

NASA-CR-193287

IN-82-CR

JPL Bibliography 39-32

175530  
P.59

# Publications of the Jet Propulsion Laboratory 1990 and 1991

(NASA-CR-193287) PUBLICATIONS OF  
THE JET PROPULSION LABORATORY: 1990  
AND 1991 (JPL) 59 P

N94-13461

Unclass

G3/82 0175530

June 15, 1993



National Aeronautics and  
Space Administration

Jet Propulsion Laboratory  
California Institute of Technology  
Pasadena, California

[Faint, illegible text covering the majority of the page]

JPL Bibliography 39-32

# Publications of the Jet Propulsion Laboratory 1990 and 1991

June 15, 1993

**NASA**

National Aeronautics and  
Space Administration

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



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



## Foreword

*JPL Bibliography 39-32* describes and indexes by primary author the externally distributed technical reporting, released during calendar years 1990 and 1991, that resulted from scientific and engineering work performed or managed by the Jet Propulsion Laboratory. Three classes of publications are included:

- (1) JPL Publications (90- and 91-series) in which the information is complete for a specific accomplishment. Publications can be tailored to wide or limited audiences and can be presented in an established standard format or special format to meet unique requirements.
- (2) Articles from the quarterly *Telecommunications and Data Acquisition (TDA) Progress Report* (42-series). Each collection of articles in this class of publication presents a periodic survey of current accomplishments by the Deep Space Network as well as other developments in Earth-based radio technology.
- (3) Articles published in the open literature.

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





## Contents

JPL Publications, 1990.....	1
JPL Publications, 1991.....	4
Progress Reports, 1990.....	7
Progress Reports, 1991.....	13
Open Literature, 1990.....	19
Open Literature, 1991.....	37

PRECEDING PAGE BLANK NOT FILMED



## JPL Publications, 1990

**Anspaugh, B. E., and R. S. Weiss,**  
*Results of the 1990 NASA/JPL Balloon Flight  
Solar Cell Calibration Program,*  
JPL Publication 90-52, November 15, 1990.

**Atkinson, D. J., M. L. James, D. L. Lawson, and  
H. J. Porta,**  
*Spacecraft Health Automated Reasoning  
Prototype (SHARP)—A Report on SHARP and  
the Voyager Neptune Encounter,*  
JPL Publication 90-21, August 15, 1990.

**Buehler, M. G., R. A. Allen, B. R. Blaes,  
D. J. Hannaman, U. Lieneweg, Y.-S. Lin, and  
H. R. Sayah,**  
*End-of-Fabrication CMOS Processor Monitor,*  
JPL Publication 90-51, December 15, 1990.  
(Prepared for Defense Advanced Research  
Projects Agency, U.S. Department of Defense.)

**Chamberlain, R. G., G. Fox, and W. H. Duquette,**  
*A Design Optimization Process for Space Station  
Freedom,*  
JPL Publication 90-23, June 15, 1990.

**Chan, C. K., and R. G. Ross, Jr.,**  
*Design and Application of Gas-Gap Heat  
Switches: Final Report of Phase II,*  
JPL Publication 90-38, March 15, 1990.  
(Prepared for Air Force Space Technology Center,  
Kirtland Air Force Base.)

**Collins, D. J., and A. V. Tran,**  
*Bio-Optical Profile Data Report—Southern  
California Bight Study SCB2-29 R/V Robert G.  
Sproul, August 20–25, 1988,*  
JPL Publication 90-57, December 15, 1990.

**Collins, D. J., W. J. Rhea, and A. V. Tran,**  
*Bio-Optical Profile Data Report—Joint Global  
Ocean Flux Study Hawaii Ocean Time-Series  
HOT-3 R/V Moana Wave, January 6–10, 1989,*  
JPL Publication 90-36, September 1, 1990.

**Davis, C. O., and W. J. Rhea,**  
*Bio-Optical Profile Data Report—Coastal  
Transition Zone Program R/V Point Sur, June 15–  
28, 1987,*  
JPL Publication 90-39, December 1, 1990.  
(Prepared for Office of Naval Research.)

**Davis, C. O., and W. J. Rhea,**  
*Bio-Optical Profile Data Report—Coastal  
Transition Zone Program R/V Thomas  
Washington, June 24–July 21, 1988,*  
JPL Publication 90-40, December 1, 1990.  
(Prepared for Office of Naval Research.)

**Deininger, W. D., A. Chopra, T. J. Pivrotto,  
K. D. Goodfellow, and J. W. Barnett,**  
*30-kW Ammonia Arcjet Technology: Final  
Report, July 1986–December 1989,*  
JPL Publication 90-4, February 15, 1990.

**DeMore, W. B., S. P. Sander, D. M. Golden  
(SRI International), M. J. Molina (Massachusetts  
Institute of Technology), R. F. Hampson  
(National Bureau of Standards), M. J. Kurylo  
(National Bureau of Standards), C. J. Howard  
(NOAA Environmental Research Laboratory),  
and A. R. Ravishankara (NOAA Environmental  
Research Laboratory),**  
*Chemical Kinetics and Photochemical Data for  
Use in Stratospheric Modeling—Evaluation  
Number 9,*  
JPL Publication 90-1, January 1, 1990.

