: March and April 1982,*  
 pp. 81–100, June 15, 1982.
- De Groot, N. F.,**  
 "New CCIR Papers on Telecommunications for Deep Space Research,"  
*The Telecommunications and Data Acquisition Progress Report 42-68: January and February 1982,*  
 pp. 86–102, April 15, 1982.
- De Groot, N. F.,**  
 "New CCIR Papers on Telecommunications for Deep Space Research,"  
*The Telecommunications and Data Acquisition Progress Report 42-69: March and April 1982,*  
 pp. 62–80, June 15, 1982.
- De Groot, N. F., and M. K. Sue,**  
 "Selection of Frequencies for Deep-Space Telecommunications,"  
*The Telecommunications and Data Acquisition Progress Report 42-69: March and April 1982,*  
 pp. 49–61, June 15, 1982.
- Deutsch, L. J.,**  
 "A VLSI Implementation of a Multicode Convolutional Encoder,"  
*The Telecommunications and Data Acquisition Progress Report 42-72: October through December 1982,*  
 pp. 61–69, February 15, 1983.
- Deutsch, L. J.,**  
 "An Update on the Use of the VLA for Telemetry Reception,"  
*The Telecommunications and Data Acquisition Progress Report 42-72: October through December 1982,*  
 pp. 51–60, February 15, 1983.
- Deutsch, L. J., and R. L. Miller,**  
 "The Effects of Viterbi Decoder Node Synchronization Losses on the Telemetry Receiving System,"  
*The Telecommunications and Data Acquisition Progress Report 42-68: January and February 1982,*  
 pp. 17–24, April 15, 1982.
- Deutsch, L. J.,**  
 "The Performance of VLA as a Telemetry Receiver for Voyager Planetary Encounters,"  
*The Telecommunications and Data Acquisition Progress Report 42-71: July through September 1982,*  
 pp. 27–39, November 15, 1982.
- Deutsch, L. J., and R. L. Miller,**  
 "Viterbi Decoder Node Synchronization Losses in the Reed-Solomon/Viterbi Concatenated Channel,"  
*The Telecommunications and Data Acquisition Progress Report 42-71: July through September 1982,*  
 pp. 73–80, November 15, 1982.
- Divsalar, D., and F. Naderi,**  
 "Performance of an Optical Relay Satellite Using Reed-Solomon Coding Over a Cascaded Optical PPM and BPSK Channel,"  
*The Telecommunications and Data Acquisition Progress Report 42-70: May and June 1982,*  
 pp. 117–131, August 15, 1982.
- Divsalar, D., and J. H. Yuen,**  
 "Performance of Concatenated Reed-Solomon/Viterbi Channel Coding,"  
*The Telecommunications and Data Acquisition Progress Report 42-71: July through September 1982,*  
 pp. 81–94, November 15, 1982.
- Divsalar, D., R. M. Gagliardi, and J. H. Yuen,**  
 "PPM Demodulation for Reed-Solomon Decoding for the Optical Space Channel,"  
*The Telecommunications and Data Acquisition Progress Report 42-70: May and June 1982,*  
 pp. 47–59, August 15, 1982.
- Dobinson, E.,**  
 "A Federated Information Management System for the Deep Space Network,"  
*The Telecommunications and Data Acquisition Progress Report 42-70: May and June 1982,*  
 pp. 144–152, August 15, 1982.
- Dolinar, S. J., and J. H. Yuen,**  
 "A Note on Deep Space Optical Communication Link Parameters,"  
*The Telecommunications and Data Acquisition Progress Report 42-70: May and June 1982,*  
 pp. 105–109, August 15, 1982.
- Dolinar, Jr., S. J.,**  
 "A Near-Optimum Receiver Structure for the Detection of M-ary Optical PPM Signals,"  
*The Telecommunications and Data Acquisition Progress Report 42-72: October through December 1982,*  
 pp. 30–42, February 15, 1983.
- Dolinsky, S., and N. F. de Groot,**  
 "Potential Reduction of DSN Uplink Energy Cost,"  
*The Telecommunications and Data Acquisition Progress Report 42-68: January and February 1982,*  
 pp. 151–166, April 15, 1982.
- Erickson, T.,**  
 "An Automated FORTRAN Documenter,"  
*The Telecommunications and Data Acquisition Progress Report 42-68: January and February 1982,*  
 pp. 78–85, April 15, 1982.

- Evans, R. H.,**  
 "DSN Ground Communications Facility,"  
*The Telecommunications and Data Acquisition Progress Report*  
 42-72: October through December 1982,  
 pp. 200–209, February 15, 1983.
- Falin, B. W.,**  
 "DSN Test Support System, Mark IV-85,"  
*The Telecommunications and Data Acquisition Progress Report*  
 42-72: October through December 1982,  
 pp. 128–134, February 15, 1983.
- Fouser, T. J.,**  
 "Management and Development Local Area Network Upgrade  
 Prototype,"  
*The Telecommunications and Data Acquisition Progress Report*  
 42-69: March and April 1982,  
 pp. 14–19, June 15, 1982.
- Gagliardi, R. M.,**  
 "Error Probabilities in Optical PPM Receivers With Gaussian  
 Mixture Densities,"  
*The Telecommunications and Data Acquisition Progress Report*  
 42-68: January and February 1982,  
 pp. 72–77, April 15, 1982.
- Gaudian, B. A.,**  
 "Goldstone Radio Spectrum Signal Identification, March  
 1980–March 1982,"  
*The Telecommunications and Data Acquisition Progress Report*  
 42-69: March and April 1982,  
 pp. 197–199, June 15, 1982.
- Goldfinger, A., M. A. Gregg, and R. Hartop,**  
 "A New High-Power Klystron for the DSN,"  
*The Telecommunications and Data Acquisition Progress Report*  
 42-69: March and April 1982,  
 pp. 157–173, June 15, 1982.
- Greenhall, C. A.,**  
 "A Compact Presentation of DSN Array Telemetry  
 Performance,"  
*The Telecommunications and Data Acquisition Progress Report*  
 42-71: July through September 1982,  
 pp. 137–142, November 15, 1982.
- Greenhall, C. A.,**  
 "A Structure Function Representation Theorem With  
 Applications to Frequency Stability Estimation,"  
*The Telecommunications and Data Acquisition Progress Report*  
 42-70: May and June 1982,  
 pp. 37–46, August 15, 1982.
- Guiar, C. N., and L. W. Duff,**  
 "Electronic Simulation of a Barometric Pressure Sensor for the  
 Meteorological Monitor Assembly,"  
*The Telecommunications and Data Acquisition Progress Report*  
 42-71: July through September 1982,  
 pp. 95–103, November 15, 1982.
- Gulkis, S.,**  
 "Thermal Background Noise Limitations,"  
*The Telecommunications and Data Acquisition Progress Report*  
 42-71: July through September 1982,  
 pp. 53–59, November 15, 1982.
- Hawley, L. R.,**  
 "The Development Version Control and Visibility  
 Subsystem,"  
*The Telecommunications and Data Acquisition Progress Report*  
 42-69: March and April 1982,  
 pp. 113–116, June 15, 1982.
- Hayes, N. V.,**  
 "Energy Consumption Analysis for the Mars Deep Space  
 Station,"  
*The Telecommunications and Data Acquisition Progress Report*  
 42-69: March and April 1982,  
 pp. 200–207, June 15, 1982.
- Hughes, R. D.,**  
 "A Simplified Solar Cell Array Modelling Program,"  
*The Telecommunications and Data Acquisition Progress Report*  
 42-68: January and February 1982,  
 pp. 167–185, April 15, 1982.
- Hughes, R. D., I. R. Khan, and F. L. Lansing,**  
 "Efficient Computerized Model for Dynamic Analysis of  
 Energy Conversion Systems,"  
*The Telecommunications and Data Acquisition Progress Report*  
 42-72: October through December 1982,  
 pp. 161–176, February 15, 1983.
- Hughes, R. D.,**  
 "Potential Availability of Diesel Waste Heat at Echo Deep  
 Space Station (DSS 12),"  
*The Telecommunications and Data Acquisition Progress Report*  
 42-71: July through September 1982,  
 pp. 166–182, November 15, 1982.
- Hull, R.,**  
 "An Introduction to the New Productivity Information  
 Management System (PIMS),"  
*The Telecommunications and Data Acquisition Progress Report*  
 42-70: May and June 1982,  
 pp. 173–189, August 15, 1982.
- Hung, C. K.,**  
 "DSN Data Systems Software Methodology,"  
*The Telecommunications and Data Acquisition Progress Report*  
 42-70: May and June 1982,  
 pp. 132–143, August 15, 1982.
- Jackson, E. B.,**  
 "Special Activity Utilization of GDSCC Antennas During  
 1981,"

*The Telecommunications and Data Acquisition Progress Report 42-67: November and December 1981,*  
pp. 121–126, February 15, 1982.