**Drews, M. L.,**  
*Telerobotics/EVA Joint Analysis System (TEJAS):  
Version 1.0 User's Guide,*  
JPL Publication 90-11, March 30, 1990.

**Edmonds, L. D.,**  
*An Ohmic Model for Charge Transport in a  
Semiconductor,*  
JPL Publication 90-47, November 15, 1990.

**Halpern, D., H. Ashby (Bendix Corporation),  
C. Finch (OAO Corporation), E. Smith, and  
J. Robles (OAO Corporation),**  
*TOGA CD-ROM Description,*  
JPL Publication 90-43, October 1990.

**Huang, J.,**  
*Microstrip Reflectarray Antenna for the  
SCANSCAT Radar Application,*  
JPL Publication 90-45, November 15, 1990.

**Jain, A., and G. Rodriguez,**  
*Recursive Dynamics for Flexible Multibody  
Systems Using Spatial Operators,*  
JPL Publication 90-26, December 15, 1990.

**Jedrey, T. C., K. I. Dessouky, and N. E. Lay,**  
*An Aeronautical Mobile Satellite Experiment,*  
JPL Publication 90-14, August 15, 1990.

**Jet Propulsion Laboratory,**  
*Center for Space Microelectronics Technology,*  
*1988-1989 Technical Report,*  
JPL Publication 90-3, March 1, 1990.

**Jet Propulsion Laboratory,**  
*Contents of the NASA Ocean Data System*  
*Archive: Version 11-90,*  
JPL Publication 90-49, November 15, 1990.

**Jet Propulsion Laboratory,**  
*ECUT—Energy Conversion and Utilization*  
*Technologies Program: Biocatalysis Project*  
*Annual Report FY 1989,*  
JPL Publication 90-13, May 1990.  
(Prepared for U.S. Department of Energy.)

**Jet Propulsion Laboratory,**  
*Environmental Projects: Volume 10—*  
*Environmental Assessment: New 34-Meter*  
*Antenna at Apollo Site,*  
JPL Publication 87-4, Vol. 10, January 15, 1990.

**Jet Propulsion Laboratory,**  
*Environmental Projects: Volume 11—*  
*Environmental Assessment: Addition to*  
*Operations Building, Mars Site,*  
JPL Publication 87-4, Vol. 11, February 15, 1990.

**Jet Propulsion Laboratory,**  
*Environmental Projects: Volume 12—Friable*  
*Asbestos Abatement, GDSCC,*  
JPL Publication 87-4, Vol. 12, June 15, 1990.

**Jet Propulsion Laboratory,**  
*Innovative Long Wavelength Infrared Detector*  
*Workshop Proceedings, April 24-26, 1990,*  
JPL Publication 90-22, July 1, 1990.

**Jet Propulsion Laboratory,**  
*The Magellan Venus Explorer's Guide,*  
JPL Publication 90-24, August 1, 1990.

**Jet Propulsion Laboratory,**  
*Proceedings of the First Workshop on*  
*Containerless Experimentation in Microgravity,*  
*January 17-19, 1990,*  
JPL Publication 90-30, May 1, 1990.

**Jet Propulsion Laboratory,**  
*Proceedings of the Fourteenth NASA Propagation*  
*Experimenters Meeting (NAPEX XIV) and the*  
*Advanced Communications Technology Satellite*  
*(ACTS) Propagation Studies Miniworkshop,*  
*Held in Austin, Texas, May 11-12, 1990,*  
JPL Publication 90-27, July 1, 1990.

**Jet Propulsion Laboratory,**  
*Proceedings of the Mars Global Network Mission*  
*Workshop, February 6-7, 1990,*  
JPL Publication 90-5, June 1, 1990.

**Jet Propulsion Laboratory,**  
*Proceedings of the Second Airborne Synthetic*  
*Aperture Radar (AIRSAR) Workshop, June 7 and*  
*8, 1990,*  
JPL Publication 90-56, November 15, 1990.

**Jet Propulsion Laboratory,**  
*Proceedings of the Second Airborne*  
*Visible/Infrared Imaging Spectrometer (AVIRIS)*  
*Workshop, June 4 and 5, 1990,*  
JPL Publication 90-54, November 15, 1990.

**Jet Propulsion Laboratory,**  
*Proceedings of the Second Thermal Infrared*  
*Multispectral Scanner (TIMS) Workshop, June 6,*  
*1990,*  
JPL Publication 90-55, November 15, 1990.

**Jet Propulsion Laboratory,**  
*Solar Emission Levels at Low Radio Frequencies,*  
JPL Publication 90-34, October 1, 1990.

**Kirkham, H., H. Friend, S. Jackson, and**  
**A. Johnston,**  
*Developments in Fiber Optics for Distribution*  
*Automation,*  
JPL Publication 90-2, December 1, 1991.  
(Prepared for Office of Energy Storage and  
Distribution, U.S. Department of Energy.)

**Kumar, R.,**  
*A Novel Multireceiver Communications System*  
*Configuration Based on Optimal Estimation*  
*Theory,*  
JPL Publication 90-9, February 1, 1990.  
(Prepared for California State University, Long  
Beach.)

Moore, N. R., D. H. Ebbeler, and M. Creager,  
*An Improved Approach for Flight Readiness  
Assessment—Methodology Summary*,  
JPL Publication 90-46, October 30, 1990.

Nichols, J. D., R. A. Britten, G. S. Parks, and  
J. M. Voss,  
*A Feasibility Study: California Department of  
Forestry and Fire Protection Utilization of  
Infrared Technologies for Wildland Fire  
Suppression and Management: Final Report*,  
JPL Publication 90-33, August 15, 1990.  
(Prepared for Harold Walt, Director,  
Department of Forestry and Fire Protection.)

Peters, S., D. Mittman, C. Collins, J. O'Meara,  
and M. Rokey,  
*Planning and Reasoning in the JPL Telerobot  
Testbed*,  
JPL Publication 90-37, September 15, 1990.

Pivrotto, D. S., and W. C. Dias,  
*United States Planetary Rover Status—1989*,  
JPL Publication 90-6, May 15, 1990.

Sadr, R., E. Satorius, L. Robinett, and E. Olson,  
*Digital Frequency Synthesizer for Radar  
Astronomy*,  
JPL Publication 90-32, August 15, 1990.

Schumaker, B. L.,  
*Scientific Applications of Frequency-Stabilized  
Laser Technology in Space*,  
JPL Publication 90-50, December 1, 1990.

Slack, M. G.,  
*Situationally Driven Local Navigation for  
Mobile Robots*,  
JPL Publication 90-17, April 1990.

Smith, J. H., and M. Drews,  
*Generic Extravehicular (EVA) and Telerobot  
Task Primitives for Analysis, Design, and  
Integration, Version 1.0: Reference Compilation  
for the EVA and Telerobotics Communities*,  
JPL Publication 90-10, March 30, 1990.

Smith, J. H., R. R. Levin, and E. J. Carpenter,  
*An Application of Multiattribute Decision  
Analysis to the Space Station Freedom Program,  
Case Study: Automation and Robotics Technology  
Evaluation*,  
JPL Publication 90-12, May 1, 1990.

Wang, C. C., and T.-Y. Yan,  
*A Mobile Satellite (MSAT-X) Network  
Definition*,  
JPL Publication 90-19, August 15, 1990.



## JPL Publications, 1991

Anspaugh, B. E., and R. S. Weiss,  
*Results of the 1991 NASA/JPL Balloon Flight  
Solar Cell Calibration Program,*  
JPL Publication 91-36, October 1, 1991.

Brophy, J. R., C. E. Garner, and K. D. Goodfellow,  
*Electric Propulsion System Technology: Annual  
Report—1990,*  
JPL Publication 91-16, December 1991.

Chao, Y. (University of California, Los Angeles),  
D. Halpern, and C. R. Mechoso (University of  
California, Los Angeles),  
*A Pacific Ocean General Circulation Model for  
Satellite Data Assimilation,*  
JPL Publication 91-9, February 1991.

Cwik, T., R. D. Ferraro, R. Hodges, N. Jacobi,  
P. C. Liewer, T. G. Lockhart, G. A. Lyzenga,  
J. W. Parker, J. Partee, J. E. Patterson, and  
D. A. Simoni,  
*Hypercube Matrix Computation Task Research in  
Parallel Computational Electromagnetics, Report  
for 1989–1990,*  
JPL Publication 91-25, January 1, 1991.

Edmonds, L. D.,  
*Theoretical Prediction of the Impact of Auger  
Recombination on Charge Collection From an Ion  
Track,*  
JPL Publication 91-11, March 1, 1991.

Edmonds, L. D.,  
*Upper Bound SEU Rate for Devices in an Isotropic  
or Nonisotropic Flux,*  
JPL Publication 91-32, August 1, 1991.

Fernandez, J. P., and D. Mills,  
*Vibroacoustic Payload Environment Prediction  
System (VAPEPS)—VAPEPS Management Center  
Remote Access Guide,*  
JPL Publication 91-26, June 15, 1991.  
(Prepared for NASA Lewis Research Center and  
U.S. Air Force Space Division.)

Halpern, D., V. Zlotnicki, J. Newman, O. Brown  
(University of Miami, Miami, Florida), and  
F. Wentz (Remote Sensing Systems, Santa Rosa,  
California),

*An Atlas of Monthly Mean Distributions of  
GEOSAT Sea Surface Height, SSMI Surface  
Wind Speed, AVHRR/2 Sea Surface  
Temperature, and ECMWF Surface Wind  
Components During 1988,*  
JPL Publication 91-8, February 1991.

Homem-de-Mello, L. S., and R. J. Doyle,  
*Diagnostic Reasoning Techniques for Selective  
Monitoring,*  
JPL Publication 91-6, March 1, 1991.

Jet Propulsion Laboratory,  
AICD—Advanced Industrial Concepts Division:  
*Catalysis and Biocatalysis Program Annual  
Report FY 1990,*  
JPL Publication 91-4, March 1991.  
(Prepared for U.S. Department of Energy.)