**Jacobson, G. N., and A. Spinak,**  
“Top Down Implementation Plan for System Performance Test Software,”  
*The Telecommunications and Data Acquisition Progress Report 42-70: May and June 1982,*  
pp. 190–199, August 15, 1982.

**Jansma, P. A.,**  
“Receiver-Exciter Controller Design,”  
*The Telecommunications and Data Acquisition Progress Report 42-69: March and April 1982,*  
pp. 117–125, June 15, 1982.

**Katz, J.,**  
“Electronic Beam Steering of Semiconductor Injection Lasers,”  
*The Telecommunications and Data Acquisition Progress Report 42-68: January and February 1982,*  
pp. 25–41, April 15, 1982.

**Katz, J.,**  
“Phase Control and Beam Steering of Semiconductor Laser Arrays,”  
*The Telecommunications and Data Acquisition Progress Report 42-68: January and February 1982,*  
pp. 42–49, April 15, 1982.

**Katz, J.,**  
“Power Combining of Semiconductor Lasers: A Review,”  
*The Telecommunications and Data Acquisition Progress Report 42-70: May and June 1982,*  
pp. 87–94, August 15, 1982.

**Katz, J.,**  
“2.5 Bit/Detected Photon Demonstration Program: Phase II and III Experimental Results,”  
*The Telecommunications and Data Acquisition Progress Report 42-70: May and June 1982,*  
pp. 95–104, August 15, 1982.

**Klein, M. J.,**  
“S-Band Aperture Efficiency of the DSS 13 26-Meter Antenna with the S-X Common Aperture Feed,”  
*The Telecommunications and Data Acquisition Progress Report 42-72: October through December 1982,*  
pp. 89–94, February 15, 1983.

**Lawton, W. M.,**  
“An Efficient Sampling Technique for Sums of Bandpass Functions,”  
*The Telecommunications and Data Acquisition Progress Report 42-68: January and February 1982,*  
pp. 3–7, April 15, 1982.

**Lee, P. J.,**  
“Capacity and Cutoff Rate of  $(M+1)$ -ary Decision Rules for Noisy  $M$ -ary Optical PPM Channel,”  
*The Telecommunications and Data Acquisition Progress Report 42-72: October through December 1982,*  
pp. 43–50, February 15, 1983.

**LeMay, M., R. L. Chafin, and E. E. Hird,**  
“The Measurement of Operator Workload in the Mark IVA DSCC Monitor and Control Subsystem,”  
*The Telecommunications and Data Acquisition Progress Report 42-72: October through December 1982,*  
pp. 177–185, February 15, 1983.

**Marshall, W. K.,**  
“A PPM Modulator and Demodulator for the 2.5-Bit/Detected Photon Demonstration,”  
*The Telecommunications and Data Acquisition Progress Report 42-68: January and February 1982,*  
pp. 50–54, April 15, 1982.

**McGinness, H.,**  
“Lateral and Drag Forces on Misaligned Cylindrical Rollers,”  
*The Telecommunications and Data Acquisition Progress Report 42-69: March and April 1982,*  
pp. 174–178, June 15, 1982.

**Mortensen, L. O.,**  
“GCF Mark IV Development,”  
*The Telecommunications and Data Acquisition Progress Report 42-70: May and June 1982,*  
pp. 161–172, August 15, 1982.

**Nishimura, H. G.,**  
“ORION Downconverter and Power Supply,”  
*The Telecommunications and Data Acquisition Progress Report 42-69: March and April 1982,*  
pp. 3–9, June 15, 1982.

**Ohlson, J. E., and K. P. Abichandani,**  
“CONSCAN Implementation for Antenna Control Assembly,”  
*The Telecommunications and Data Acquisition Progress Report 42-70: May and June 1982,*  
pp. 153–160, August 15, 1982.

**Otoshi, T. Y., and L. E. Young,**  
“An Experimental Investigation of the Changes of VLBI Time Delays Due to Antenna Structural Deformations,”  
*The Telecommunications and Data Acquisition Progress Report 42-68: January and February 1982,*  
pp. 8–16, April 15, 1982.

**Otoshi, T. Y., W. V. Rusch (University of Southern California), and L. E. Young,**  
“VLBI Collimation Tower Technique for Time-Delay Studies of a Large Ground Station Communications Antenna,”

*The Telecommunications and Data Acquisition Progress Report 42-72: October through December 1982,*  
pp. 20–29, February 15, 1983.

**Parks, G. S., M. L. MacMedan, R. S. Markham, and T. J. Rowden,**  
“MV-3 Communication Subsystem,”  
*The Telecommunications and Data Acquisition Progress Report 42-72: October through December 1982,*  
pp. 210–219, February 15, 1983.

**Renzetti, N. A.,**  
“Description of the Deep Space Network,”  
*The Telecommunications and Data Acquisition Progress Report 42-68: January and February 1982,*  
pp. 1–2, April 15, 1982.

**Resch, G. M., M. C. Chavez, and N. I. Yamane,**  
“Description and Overview of an Instrument Designed to Measure Line-of-Sight Delay Due to Water Vapor,”  
*The Telecommunications and Data Acquisition Progress Report 42-72: October through December 1982,*  
pp. 1–19, February 15, 1983.

**Ricardo, A. L.,**  
“Improved Downlink Frequency Calculations for Voyager 2,”  
*The Telecommunications and Data Acquisition Progress Report 42-71: July through September 1982,*  
pp. 23–26, November 15, 1982.

**Rosenberg, L. S.,**  
“An Overview of the Goldstone Energy Systems Study,”  
*The Telecommunications and Data Acquisition Progress Report 42-72: October through December 1982,*  
pp. 135–141, February 15, 1983.

**Santana, J. C., and L. E. Jennings,**  
“Operations of the Reconfigured Ground Communications Facility Central Communications Terminal and the Network Operations Control Center,”  
*The Telecommunications and Data Acquisition Progress Report 42-68: January and February 1982,*  
pp. 122–129, April 15, 1982.

**Schonfeld, D.,**  
“Analysis of Capacitive Heat Exchangers, Part II,”  
*The Telecommunications and Data Acquisition Progress Report 42-69: March and April 1982,*  
pp. 126–144, June 15, 1982.

**Schonfeld, D., and F. L. Lansing,**  
“Thermal Analysis of Antenna Backup Structure, Part I—Methodology Development,”  
*The Telecommunications and Data Acquisition Progress Report 42-70: May and June 1982,*  
pp. 110–116, August 15, 1982.

**Shaffer, R. D., and S. Gulkis,**  
“Radio Astronomy,”  
*The Telecommunications and Data Acquisition Progress Report 42-69: March and April 1982,*  
pp. 1–2, June 15, 1982.

**Slobin, S. D., R. C. Clauss, and M. M. Franco,**  
“X-Band Noise Temperature Effects of Rain on DSN Antenna Feedhorns,”  
*The Telecommunications and Data Acquisition Progress Report 42-71: July through September 1982,*  
pp. 66–72, November 15, 1982.

**Sniffen, R. W.,**  
“Monitor and Control Equipment for the MV-3 Mobile Very Long Baseline Interferometry Station,”  
*The Telecommunications and Data Acquisition Progress Report 42-70: May and June 1982,*  
pp. 1–7, August 15, 1982.

**Sovers, O. J., J. L. Fanselow, G. H. Purcell, Jr., D. H. Rogstad, and J. B. Thomas,**  
“Determination of Intercontinental Baselines and Earth Orientation Using VLBI,”  
*The Telecommunications and Data Acquisition Progress Report 42-71: July through September 1982,*  
pp. 1–7, November 15, 1982.

**Spradlin, G. L.,**  
“DSN Monitor and Control System Mark III-82,”  
*The Telecommunications and Data Acquisition Progress Report 42-71: July through September 1982,*  
pp. 20–22, November 15, 1982.

**Stelzried, C. T., A. L. Berman, and G. K. Noreen,**  
“Antenna Arraying Performance for Deep Space Telecommunications Systems,”  
*The Telecommunications and Data Acquisition Progress Report 42-72: October through December 1982,*  
pp. 83–88, February 15, 1983.

**Stelzried, C. T.,**  
“Application of Radiative Transfer Theory to Microwave Transmission Medium Calibrations,”  
*The Telecommunications and Data Acquisition Progress Report 42-69: March and April 1982,*  
pp. 179–188, June 15, 1982.

**Stevens, R.,**  
“Applications of Telemetry Arraying in the DSN,”  
*The Telecommunications and Data Acquisition Progress Report 42-72: October through December 1982,*  
pp. 78–82, February 15, 1983.

**Stinnett, W. G.,**  
“Deep Space Communications Complex Command Subsystem Mark IVA,”

*The Telecommunications and Data Acquisition Progress Report*  
42-71: July through September 1982,  
pp. 129–136, November 15, 1982.

**Sue, M. K.,**  
“DSN RFI Susceptibility Models Development Program  
Overview,”  
*The Telecommunications and Data Acquisition Progress Report*  
42-68: January and February 1982,  
pp. 103–109, April 15, 1982.

**Sue, M. K.,**  
“Performance Degradation of the Block IV Telemetry System  
Due to the Presence of a CW Interference,”  
*The Telecommunications and Data Acquisition Progress Report*  
42-69: March and April 1982,  
pp. 36–48, June 15, 1982.

**Tan, H. H.,**  
“A Statistical Model of the Photomultiplier Gain Process With  
Applications to Optical Pulse Detection,”  
*The Telecommunications and Data Acquisition Progress Report*  
42-68: January and February 1982,  
pp. 55–67, April 15, 1982.

**Tausworthe, R. C.,**  
“Algorithms for Software Development Version Control and  
Change Detection,”  
*The Telecommunications and Data Acquisition Progress Report*  
42-69: March and April 1982,  
pp. 20–35, June 15, 1982.

**Tausworthe, R. C.,**  
“Staffing Implications of Software Productivity Models,”  
*The Telecommunications and Data Acquisition Progress Report*  
42-72: October through December 1982,  
pp. 70–77, February 15, 1983.

**Taylor, R. M.,**  
“RFI Measurement Survey at Goldstone in November and  
December 1981,”  
*The Telecommunications and Data Acquisition Progress Report*  
42-68: January and February 1982,  
pp. 110–121, April 15, 1982.

**Taylor, T. H., J. K. Campbell, R. A. Jacobson,  
B. Moultrie, R. A. Nichols, Jr., and J. E. Riedel,**  
“Performance of Differenced Range Data Types in Voyager  
Navigation,”  
*The Telecommunications and Data Acquisition Progress Report*  
42-71: July through September 1982,  
pp. 40–52, November 15, 1982.

**Thorman, H. C.,**  
“DSN Command System Mark IV-85,”  
*The Telecommunications and Data Acquisition Progress Report*  
42-70: May and June 1982,  
pp. 8–15, August 15, 1982.

**Truong, T. K., I. S. Reed, H. M. Shao (University of  
Southern California), and C. S. Yeh (University of  
Southern California),**  
“A Parallel VLSI Architecture for a Digital Filter of Arbitrary  
Length Using Fermat Number Transforms,”  
*The Telecommunications and Data Acquisition Progress Report*  
42-70: May and June 1982,  
pp. 60–71, August 15, 1982.

**Truong, T. K., L. J. Deutsch, I. S. Hsu (University of  
Southern California), I. S. Reed, K. Wang, and C. S. Yeh  
(University of Southern California),**  
“The VLSI Design of a Reed-Solomon Encoder Using  
Berlekamp’s Bit-Serial Multiplier Algorithm,”  
*The Telecommunications and Data Acquisition Progress Report*  
42-70: May and June 1982,  
pp. 72–86, August 15, 1982.

**Valtier, H.,**  
“Field Interface Module Software Description,”  
*The Telecommunications and Data Acquisition Progress Report*  
42-69: March and April 1982,  
pp. 101–106, June 15, 1982.

**Ward, S. C.,**  
“A Two-Year History of Atomic Frequency Standards  
Syntonization in the Deep Space Network,”  
*The Telecommunications and Data Acquisition Progress Report*  
42-72: October through December 1982,  
pp. 118–127, February 15, 1983.

**Webb, W. A.,**  
“A DSN Optimal Spacecraft Scheduling Model,”  
*The Telecommunications and Data Acquisition Progress Report*  
42-71: July through September 1982,  
pp. 154–165, November 15, 1982.

**Wu, S. C.,**  
“Error Estimation for  $\Delta$  VLBI Angle and Angle Rate  
Measurements Over Baselines Between a Ground Station and a  
Geosynchronous Orbiter,”  
*The Telecommunications and Data Acquisition Progress Report*  
42-71: July through September 1982,  
pp. 8–19, November 15, 1982.

**Yeater, M. L., D. T. Herrman, and E. B. Luers,**  
“Networks Consolidation Program,”  
*The Telecommunications and Data Acquisition Progress Report*  
42-69: March and April 1982,  
pp. 10–13, June 15, 1982.

**Yung, C. S., and F. L. Lansing,**  
“Performance Simulation of the JPL Solar-Powered Distiller,  
Part I, Quasi-Steady-State Conditions,”  
*The Telecommunications and Data Acquisition Progress Report*  
42-72: October through December 1982,  
pp. 142–160, February 15, 1983.

**Yung, C. S., and F. L. Lansing,**  
“Rates of Solar Angles for Two-Axis Concentrators,”  
*The Telecommunications and Data Acquisition Progress Report*  
42-70: May and June 1982,  
pp. 200–211, August 15, 1982.



## Open Literature

**Adams, P. J. (Washington State University),**  
“Large Numbers Hypothesis, I. Classical Formalism,”  
*International Journal of Theoretical Physics*,  
Vol. 21, No. 8/9, pp. 607–632, 1982.

**Ajello, J. M., S. K. Srivastava, and Y. L. Yung,**  
“Laboratory Studies of UV Emissions H<sub>2</sub> by Electron Impact,  
The Werner- and Lyman-Band Systems,”  
*Physical Review A*,  
Vol. 25, No. 5, pp. 2485–2497, May, 1982.

**Armstrong, J. W., and R. A. Sramek (National Radio  
Astronomy Observatory),**  
“Observations of Tropospheric Phase Scintillations at 5 GHz on  
Vertical Paths,”  
*Radio Science*,  
Vol. 17, No. 6, pp. 1579–1586, November, 1982.

**Aston, G., and L. C. Pless,**  
“Ignitor Plug Operation in a Pulsed Plasma Thruster,”  
*Journal of Spacecraft and Rockets*,  
Vol. 19, No. 3, pp. 250–256, May, 1982.

**AuYeung, J. C.,**  
“Theory of Active Mode Locking of a Semiconductor Laser in  
an External Cavity,”  
*IEEE Journal of Quantum Electronics*,  
Vol. QE-17, No. 3, pp. 398–404, March, 1981.

**AuYeung, J. C., and A. R. Johnston,**  
“Recent Progress in Picosecond Pulse Generation from  
Semiconductor Lasers,”  
*SPIE Vol. 322-Picosecond Lasers and Applications*,  
pp. 25–30.

**AuYeung, J. C., L. A. Bergman, and A. R. Johnston,**  
“Transient Behavior of an Actively Mode-Locked  
Semiconductor Laser Diode,”  
*Applied Physics Letters*,  
Vol. 41, No. 2, pp. 124–126, July, 1982.