Jet Propulsion Laboratory,  
Center for Space Microelectronics Technology,  
*1990 Technical Report,*  
JPL Publication 91-18, July 15, 1991.

Jet Propulsion Laboratory,  
*Contents of the JPL Distributed Active Archive  
Center (DAAC) Archive: Version 2-91,*  
JPL Publication 90-49, Rev. 1, February 1, 1991.

Jet Propulsion Laboratory,  
*Environmental Projects: Volume 13—Underground  
Storage Tanks: Removal and Replacement,*  
JPL Publication 87-4, Vol. 13, February 15, 1991.

Jet Propulsion Laboratory,  
*Proceedings of the Fifteenth NASA Propagation  
Experimenters Meeting (NAPEX XV) and the  
Advanced Communications Technology Satellite  
(ACTS) Propagation Studies Miniworkshop,  
Held in London, Ontario, Canada, June 28–29,  
1991,*  
JPL Publication 91-31, July 1, 1991.

**Jet Propulsion Laboratory,**  
*Proceedings of the Workshop on Advanced  
Network and Technology Concepts for Mobile,  
Micro, and Personal Communications,  
Held May 30-31, 1991,*  
JPL Publication 91-35, September 15, 1991.

**Jet Propulsion Laboratory,**  
*TOPEX/POSEIDON Science Investigations Plan,*  
JPL Publication 91-27, September 1, 1991.

**Jet Propulsion Laboratory,**  
*Workshop Proceedings: Information Systems for  
Space Astrophysics in the 21st Century,  
Volume 1—Astrotech 21 Workshops Series III,  
Integrated Technology Planning,*  
JPL Publication 91-24, Vol. 1, May 1, 1991.

**Jet Propulsion Laboratory,**  
*Workshop Proceedings: Sensor Systems for Space  
Astrophysics in the 21st Century, Volume 2—  
Astrotech 21 Workshops Series III, Integrated  
Technology Planning,*  
JPL Publication 91-24, Vol. 2, August 1, 1991.

**Kirkham, H., A. Gottsche, D. Niebur, H. Friend,  
and A. Johnston,**  
*Communications and Control for Electric Power  
Systems—The 1990 Report,*  
JPL Publication 91-44, January 15, 1991.  
(Prepared for U.S. Department of Energy.)

**Minton, T. K., C. M. Nelson, D. E. Brinza, and  
R. H. Liang,**  
*Inelastic and Reactive Scattering of  
Hyperthermal Atomic Oxygen From Amorphous  
Carbon,*  
JPL Publication 91-34, August 15, 1991.

**Rice, R. F.,**  
*Some Practical Universal Noiseless Coding  
Techniques, Part III, Module PSI14,K+,*  
JPL Publication 91-3, November 15, 1991.

**Rice, R. F., P.-S. Yeh (Goddard Space Flight  
Center), and W. Miller (Goddard Space Flight  
Center),**  
*Algorithms for a Very High Speed Universal  
Noiseless Coding Module,*  
JPL Publication 91-1, February 15, 1991.

**Stiegman, A. E., D. E. Brinza, M. S. Anderson,  
T. K. Minton, E. G. Laue, and R. H. Liang,**  
*An Investigation of the Degradation of  
Fluorinated Ethylene Propylene (FEP)  
Copolymer Thermal Blanketing Materials  
Aboard LDEF and in the Laboratory,*  
JPL Publication 91-10, May 15, 1991.  
(Prepared for Strategic Defense Initiative  
Organization.)

**Tausworthe, R. C.,**  
*A General Software Reliability Process  
Simulation Technique,*  
JPL Publication 91-7, April 1, 1991.

**Venbrux, J. (University of Idaho), N. Liu  
(University of Idaho), K. Liu (University of  
Idaho), P. Vincent (University of Idaho), and  
R. Merrell (University of Idaho),**  
*A Very High Speed Lossless  
Compression/Decompression Chip Set,*  
JPL Publication 91-13, July 15, 1991.

**Yeh, P.-S. (Goddard Space Flight Center),  
R. Rice, and W. Miller (Goddard Space Flight  
Center),**  
*On the Optimality of Code Options for a  
Universal Noiseless Coder,*  
JPL Publication 91-2, February 15, 1991.

**Zohar, S., and V. A. Vilnrotter,**  
*Using a Focal-Plane Array to Estimate Antenna  
Pointing Errors,*  
JPL Publication 91-45, October 25, 1991.



## Progress Reports, 1990

**Alvarez, L. S.,**

"An Analysis of the Least-Squares Problem for the DSN Systematic Pointing Error Model,"  
*The Telecommunications and Data Acquisition Progress Report 42-104: October–November 1990*, pp. 17–29, February 15, 1991.

**Arnold, S., and L. Swanson,**

"Frame Synchronization for the Galileo Code,"  
*The Telecommunications and Data Acquisition Progress Report 42-104: October–December 1990*, pp. 211–218, February 15, 1991.

**Bassiri, S.,**

"Three-Frequency Ranging Systems and Their Applications to Ionospheric Delay Calibration,"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July–September 1990*, pp. 14–20, November 15, 1990.