**Back, L. H., and R. Cuffel,**  
“Experimental Investigation of Turbulent Wall-Jets in the  
Presence of Adverse Pressure Gradients in a Rectangular  
Diffuser,”  
*International Journal of Heat Mass Transfer*,  
Vol. 25, No. 6, pp. 871–887, 1982.

**Bard, S., S. W. Petrick, and J. Stein,**  
“Advanced Radiative Cooler with Angled Shields,”  
*AIAA 16th Thermophysics Conference, Palo Alto, Calif.,  
June 23–25, 1981*,

**Barmatz, M.,**  
“Overview of Containerless Processing Technologies,”

*Materials Processing in the Reduced Environment of Space*,  
pp. 25–37, Elsevier Science Publishing Co., Inc., 1982.

**Bernard, D. E.,**  
“Passive Nutation Damping Using Large Appendages with  
Application to Galileo,”  
*Journal of Guidance and Control*,  
Vol. 5, No. 2, pp. 174–180, March, 1982.

**Birnbaum, M. M., E. L. Cleland, and E. C. Metzler,**  
“Electrically Conductive Black Optical Paint,”  
*SPIE Conference on Scattering in Optical Materials, August  
25–27, 1982, San Diego, California*,  
pp. 1–11.

**Bowman, Jr., R. C. (California Institute of Technology),  
W. K. Rhim, and E. L. Venturini (Sandia National  
Laboratories),**  
“Proton NMR Line Shapes in ZrH<sub>x</sub>,”  
*Physical Review B*,  
Vol. 26, No. 5, pp. 2652–2655, September, 1982.

**Breckinridge, J. B., T. G. Kuper (University of Arizona),  
and R. V. Shack (University of Arizona),**  
“Space Telescope Low Scattered Light Camera—A Model,”  
*SPIE Vol. 331—Instrumentation in Astronomy IV*,  
pp. 395–403.

**Brinkman, R. T., and S. Trajmar,**  
“Effective Path Length Corrections in Beam-Beam Scattering  
Experiments,”  
*Journal of Physics E: Scientific Instruments*,  
Vol. 14, pp. 245–254, 1981.

**Brown, J. W. (NASA Johnson Space Center),**  
“Controlling the Complexity of Menu Networks,”  
*Communications of the ACM*,  
Vol. 25, No. 7, pp. 412–418, July, 1982.

**Brown, L. R., and L. S. Rothan (Hanscom Air Force Base),**  
“Methane Line Parameters for the 2.3- $\mu$ m Region,”  
*Applied Optics*,  
Vol. 21, pp. 2425–2427, July, 1982.

**Bryan, M. L.,**  
“Analysis of Two Seasat Synthetic Aperture Radar Images of  
an Urban Scene,”  
*Photogrammetric Engineering and Remote Sensing*,  
Vol. 48, No. 3, pp. 393–398, March, 1982.

**Burdick, G. M., H. S. Lin, and E. C. Wong,**  
“A Scheme for Tracking and Pointing at Small Celestial Bodies  
During High Velocity Encounters,”  
*AIAA Guidance and Control Conference, August 9–11, 1982,  
San Diego, California*,  
pp. 629–637.

**Butman, S. A., J. Katz, and J. R. Lesh,**  
“Bandwidth Limitations on Noiseless Optical Channel Capacity,”  
*IEEE Transactions on Communications*,  
Vol. COM-30, No. 5, pp. 1262–1264, May, 1982.

**Cesarone, R. J.,**  
“Voyager 1 Saturn Targeting Strategy,”  
*Journal of Spacecraft and Rockets*,  
Vol. 19, No. 1, pp. 72–79, January 1982.

**Chahine, M. T.,**  
“Remote Sensing of Cloud Parameters,”  
*Journal of the Atmospheric Sciences*,  
Vol. 39, No. 1, pp. 159–170, January, 1982.

**Chelton, D. B., and R. E. Davis,**  
“Monthly Mean Sea-Level Variability Along the West Coast of North America,”  
*Journal of Physical Oceanography*,  
Vol. 12, No. 8, pp. 757–783, August, 1982.

**Chen, C. P.,**  
“Minimum Silicon Wafer Thickness for ID Wafering,”  
*Journal of the Electrochemical Society*,  
Vol. 129, No. 12, pp. 2835–2837, December, 1982.

**Chodas, J. L.,**  
“Friction Estimation Technique for Galileo Scan Platform Control,”  
*AIAA/AAS Astrodynamics Conference August 9–11, 1982, San Diego, California*,  
pp. 1–9.

**Chodas, J. L., and G. K. Man,**  
“The Design of the Galileo Scan Platform Control,”  
*AIAA Guidance and Control Conference August 9–11, 1982, San Diego, California*,  
pp. 177–185.

**Chutjian, A., and W. R. Newell,**  
“Experimental Electron Energy-Loss Spectra and Cross Sections for the  $4^2S \rightarrow 4^2P$  Transition in Zn II,”  
*Physical Review A*,  
Vol. 26, No. 4, pp. 2271–2273, October, 1982.

**Clark, P. E., and B. R. Hawke (University of Hawaii),**  
“Compositional Variation in the Hadley Apennine Region,”  
*Proceedings of the Twelfth Lunar and Planetary Science Conference Houston, Texas, March 16–20, 1981*,  
pp. 727–749.

**Cohen, N. S., and L. D. Strand,**  
“An Improved Model for the Combustion of AP Composite Propellants,”  
*AIAA Journal*,  
Vol. 20, No. 12, pp. 1739–1746, December, 1982.

**Curlander, J. C.,**  
“Location of Spaceborne SAR Imagery,”  
*IEEE Transactions on Geoscience and Remote Sensing*,  
Vol. GE-20, No. 3, pp. 359–364, July, 1982.

**DeMore, W. B., and Y. L. Yung,**  
“Catalytic Processes in the Atmospheres of Earth and Venus,”  
*Science*,  
Vol. 217, pp. 1209–1213, September, 1982.

**Dickinson, D. F., M. Batty (CSIRO, N.S.W., Australia), F. F. Gardner (CSIRO, N.S.W., Australia), S. Gulkis, D. L. Jauncey (CSIRO, Sydney, N.S.W., Australia), M. J. Klein, T. B. Kuiper, and J. B. Whiteoak (CSIRO, N.S.W., Australia),**  
“Sensitive Ammonia Observations in the Southern Hemisphere,”  
*Astronomical Journal*,  
Vol. 87, No. 8, pp. 1202–1206, August, 1982.

**Downs, G. S.,**  
“JPL Pulsar Timing Observations: Spinups in PSR 0525+21,”  
*Astrophysical Journal*,  
Vol. 257, pp. L67–L70, June, 1982.

**Downs, G. S., P. J. Mougini-Mark (Brown University), T. W. Thompson (JPL), and S. H. Zisk (NEROC Haystack Observatory),**  
“New Radar-Derived Topography for the Northern Hemisphere of Mars,”  
*Journal of Geophysical Research*,  
Vol. 87, No. B12, pp. 9747–9754, November, 1982.

**D’Amario, L. A., D. V. Byrnes, and R. H. Stanford,**  
“Interplanetary Trajectory Optimization with Application to Galileo,”  
*Journal of Guidance, Control, and Dynamics*,  
No. B12, pp. 9747–9754, November, 1982.

**Elson, L. S.,**  
“Wave Instability in the Polar Region of Venus,”  
*Journal of the Atmospheric Sciences*,  
Vol. 39, No. 10, pp. 2356–2362, October, 1982.

**El-Raheb, M., and P. Wagner,**  
“Acoustic Propagation in a Rigid Torus,”  
*Journal of Acoustical Society of America*,  
Vol. 71, No. 6, pp. 1335–1346, June, 1982.

**El-Raheb, M., and P. Wagner,**  
“Acoustic Propagation in Rigid Ducts with Blockage,”  
*Journal of the Acoustical Society of America*,  
Vol. 72, No. 3, pp. 1046–1055, September, 1982.

**Engheta, N. (California Institute of Technology), and C. Elachi,**  
“Radar Scattering from a Diffuse Vegetation Layer Over a Smooth Surface,”

*IEEE Transactions on Geoscience and Remote Sensing*,  
Vol. GE-20, No. 2, pp. 212–216, April, 1982.