**Bishop, D. F.,**

"New Space Research Frequency Band Proposals in the 20- to 40.5-GHz Range,"  
*The Telecommunications and Data Acquisition Progress Report 42-104: October–December 1990*, pp. 235–246, February 15, 1991.

**Brown, D. W., W. D. Brundage (National Radio Astronomy Observatory), J. S. Ulvestad, S. S. Kent, and K. P. Bartos,**

"Interagency Telemetry Arraying for Voyager–Neptune Encounter,"  
*The Telecommunications and Data Acquisition Progress Report 42-102: April–June 1990*, pp. 91–118, August 15, 1990.

**Brunzie, T. J.,**

"The Parkes Front-End Controller and Noise-Adding Radiometer,"  
*The Telecommunications and Data Acquisition Progress Report 42-102: April–June 1990*, pp. 119–138, August 15, 1990.

**Carrell, E. A., and R. E. Hill,**

"Development of an Improved Analytical Model for the NASA/JPL 70-Meter Antenna Hydraulic Servovalve,"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July–September 1990*, pp. 244–251, November 15, 1990.

**Chen, C.-C., and M. Z. Win,**

"Steady-State Phase Error for a Phase-Locked Loop Subjected to Periodic Doppler Inputs,"  
*The Telecommunications and Data Acquisition Progress Report 42-104: October–December 1990*, pp. 68–73, February 15, 1991.

**Chen, J. C.,**

"Analysis of a Thick Dichroic Plate With Rectangular Holes at Arbitrary Angles of Incidence,"  
*The Telecommunications and Data Acquisition Progress Report 42-104: October–December 1990*, pp. 9–16, February 15, 1991.

**Cheung, K.-M., and J. I. Statman,**

"A Node and Frame Synchronization Scheme in the Big Viterbi Decoder Based on Channel Symbol Measurements,"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July–September 1990*, pp. 203–214, November 15, 1990.

**Cheung, K.-M., P. Smyth, and H. Wang,**

"A High-Speed Distortionless Predictive Image-Compression Scheme,"  
*The Telecommunications and Data Acquisition Progress Report 42-102: April–June 1990*, pp. 73–90, August 15, 1990.

**Clymer, B. D.,**

"Active Optics for a Segmented Primary Mirror on a Deep-Space Optical Receiver Antenna (DSORA),"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July–September 1990*, pp. 128–134, November 15, 1990.

**Clymer, B. D.,**

"Reflected Sunlight Reduction and Characterization for a Deep-Space Optical Receiver Antenna (DSORA),"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July–September 1990*, pp. 110–117, November 15, 1990.

**Cowles, K. A.,**

"Site Comparison for Optical Visibility Statistics in Southern Arizona,"  
*The Telecommunications and Data Acquisition Progress Report 42-102: April–June 1990*, pp. 57–61, August 15, 1990.

**Cramer, P. W.,**  
"Initial Studies of Array Feeds for the 70-Meter Antenna at 32 GHz,"  
*The Telecommunications and Data Acquisition Progress Report 42-104: October-December 1990,*  
pp. 50-67, February 15, 1991.

**Dolinar, S.,**  
"Maximum-Entropy Probability Distributions Under  $L_p$ -Norm Constraints,"  
*The Telecommunications and Data Acquisition Progress Report 42-104: October-December 1990,*  
pp. 74-87, February 15, 1991.

**Dolinar, S. J., and F. Pollara,**  
"The Theoretical Limits of Source and Channel Coding,"  
*The Telecommunications and Data Acquisition Progress Report 42-102: April-June 1990,*  
pp. 62-72, August 15, 1990.

**Dolinar, S., K.-M. Cheung, I. Onyszchuk, F. Pollara, and S. Arnold,**  
"Compressed/Reconstructed Test Images for CRAF/Cassini,"  
*The Telecommunications and Data Acquisition Progress Report 42-104: October-December 1990,*  
pp. 88-97, February 15, 1991.

**Edwards, C. D.,**  
"Goldstone Intracomplex Connected Element Interferometry,"  
*The Telecommunications and Data Acquisition Progress Report 42-101: January-March 1990,*  
pp. 1-12, May 15, 1990.

**Eldred, D. B., N. M. Nerheim, and K. G. Holmes,**  
"Application of Inertial Instruments for DSN Antenna Pointing and Tracking,"  
*The Telecommunications and Data Acquisition Progress Report 42-101: January-March 1990,*  
pp. 73-98, May 15, 1990.

**Estefan, J. A., S. W. Thurman, and M. P. Batchelder,**  
"Earth-Based Ranging Measurements to a Planetary Radio Beacon: An Approximate Analytic Formulation,"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July-September 1990,*  
pp. 70-86, November 15, 1990.

**Folkner, W. M.,**  
"Navigational Utility of High-Precision Radio Interferometry for Galileo's Approach to Jupiter,"  
*The Telecommunications and Data Acquisition Progress Report 42-102: April-June 1990,*  
pp. 34-46, August 15, 1990.

**Folkner, W. M., and M. H. Finger,**  
"Preliminary Error Budget for an Optical Ranging System: Range, Range Rate, and Differenced Range Observables,"  
*The Telecommunications and Data Acquisition Progress Report 42-101: January-March 1990,*  
pp. 121-135, May 15, 1990.

**Gawronski, W.,**  
"Predictive Control and Estimation Algorithms for the NASA/JPL 70-Meter Antennas,"  
*The Telecommunications and Data Acquisition Progress Report 42-104: October-December 1990,*  
pp. 30-49, February 15, 1991.

**Goldstein, R., and L. Randolph,**  
"Rings of Earth Detected by Orbital Debris Radar,"  
*The Telecommunications and Data Acquisition Progress Report 42-101: January-March 1990,*  
pp. 191-195, May 15, 1990.

**Gulkis, S., F. Biraud (Observatoire de Paris, Meudon, France), J. Heidmann (Observatoire de Paris, Meudon, France), and J. Tarter (University of California, Berkeley),**  
"Technical Considerations on Using the Large Nançay Radio Telescope for SETI,"  
*The Telecommunications and Data Acquisition Progress Report 42-102: April-June 1990,*  
pp. 152-160, August 15, 1990.

**Gutierrez-Luaces, B. O.,**  
"Digital Test Signal Generation: An Accurate SNR Calibration Approach for the DSN,"  
*The Telecommunications and Data Acquisition Progress Report 42-104: October-December 1990,*  
pp. 161-174, February 15, 1991.

**Hinedi, S., R. Bevan, and M. Marina,**  
"The Advanced Receiver II: Telemetry Test Results in CTA 21,"  
*The Telecommunications and Data Acquisition Progress Report 42-104: October-December 1990,*  
pp. 140-156, February 15, 1991.

- Holmes, J. K.,  
 "A Comparison of Manchester Symbol Tracking  
 Loops for Block V Applications,"  
*The Telecommunications and Data Acquisition  
 Progress Report 42-104: October–December 1990*,  
 pp. 175–191, February 15, 1991.
- Imbriale, W. A., and R. E. Hodges,  
 "Linear-Phase Approximation in the Triangular  
 Facet Near-Field Physical Optics Computer  
 Program,"  
*The Telecommunications and Data Acquisition  
 Progress Report 42-102: April–June 1990*,  
 pp. 47–56, August 15, 1990.
- Katow, M. S. (Planning Research Corporation,  
 McLean, Virginia),  
 "DSS 15, 45, and 65 34-Meter High-Efficiency  
 Antenna Radio Frequency Performance  
 Enhancement by Tilt Added to the Subreflector  
 During Elevation Angle Changes,"  
*The Telecommunications and Data Acquisition  
 Progress Report 42-101: January–March 1990*,  
 pp. 152–163, May 15, 1990.
- LaBelle, R. C.,  
 "An IF-to-Digital Converter for the Advanced  
 Receiver II (ARX II),"  
*The Telecommunications and Data Acquisition  
 Progress Report 42-103: July–September 1990*,  
 pp. 215–243, November 15, 1990.
- Layland, J. W., F. D. McLaughlin, P. E. Beyer,  
 D. J. Mudgway, D. W. Brown, R. W. Burt,  
 R. J. Wallace, J. M. Ludwinski, B. D. Madsen,  
 J. C. McKinney, N. A. Renzetti, and  
 J. S. Ulvestad,  
 "Galileo Array Study Team Report,"  
*The Telecommunications and Data Acquisition  
 Progress Report 42-103: July–September 1990*,  
 pp. 161–169, November 15, 1990.
- Lesh, J. R., L. J. Deutsch, and W. J. Weber,  
 "A Plan for the Development and Demonstration  
 of Optical Communications for Deep Space,"  
*The Telecommunications and Data Acquisition  
 Progress Report 42-103: July–September 1990*,  
 pp. 97–109, November 15, 1990.
- Lichten, S. M.,  
 "Demonstration of Precise Estimation of Polar  
 Motion Parameters With the Global Positioning  
 System: Initial Results,"  
*The Telecommunications and Data Acquisition  
 Progress Report 42-104: October–December 1990*,  
 pp. 1–8, February 15, 1991.
- Linfield, R. P.,  
 "Using Planetary Occultations of Radio Sources  
 for Frame-Tie Measurements—Part I: Motivation  
 and Search for Events,"  
*The Telecommunications and Data Acquisition  
 Progress Report 42-103: July–September 1990*,  
 pp. 1–13, November 15, 1990.
- Logan, Jr., R. T., G. F. Lutes, L. E. Primas, and  
 L. Maleki,  
 "Design of a Fiber-Optic Transmitter for  
 Microwave Analog Transmission With High  
 Phase Stability,"  
*The Telecommunications and Data Acquisition  
 Progress Report 42-102: April–June 1990*,  
 pp. 27–33, August 15, 1990.
- Maleki, L., B. J. Blasenheim, and G. R. Janik,  
 "A Study of the Influence of Hg( $6^3P_2$ ) Population  
 in a Low-Pressure Discharge on Mercury Ion  
 Emission at 194.2 nm,"  
*The Telecommunications and Data Acquisition  
 Progress Report 42-101: January–March 1990*,  
 pp. 61–72, May 15, 1990.
- Malla, R. P. (Sterling Software, Pasadena,  
 California), and S. C. Wu,  
 "The First Geocenter Estimation Results Using  
 GPS Measurements,"  
*The Telecommunications and Data Acquisition  
 Progress Report 42-102: April–June 1990*,  
 pp. 1–9, August 15, 1990.
- Melbourne, R. K., J. D. Prestage, and L. Maleki,  
 "Inhomogeneous Electric Field Effects in a Linear  
 RF Quadrupole Trap,"  
*The Telecommunications and Data Acquisition  
 Progress Report 42-101: January–March 1990*,  
 pp. 51–60, May 15, 1990.
- Mileant, A., and S. Hinedi,  
 "Overview of Arraying Techniques in the Deep  
 Space Network,"  
*The Telecommunications and Data Acquisition  
 Progress Report 42-104: October–December 1990*,  
 pp. 109–139, February 15, 1991.