**Engheta, N. (California Institute of Technology), C. Elachi, and C. H. Papas (California Institute of Technology),**  
“Radiation Patterns of Interfacial Dipole Antennas,”  
*Radio Science*,  
Vol. 17, No. 6, pp. 1557–1566, November, 1982.

**Esposito, P. B., E. Abbott, B. G. Bills, N. A. Mottinger, and W. L. Sjogren,**  
“Venus Gravity: Analysis of Beta Regio,”  
*Icarus*,  
Vol. 51, pp. 448–459, 1982.

**Estabrook, F. B.,**  
“Moving Frames and Prolongation Algebras,”  
*Journal of Mathematical Physics*,  
Vol. 23, No. 11, pp. 2071–2076, November, 1982.

**Fedors, R. J.,**  
“A Relationship Between Chemical Structure and the Critical Temperature,”  
*Chemical Engineering Communications*  
Vol. 16, pp. 149–151, 1982.

**Fedors, R. F., M. Cizmecioglu, A. Gupta, S. D. Hong, and J. Moacanin,**  
“A Failure Model for Sealed Nickel-Cadmium Batteries”  
*Journal of Power Sources*,  
Vol. 8, pp. 369–384, 1982.

**Feng, I., and M. C. Lee,**  
“Measurement of Vibrational Relaxation Time of Oxygen Between 475° and 675°K Using an Acoustic Resonant Technique,”  
*Journal of the Acoustical Society of America*,  
pp. 369–384, 1982.

**Frauenholz, R. B.,**  
“Maneuver Reconstruction Techniques for Open-Loop Spin-Stabilized Spacecraft,”  
*Journal of Guidance, Control, and Dynamics*,  
Vol. 5, No. 3, pp. 270–277, May, 1982.

**French, J. R.,**  
“Trends in Unmanned Planetary Entry,”  
*AIAA 16th Thermophysics Conference, Palo Alto, Calif., June 23–25, 1981*,  
pp. 415–429.

**Frerking, M. A., W. D. Langer (Princeton University), and R. W. Wilson (Crawford Hill Laboratory),**  
“The Relationship Between Carbon Monoxide Abundance and Visual Extinction in Interstellar Clouds,”  
*The Astrophysical Journal*,  
Vol. 262, pp. 590–605, November, 1982.

**Fujita, T., J. M. Bowyer, and B. C. Gajanana,**  
“Comparison of Advanced Engines for Parabolic Dish Solar Thermal Power Plants,”  
*Journal of Energy*,  
Vol. 6, No. 5, pp. 293–297, September, 1982.

**Garrison, P. W.,**  
“Advanced Propulsion for Future Planetary Spacecraft,”  
*Journal of Spacecraft and Rockets*,  
Vol. 19, No. 6, pp. 534–538, November, 1982.

**Grant, W. B.,**  
“Effect of Differential Spectral Reflectance on DIAL Measurements Using Topographic Targets,”  
*Applied Optics*,  
Vol. 21, pp. 2390–2394, July, 1982.

**Griswold, T. W.,**  
“Portable Design Rules for Bulk CMOS,”  
*VLSI Design Magazine*,  
September, 1982.

**Grunthaner, P. J., F. J. Grunthaner, and A. Madhukar (University of Southern California),**  
“Summary Abstract: Transition Metal Silicides: Trends in the Bonding in the Bulk and at the Interface,”  
*Journal of Vacuum Science Technology*,  
Vol. 21, No. 2, pp. 637–638, July, 1982.

**Hayati, S.,**  
“Galileo Spacecraft High Gain Antenna Offset Calibration,”  
*Proceedings of the 1982 American Control Conference, Arlington, Virginia, June 14, 15, 16, 1982*,  
pp. 1082–1087.

**Heacock, R. L.,**  
“Voyager at Saturn,”  
*Space: Mankind's Fourth Environment*,  
pp. 321–333, Pergamon Press, 1982.

**Hestenes, D.,**  
“A Vectorial Form for the Comix Variational Equations,”  
*Journal of Guidance, Control, and Dynamics*,  
Vol. 5, No. 5, pp. 537–539, September, 1982.

**Hinkley, E. D.,**  
“Advanced Sensors for Spaceborne Measurements of the Earth's Atmosphere,”  
*Space: Mankind's Fourth Environment*,  
pp. 235–248.

**Hintz, G. R.,**  
“An Interplanetary Targeting and Orbit Insertion Maneuver Design Technique,”  
*Journal of Guidance and Control*,  
Vol. 5, No. 2, pp. 210–217, March, 1982.

- Hollars, M. G.,**  
 "Minimum Energy Trap States of Dual-Spin Spacecraft,"  
*Journal of Guidance, Control, and Dynamics*,  
 Vol. 5, No. 3, pp. 286–290, May, 1982.
- Huston, A. L. (University of California, Riverside),  
 A. Gupta, and G. W. Scott (University of California,  
 Riverside),**  
 "Mechanism and Kinetics of Excited-State Relaxation in  
 Internally Hydrogen-Bonded Molecules:  
 2-(2'-Hydroxy-5'-Methylphenyl)-Benzotriazole in Solution,"  
*The Journal of Chemical Physics*,  
 Vol. 76, No. 10, pp. 4978–4985, May, 1982.
- Ishimaru, A., J. W. Armstrong, D. C. Blackman, and  
 R. Woo,**  
 "Multiple Scattering Calculations of Rain Effects,"  
*Radio Science*,  
 Vol. 17, No. 6, pp. 1425–1433, November, 1982.
- Jackson, H. W.,**  
 "Statistical Mechanics of Dilute Liquid Mixtures of  $^3\text{He}$  in  
 $^4\text{He}$ ,"  
*Physical Review B*,  
 Vol. 26, No. 1, pp. 66–73, July, 1982.
- Jain, A.,**  
 "SAR Imaging of Ocean Waves: Theory,"  
*IEEE Journal of Oceanic Engineering*,  
 Vol. OE-6, No. 4, pp. 130–139, October, 1981.
- Jurgens, R. F.,**  
 "High Temperature Electronics Applications in Space  
 Exploration,"  
*IEEE Transactions on Industrial Electronics*,  
 Vol. IE-29, No. 2, pp. 107–111, May, 1982.
- Jurgens, R. F.,**  
 "Radar Backscattering from a Rough Rotating Triaxial  
 Ellipsoid, with Applications to the Geodesy of Small  
 Asteroids,"  
*Icarus*,  
 Vol. 49, pp. 97–108, 1982.
- Kahle, A. B., E. A. Abbott, R. E. Alley, A. F. Goetz, and  
 H. N. Paley,**  
 "A Data Base of Geologic Field Spectra,"  
*Fifteenth International Symposium on Remote Sensing of  
 Environment, Ann Arbor, MI, May, 1981*,  
 pp. 329–337.
- Kahle, A. B.,** "Spectral Remote Sensing of Rocks in Arid  
 Lands,"  
*First Thematic Conference: Remote Sensing of Arid and Semi  
 Arid Lands, Cairo, Egypt, January, 1982*,  
 pp. 279–295.
- Katz, J., S. Margalit (California Institute of Technology),  
 and A. Yariv (California Institute of Technology),**  
 "A Proposed New Method for Damping Relaxation  
 Oscillations in Laser Diodes,"  
*IEEE Electron Device Letters*,  
 Vol. EDL-3, No. 11, pp. 333–335, November, 1982.
- Katz, J., S. Margalit (California Institute of Technology),  
 and A. Yariv (California Institute of Technology),**  
 "Electrical Properties of Multi p-n Junction Devices,"  
*IEEE Transactions on Electron Devices*,  
 Vol. ED-29-6, pp. 977–984, June, 1982.
- Katz, J.,**  
 "Novel Solution of 2-D Waveguides Using the Finite Element  
 Method,"  
*Applied Optics*,  
 Vol. 21, pp. 2747–2750, August, 1982.
- Keyser, L. F.,**  
 "Kinetics of the Reaction  $\text{O} + \text{HO}_2 \rightarrow \text{OH} + \text{O}_2$  from 229 to  
 372 K,"  
*The Journal of Physical Chemistry*,  
 Vol. 86, pp. 3439–3446, 1982.
- Khanna, S. K., W. L. Johnson (California Institute of  
 Technology), R. F. Landel, M. Mehra (California Institute  
 of Technology), and A. P. Thakoor,**  
 "Structural and Thermal Analysis Studies of Magnetron  
 Sputter-Deposited Amorphous Metallic  $(\text{Mo}_{0.6}\text{Ru}_{0.4})_{82}\text{B}_{18}$   
 Films,"  
*Applied Physics Communications*,  
 Vol. 1, No. 2, pp. 135–148, 1981–82.
- Klaasen, K. P., M. C. Clary, and J. R. Janesick,**  
 "Charge-Coupled Device (CCD) Television Camera for  
 NASA's Galileo Mission to Jupiter,"  
*SPIE Vol. 331 - Instrumentation in Astronomy IV, March  
 8–10, 1982*,  
 pp. 376–387.
- Lame, D. B., and G. H. Born,**  
 "SEASAT Measurement System Evaluation: Achievements  
 and Limitations,"  
*Journal of Geophysical Research*,  
 Vol. 87, No. C5, pp. 3175–3178, April, 1982.
- Latta, A. F., A. F. Bowyer and T. Fujita,**  
 "The Effects of Regional Insolation Differences Upon  
 Advanced Solar Thermal Electric Power Plant Performance and  
 Energy Costs,"  
*Journal of Solar Energy Engineering*  
 Vol. 103, pp. 213–220, August, 1981.
- Lee, M. C., D. D. Elleman, I. A. Feng, R. S. Helizon, J. M.  
 Kendall, W. K. Rhim, T. G. Wang, and C. L. Youngberg,**  
 "Application of Microgravity and Containerless Environments  
 to the Investigation of Fusion Target Fabrication Technology,"