**Mileant, A., and S. Hinedi,**  
"QPSK Loop Lock Detection in the Advanced Receiver,"  
*The Telecommunications and Data Acquisition Progress Report 42-101: January-March 1990,*  
pp. 164-178, May 15, 1990.

**Mysoor, N. R., J. D. Perret, and A. W. Kermode,**  
"Design Concepts and Performance of NASA X-Band (7162-MHz/8415-MHz) Transponder for Deep-Space Spacecraft Applications,"  
*The Telecommunications and Data Acquisition Progress Report 42-104: October-December 1990,*  
pp. 247-256, February 15, 1991.

**Nguyen, T. M.,**  
"A Computational Technique for the Means and Variances of Modulation Losses,"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July-September 1990,*  
pp. 189-202, November 15, 1990.

**Nguyen, T. M.,**  
"The Impact of NRZ Data Asymmetry on the Performance of a Space Telemetry System,"  
*The Telecommunications and Data Acquisition Progress Report 42-102: April-June 1990,*  
pp. 139-151, August 15, 1990.

**Null, G. W., and P. W. Chodas,**  
"Optical Self-Crossing Measurements for Ida Ephemeris Improvement,"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July-September 1990,*  
pp. 87-96, November 15, 1990.

**Otoshi, T. Y., S. R. Stewart, and M. M. Franco,**  
"A Portable X-Band Front-End Test Package for Beam-Waveguide Antenna Performance Evaluation—Part I: Design and Ground Tests,"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July-September 1990,*  
pp. 135-150, November 15, 1990.

**Pollara, F., and S. Arnold,**  
"Emerging Standards for Still Image Compression: A Software Implementation and Simulation Study,"  
*The Telecommunications and Data Acquisition Progress Report 42-104: October-December 1990,*  
pp. 98-102, February 15, 1991.

**Rauch, L. L.,**  
"On Estimating the Phase of a Periodic Waveform in Additive Gaussian Noise—Part III,"  
*The Telecommunications and Data Acquisition Progress Report 42-104: October-December 1990,*  
pp. 157-160, February 15, 1991.

**Rayman, M. D.,**  
"Selection and Observability Tests of GOPEX Reference Stars,"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July-September 1990,*  
pp. 278-283, November 15, 1990.

**Remer, D. S., J. S. Sherif, and H. R. Buchanan,**  
"Deep Space Network Maintenance Cost Compared to Other Industries and Organizations,"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July-September 1990,*  
pp. 252-261, November 15, 1990.

**Sadr, R., and M. Shahshahani,**  
"Planetary Ephemerides Approximation for Radar Astronomy,"  
*The Telecommunications and Data Acquisition Progress Report 42-104: October-December 1990,*  
pp. 219-234, February 15, 1991.

**Shah, B., and S. Hinedi,**  
"A Comparison of Open-Loop Suppressed-Carrier Acquisition Techniques,"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July-September 1990,*  
pp. 170-188, November 15, 1990.

**Shah, B., and J. K. Holmes,**  
"Open-Loop Frequency Acquisition for Suppressed-Carrier Biphase Signals Using One-Pole Arm Filters,"  
*The Telecommunications and Data Acquisition Progress Report 42-104: October-December 1990,*  
pp. 192-210, February 15, 1991.

**Shahshahani, M.,**  
"Algebraic Geometric Codes,"  
*The Telecommunications and Data Acquisition Progress Report 42-104: October-December 1990,*  
pp. 103-108, February 15, 1991.

**Shaik, K.,**  
"Parameter Uncertainties for a 10-Meter Ground-Based Optical Reception Station,"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July–September 1990,*  
pp. 118–127, November 15, 1990.

**Shaik, K.,**  
"A Two-Telescope Receiver Design for Deep Space Optical Communications,"  
*The Telecommunications and Data Acquisition Progress Report 42-101: January–March 1990,*  
pp. 114–120, May 15, 1990.

**Sherif, J. S., D. S. Remer, and H. R. Buchanan,**  
"Long-Range Planning Cost Model for Support of Future Space Missions by the Deep Space Network,"  
*The Telecommunications and Data Acquisition Progress Report 42-101: January–March 1990,*  
pp. 179–190, May 15, 1990.