- Materials Processing in the Reduced Gravity Environment of Space*, pp. 95–104, Elsevier Science Publishing Co, Inc., 1982.
- Lee, M. C., W. L. Johnson (California Institute of Technology), J. M. Kendall, and T. G. Wang,** "Investigation of Metallic and Metallic Glass Hollow Spheres for Fusion Target Application," *Materials Processing in the Reduced Gravity Environment of Space*, pp. 105–113, Elsevier Science Publishing Co, Inc., 1982.
- Lee, M. C., D. D. Elleman, I. Feng, T. G. Wang, and A. T. Young (Los Alamos National Laboratory),** "Summary Abstract: Coating of Glass Microballons Using an Acoustic Technique," *Journal of Vacuum Science and Technology*, pp. 213–220, August, 1981.
- Leu, M. T.,** "Rate Constants for the Reaction of OH with SO<sub>2</sub> at Low Pressure," *The Journal of Physical Chemistry*, Vol. 86, pp. 4558–4562, 1982.
- Lin, C. L., and M. T. Leu,** "Temperature and Third-Body Dependence of the Rate Constant for the Reaction  $O + O_2 + M \rightarrow O_3 + M$ ," *International Journal of Chemical Kinetics*, Vol. 14, No. 4, pp. 417–434, April, 1982.
- Lin, H. S.,** "Spin-Down and Active Nutation Controller for the Galileo Project," *Journal of Guidance and Control*, Vol. 5, No. 2, pp. 181–188, March, 1982.
- Liu, K. Y.,** "A Pipelined Tree Machine Architecture for Computing a Multidimensional Convolution," *IEEE Transactions on Circuits and Systems*, Vol. CAS-291 No. 4, pp. 201–207, April, 1982.
- Lockhart, R. E.,** "Wide Field and Planetary Camera for Space Telescope," *SPIE Vol. 331-Instrumentation in Astronomy IV, March 8–10, 1982*, pp. 388–394.
- Mack, L. M.,** "Compressible Boundary-Layer Stability Calculations for Sweptback Wings with Suction," *AIAA Journal*, No. 4, pp. 201–207, April, 1982.
- Mahoney, W. A., A. S. Jacobson, J. C. Ling, and R. E. Lingenfelter (University of California, San Diego),** "Diffuse Galactic Gamma-Ray Line Emission from Nucleosynthetic <sup>60</sup>Fe, <sup>26</sup>Al, <sup>22</sup>Na, and <sup>22</sup>Na: Preliminary Limits from HEAD 3," *The Astrophysical Journal*, Vol. 262, pp. 742–748, November, 1982.
- Margitan, J. J., and R. T. Watson,** "Kinetics of the Reaction of Hydroxyl Radicals with Nitric Acid," *The Journal of Physical Chemistry*, Vol. 86, pp. 3819–3824, 1982.
- Marsh, S. E., and J. P. Schieldge,** "An Instrument for Measuring Thermal Inertia in the Field," *Photogrammetric Engineering and Remote Sensing*, Vol. 48, No. 4, pp. 605–607, April, 1982.
- Massier, P. F.,** "The Need for Expanded Exploration of Matter-Antimatter Annihilation for Propulsion Application," *Journal of British Interplanetary Society*, Vol. 35, pp. 387–390, 1982.
- Meier, D. L.,** "The Structure and Appearance of Winds from Supercritical Accretion Disks. II. Dynamical Theory of Supercritical Winds," *The Astrophysical Journal*, Vol. 256, pp. 681–692, May, 1982.
- Metzger, A. E., M. I. Etchegaray-Ramirez, and E. L. Haines (Eugene, Oregon),** "Thorium Concentrations in the Lunar Surface: V. Deconvolution of the Central Highlands Region," *Proceedings of the Twelfth Lunar Planetary Science Conference, Houston, Texas, March 16–20, 1981*, pp. 751–766.
- Mitchell, G. F. (Saint Mary's University, Halifax, Canada), W. T. Huntress, and M. B. Swift (Saint Mary's University, Halifax, Canada),** "A CO<sub>2</sub>-Rich Coma Model Applied to the Neutral Coma of Comet West," *The Astronomical Journal*, Vol. 87, No. 11, pp. 1600–1605, November, 1982.
- Montgomery, D. R.,** "Seasat Data Applications by Commercial Users," *Marine Geodesy*, Vol. 4, No. 4, pp. 387–416, 1980.
- Mosher, J., and J. J. Lorre,** "Determination of Planetary Photometric Functions," *SPIE Vol. 292 – Processing of Images and Data from Optical Sensors, Aug. 25, 1981*, pp. 116–126.