**Smyth, P., and J. Mellstrom,**  
"Initial Results on Fault Diagnosis of DSN Antenna Control Assemblies Using Pattern Recognition Techniques,"  
*The Telecommunications and Data Acquisition Progress Report 42-101: January–March 1990,*  
pp. 136–151, May 15, 1990.

**Solomon, G.,**  
"Generation of Maximum Distance Separable Codes,"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July–September 1990,*  
pp. 151–153, November 15, 1990.

**Statman, J. I., B. Siev, and J. Rabkin,**  
"Node and Frame Synchronization in the Big Viterbi Decoder,"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July–September 1990,*  
pp. 154–160, November 15, 1990.

**Thurman, S. W.,**  
"Applications of Different Design Methodologies in Navigation Systems and Development at JPL,"  
*The Telecommunications and Data Acquisition Progress Report 42-101: January–March 1990,*  
pp. 39–50, May 15, 1990.

**Thurman, S. W.,**  
"Deep-Space Navigation With Differenced Data Types—Part I: Differenced Range Information Content,"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July–September 1990,*  
pp. 47–60, November 15, 1990.

**Thurman, S. W.,**  
"Deep-Space Navigation With Differenced Data Types—Part II: Differenced Doppler Information Content,"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July–September 1990,*  
pp. 61–69, November 15, 1990.

**Thurman, S. W.,**  
"DSN Baseline Coordinate and Station Location Errors Induced by Earth Orientation Errors,"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July–September 1990,*  
pp. 40–46, November 15, 1990.

**Thurman, S. W.,**  
"Information Content of a Single Pass of Phase-Delay Data From a Short Baseline Connected Element Interferometer,"  
*The Telecommunications and Data Acquisition Progress Report 42-101: January–March 1990,*  
pp. 26–38, May 15, 1990.

**Thurman, S. W.,**  
"Navigation and Guidance for a Mars Aerocapture Mission: A System Design Challenge,"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July–September 1990,*  
pp. 27–39, November 15, 1990.

**Veruttipong, T., W. Imbriale, and D. Bathker,**  
"Design and Performance Analysis of the DSS-13 Beam Waveguide Antenna,"  
*The Telecommunications and Data Acquisition Progress Report 42-101: January–March 1990,*  
pp. 99–113, May 15, 1990.

**Wang, R. T., and G. J. Dick,**  
"Ultrastable Performance of the Superconducting Cavity Maser Oscillator at Short Measuring Times,"  
*The Telecommunications and Data Acquisition Progress Report 42-103: July–September 1990,*  
pp. 21–26, November 15, 1990.

**Williams, A., J. D. Prestage, L. Maleki,  
J. Djomehri, and E. Harabetian,**  
"Computer Simulations of Ions in Radio-  
Frequency Traps,"  
*The Telecommunications and Data Acquisition  
Progress Report 42-102: April-June 1990,*  
pp. 10-26, August 15, 1990.

**Wilson, K. E., J. R. Lesh, T.-Y. Yan, J. Schwartz,  
M. D. Rayman, and S. Wee,**  
"GOPEX: A Deep-Space Optical Communications  
Demonstration With the Galileo Spacecraft,"  
*The Telecommunications and Data Acquisition  
Progress Report 42-103: July-September 1990,*  
pp. 262-277, November 15, 1990.

**Wu, S. C., T. P. Yunck, and C. L. Thornton,**  
"A Reduced-Dynamic Technique for Precise Orbit  
Determination,"  
*The Telecommunications and Data Acquisition  
Progress Report 42-101: January-March 1990,*  
pp. 13-25, May 15, 1990.

## Progress Reports, 1991

**Abdel-Ghaffer, K. (University of California, Davis), R. J. McEliece, and G. Solomon,**  
"Some Partial-Unit-Memory Convolutional Codes,"

*The Telecommunications and Data Acquisition Progress Report 42-107: July-September 1991,*  
pp. 57-72, November 15, 1991.

**Alvarez, L. S.,**

"Initial Pointing Calibrations for the DSS 13 34-Meter Beam-Waveguide Antenna,"

*The Telecommunications and Data Acquisition Progress Report 42-106: April-June 1991,*  
pp. 188-204, August 15, 1991.

**Arbel, D., and J. A. Schwartz,**

"Design and Testing of an Active Quenching Circuit for an Avalanche Photodiode Photon Detector,"

*The Telecommunications and Data Acquisition Progress Report 42-106: April-June 1991,*  
pp. 102-110, August 15, 1991.

**Bartos, R. D.,**

"Dynamic Modeling of the Servovalves Incorporated in the Servo Hydraulic System of the 70-Meter DSN Antennas,"

*The Telecommunications and Data Acquisition Progress Report 42-108: October-December 1991,*  
pp. 222-234, February 15, 1992.

**Bautista, J. J., G. Ortiz, C. Zahopoulos (Northeastern University), S. Sridhar (Northeastern University), and M. Lanagan (Argonne National Laboratory),**

"Performance of a High  $T_c$  Superconducting Ultra-Low Loss Microwave Stripline Filter,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April-June 1991,*  
pp. 60-65, August 15, 1991.

**Briggs, H. C., and D. B. Eldred,**

"Mark IVA Antenna Control System Data