- Moyer, T. D.,**  
 "Transformation From Proper Time on Earth to Coordinate Time in Solar System Barycentric Space-Time Frame of Reference, Part 2,"  
*Celestial Mechanics*,  
 Vol. 23, pp. 57–60, 1981.
- Neilson, G. F., and M. C. Weinberg,**  
 "Anomalous Phase Separation Behavior of Gel-Derived Soda-Silica Glasses,"  
*Materials Processing in the Reduced Gravity Environment of Space*,  
 pp. 333–341, Elsevier Science Publishing Co, Inc., 1982.
- Neugebauer, M.,**  
 "Measurements of the Properties of Solar Wind Plasma Relevant to Studies of its Coronal Sources,"  
*Space Science Reviews*,  
 Vol. 33, pp. 127–150, 1982.
- Oppenheim, U. P., M. J. Kavaya, and R. T. Menzies,**  
 "Dependence of Injection Locking of a TEA CO<sub>2</sub> Laser on Intensity of Injected Radiation,"  
*IEEE Journal of Quantum Electronics*,  
 Vol. QE-18, No. 9, pp. 1332–1336, September, 1982.
- Orient, O. J., I. Iga, and S. K. Srivastava,**  
 "Elastic Scattering of Electrons from SO<sub>2</sub>,"  
*Journal of Chemical Physics*,  
 Vol. 77, No. 7, pp. 3523–3526, October, 1982.
- Pang, K. D., E. Howell (Lowell Observatory), and K. Lumme (Lowell Observatory),**  
 "Microstructure and Particulate Properties of the Surfaces of Io and Ganymede: Comparison with Other Solar System Bodies,"  
*Proceedings of the Twelfth Lunar and Planetary Science Conference, Houston, Texas, March 16–20, 1981*.  
 pp. 1543–1553.
- Peng, S. T., and R. F. Landel,**  
 "Erratum: Rheological Behavior of Progressively Shear-Thickening Solutions,"  
*Journal of Applied Physics*,  
 Vol. 53, No. 7, pp. 5361, July, 1982.
- Petersen, G. R., W. W. Schubert, and B. O. Stokes,**  
 "Applications of Mutant Yeast Strains with Low Glycogen Storage Capability,"  
*Biotechnology and Bioengineering Symposium, No. 11, 1981*,  
 pp. 631–639.
- Petrac, D.,**  
 "Top-Off Procedure for Space-Bound Superfluid Helium Cryostats,"  
*Advances in Cryogenic Engineering, Vol. 27*,  
 pp. 1099–11, Plenum Publishing Corporation, 1982.
- Plescia, J. B., and R. S. Saunders,**  
 "Tectonic History of the Tharsis Region, Mars,"  
*Journal of Geophysical Research*  
 Vol. 87, No. B12, pp. 9775–9791, November, 1982.
- Rhim, W. K., D. D. Elleman, and M. M. Saffren,**  
 "Development of Electrostatic Levitators at JPL,"  
*Materials Processing in the Reduced Gravity Environment of Space*,  
 pp. 115–119, Elsevier Science Publishing Co., Inc., 1982.
- Richter, F. M. (University of Chicago), S. F. Daly, and H. C. Nataf (California Institute of Technology),**  
 "A Parameterized Model for the Evolution of Isotopic Heterogeneities in a Convecting System,"  
*Earth and Planetary Science Letters*,  
 Vol. 60, pp. 178–194, 1982.
- Riegler, G. R., A. S. Jacobson, J. C. Ling, W. A. Mahoney, T. A. Prince (California Institute of Technology), W. A. Wheaton, J. B. Willett, and H. Zirin (California Institute of Technology),**  
 "Gamma-Ray and Optical Observations of the 1979 November 8 Solar Flare,"  
*The Astrophysical Journal*,  
 Vol. 259, pp. 392–397, August, 1982.
- Sander, S. P., R. Patrick (Oxford University, Oxford, United Kingdom), R. T. Watson, and M. Peterson,**  
 "Kinetics Studies of the HO<sub>2</sub> + HO<sub>2</sub> and DO<sub>2</sub> + DO<sub>2</sub> Reactions at 298 K,"  
*The Journal of Physical Chemistry*,  
 Vol. 86, pp. 1236–1240, 1982.
- Schildge, J. P., R. E. Alley, and A. B. Kahle,**  
 "A Numerical Simulation of Soil Temperature and Moisture Variations for a Bare Field,"  
*Soil Science*,  
 Vol. 133, No. 4, pp. 197–207, April, 1982.
- Sekanina, Z.,**  
 "The Path and Surviving Tail of a Comet That Fell into the Sun,"  
*The Astronomical Journal*,  
 Vol. 87, No. 7, pp. 1059–1072, July, 1982.
- Selzer, R. H., D. H. Blankenhorn (University of Southern California), S. H. Brooks (University of Southern California), W. L. Cashin (University of Southern California), and D. W. Crawford (University of Southern California),**  
 "Computer Assessment of Atherosclerosis from Angiographic Images,"  
*IEEE Transactions on Nuclear Science*,  
 Vol. NS-29, No. 3, pp. 1198–1207, June, 1982.

**Selzer, R. H., and D. H. Blankenhorn (University of Southern California),**

“On the Identification of the Variation of Atherosclerosis Plaques by Invasive and Non-Invasive Methods,”  
*Proceedings 4th International Meeting on Atherosclerosis Clinical Evaluation and Therapy, 1982,*  
pp. 453–465.

**Sherman, R. D.,**

“Cosmological Constraints on Hot Plasma in a Closed Universe,”  
*The Astrophysical Journal,*  
Vol. 256, pp. 370–373, May, 1982.

**Shimada, K., and R. Ewell,**

“Radiatively Coupled Thermionic and Thermoelectric Power System Concept,”  
*AIAA 19th Aerospace Sciences Meeting in St. Louis, Mo., January 12–15, 1981,*  
pp. 501–516.

**Sjogren, W. L., and S. J. Ritke,**

“Mars: Gravity Data Analysis of the Crater Antoniadi,”  
*Geophysical Research Letters,*  
Vol. 9, No. 7, pp. 739–742, July, 1982.

**Slobin, S. D.,**

“Microwave Noise Temperature and Attenuation of Clouds: Statistics of These Effects at Various Sites in the United States, Alaska, and Hawaii,”  
*Radio Science,*  
Vol. 17, No. 6, pp. 1443–1454, November, 1982.

**Smith, E. K.,**

“Centimeter and Millimeter Wave Attenuation and Brightness Temperature Due to Atmospheric Oxygen and Water Vapor,”  
*Radio Science,*  
Vol. 17, No. 6, pp. 1455–1464, November, 1982.

**Swanson, P. W., J. B. Breckinridge, S. Gulkis, M. Kiya, and T. B. Kuiper,**

“Plans for a Large Deployable Reflector for Submillimeter and Infrared Astronomy from Space,”  
*SPIE Vol. 322-International Conference on Advanced Technology Optical Telescopes, March 11–13, 1982,*  
pp. 151–155.

**Swimm, R. T. (University of Southern California), and K. A. Dumas,**

“Optical Absorption Coefficient and Minority Carrier Diffusion Length Measurements in Low-Cost Silicon Solar Cell Material,”  
*Journal of Applied Physics,*  
Vol. 53, No. 11, pp. 7502–7504, November, 1982.

**Taylor, F. W., R. Beer, S. P. Bradley (Oxford University, Oxford, UK), M. T. Chahine, M. T. Coffey (National Center for Atmospheric Research), J. Delderfield (Oxford University, Oxford, UK), D. J. Diner, L. S. Elson, C. B. Farmer, L. Froidevaux, J. C. Gille (National Center for Atmospheric Research), R. D. Haskins, J. Leung, J. V. Martonchik, D. J. McCleese, P. E. Reichley, and J. T. Schofield (Oxford University, Oxford, UK),**

“Structure and Meteorology of the Middle Atmosphere of Venus: Infrared Remote Sensing From the Pioneer Orbiter,”  
*Journal of Geophysical Research,*  
Vol. 85, No. A13, pp. 7963–8006, December, 1980.

**Tedesco, E. F. (University of Arizona), D. J. Tholen (University of Arizona), and B. Zellner (University of Arizona),**

“The Eight-Color Asteroid Survey: Standard Stars,”  
*The Astronomical Journal,*  
Vol. 87, No. 11, pp. 1585–1592, November, 1982.

**Thomas, B. T., and R. Gall (National University of Mexico, Mexico City, Mexico),**

“The Effect of Corotating Interaction Regions on the Propagation of Relativistic Cosmic Rays in the Heliosphere,”  
*Journal of Geophysical Research,*  
Vol. 87, No. A6, pp. 4542–4548, June, 1982.

**Toth, R. A., J. W. Brault (Kitt Peak National Observatory), and V. D. Gupta (Lucknow University, Lucknow, India),**

“Line Positions and Strengths of HDO in the 2400–3300-cm<sup>-1</sup> Region,”  
*Applied Optics,*  
Vol. 21, No. 18, pp. 3337–3347, September, 1982.

**Truong, T. K., I. S. Reed, H. M. Shao (University of Southern California), and C. S. Yeh (University of Southern California),**

“A Parallel VLSI Architecture for a Digital Filter of Arbitrary Length using Fermat Transforms,”  
*IEEE International Conference on Circuits and Computers ICC 1982, September–October, 1982,*  
pp. 574–578.

**Tsurutani, B. T., and R. M. Thorne (University of California, Los Angeles),**

“Diffusion Processes in the Magnetopause Boundary Layer,”  
*Geophysical Research Letters,*  
Vol. 9, No. 11, pp. 1247–1250, November, 1982.

**Tsurutani, B. T., K. R. Pyle, J. A. Simpson (University of Chicago), and E. J. Smith,**

“Energetic Protons Accelerated at Corotating Shocks: Pioneer 10 and 11 Observations from 1 to 6 AU,”  
*Journal of Geophysical Research,*  
Vol. 87, No. A9, pp. 7389–7404, September, 1982.

- Tsurutani, B. T., R. R. Anderson (University of Iowa), D. N. Baker (Los Alamos Scientific Laboratory), S. J. Bame (Los Alamos National Laboratory), K. W. Ogilvie (Goddard Space Flight Center), J. D. Scudder, and E. J. Smith,**  
 "Lion Roars and Nonoscillatory Drift Mirror Waves in the Magnetosheath,"  
*Journal of Geophysical Research*,  
 Vol. 87, No. A8, pp. 6060–6072, August, 1982.
- Underwood, J. H., T. W. Barbee (Stanford University), and D. L. Shealy (University of Alabama, Birmingham),**  
 "X-Ray and Extreme Ultraviolet Imaging Using Layered Synthetic Microstructures,"  
*SPIE Vol. 316—High Resolution Soft X-Ray Optics*,  
 pp. 79–89.
- Vane, G., F. C. Billingsley, and J. A. Dunne,**  
 "Observational Parameters for Remote Sensing in the Next Decade,"  
*SPIE Vol. 345—Advanced Multispectral Remote Sensing Technology and Applications, 1982*,  
 pp. 52–65.
- Vuskovic, L. (Institute of Physics, Belgrade, Yugoslavia), D. F. Register, and S. Trajmar,**  
 "Electron Impact Cross Sections for the  $2^2P$  State Excitation of Lithium,"  
*Journal of Physics B: Atomic and Molecular Physics*,  
 Vol. 15, pp. 2517–2529, 1982.
- Walton, A. L., S. C. Jones, and E. I. Lin,**  
 "Regional Assessment of Solar Pond Energy Costs,"  
*Progress in Solar Energy, 1982, American Section of the International Solar Energy Society*,  
 pp. 1015–1020.
- Ward, W. R.,**  
 "Comments on the Long-Term Stability of the Earth's Obliquity,"  
*Icarus*,  
 Vol. 50, pp. 444–448, 1982.
- Webster, C. R.,**  
 "Optogalvanic Wavelength Calibration for Laser Monitoring of Reactive Atmospheric Species,"  
*Applied Optics*,  
 Vol. 21, pp. 2298–2300, July, 1982.
- Weinberg, M. C.,**  
 "Dissolution of a Stationary Bubble in a Glassmelt with a Reversible Chemical Reaction: Rapid Forward Reaction Rate Constant,"  
*Journal of the American Ceramic Society*,  
 Vol. 65, No. 10, pp. 479–485, October, 1982.
- Weinberg, M. C.,**  
 "Preliminary Study of the Effects of a Reversible Chemical Reaction on Gas Bubble Dissolution,"  
*Materials Processing in the Reduced Gravity Environment of Space*,  
 pp. 301–310, Elsevier Science Publishing Co., Inc., 1982.
- Wellman, J. B., J. B. Breckinridge, P. Kupferman, R. P. Salazar, and K. B. Sigurdson,**  
 "Imaging Spectrometer Technologies for Advanced Earth Remote Sensing,"  
*SPIE Vol. 345—Advanced Multispectral Remote Sensing Technology and Applications, 1982*,  
 pp. 32–39.
- Wellman, J. B.,**  
 "Technologies for the Multispectral Mapping of Earth Resources,"  
*Fifteenth International Symposium on Remote Sensing of Environment, Ann Arbor, MI, May, 1981*,  
 pp. 45–63.
- Willson, R. C., and H. S. Hudson (University of California, San Diego),**  
 "Variations of Solar Irradiance,"  
*Astrophysical Journal*,  
 Vol. 244, pp. L185–L189, March, 1981.
- Wong, E. C., and J. Y. Lai,**  
 "Celestial Referenced Attitude Determination of Galileo Spacecraft,"  
*Journal of Guidance, Control, and Dynamics*,  
 Vol. 5, No. 3, pp. 307–312, May, 1982.
- Wood, L. J.,**  
 "Comment on 'Optimal Control Via Mathematical Programming'," *Journal of Guidance, Control, and Dynamics*,  
 Vol. 5, No. 3, pp. 318–319, May, 1982.
- Wood, L. J., T. P. Bauer, and K. P. Zondervan,**  
 "Comment on 'Time-Optimal Orbit Transfer Trajectory for Solar Sail Spacecraft'," *Journal of Guidance and Control*,  
 Vol. 5, No. 2, pp. 221–224, March, 1982.
- Wood, L. J.,**  
 "Navigation Accuracy Analysis for an Ion Drive Flyby of Comet Halley,"  
*Journal of Guidance and Control*,  
 Vol. 4, No. 4, pp. 369–375, July, 1981.
- Wurtele, M. G. (University of California, Los Angeles), W. S. Appleby (Atmospheric Environment Science, Canada), M. Borowski (University of California, Los Angeles), S. Peteherych (Atmospheric Environment Service), and P. M. Woiceshyn,**  
 "Wind Direction Alias Removal Studies of SEASAT

Scatterometer-Derived Wind Fields,"

*Journal of Geophysical Research*,

Vol. 87, No. C5, pp. 3365-3377, April, 1982.

**Wurzbach, J. A., F. J. Grunthaler, and J. Maserjian,**  
"Composition and Electron Stress Effects in Silicon Nitride  
Thin Films Made by Thermal Growth and Chemical Etching of  
LPCMNOS Structures as Studied by X-Ray Photoelectron  
Spectroscopy (XPS),"

*Journal of Vacuum Science Technology*,

Vol. 20, No. 4, pp. 962-965, April, 1982.

**Yagi, G. M., C. C. Avis, L. R. Doyle, G. W. Garneau,  
P. L. Jepsen, E. P. Korsmo, J. J. Lorre, and J. A. Mosher,**  
"Image Processing and Analysis of Saturn's Rings,"  
*SPIE Vol. 292—Processing of Images and Data from Optical  
Sensors, Aug. 1981,*  
pp. 110-115.

**Yan, T. Y.,**

"On the Delay Analysis of a TDMA Channel with Finite Buffer  
Capacity,"

*IEEE Transactions on Communications*,

Vol. COM-30, No. 8, pp. 1937-1942, August, 1982.

**Yeh, C. (University of California, Los Angeles),**

**J. Armstrong, A. Ishimaru, and R. Woo,**

"Scattering by Single Ice Needles and Plates at 30 GHz,"

*Radio Science*,

Vol. 17, No. 6, pp. 1503-1510, November, 1982.

**Yoder, C. F.,**

"Tidal Rigidity of Phobos,"

*Icarus*,

Vol. 49, No. 3, pp. 327-346, March, 1982.

**Zak, M.,**

"Non-Linear Inplane Vibrations of Wrinkling Films,"

*Journal of Elasticity*,

Vol. 12, No. 2, pp. 167-175, April, 1982.

**Zak, M.,**

"On the Failure of Hyperbolicity in Elasticity,"

*Journal of Elasticity*,

Vol. 12, No. 2, pp. 219-229, April, 1982.

**Zak, M.,**

"Statics of Wrinkling Films,"

*Journal of Elasticity*,

Vol. 12, No. 1, pp. 51-63, January, 1982.

**Zak, M. A.,**

"A Mathematical Model of Post-Instability in Fluid  
Mechanics,"

*Acta Mechanica*,

Vol. 43, pp. 97-117, 1982.

**Zak, M. A.,**

"A Mathematical Model of Turbulence in Flows with Uniform  
Stationary Velocity Gradients,"

*Acta Mechanica*,

Vol. 43, pp. 119-127, 1982.

**Zohar, S.,**

"The Structure of the Antenna Pattern of an Adaptive Array,"

*Proceedings International Symposium on Circuits and Systems,*  
*May, 1982,*

pp. 964-967.

**Zurek, R. W.,**

"Martian Great Dust Storms: An Update,"

*Icarus*,

Vol. 50, pp. 288-310, 1982.









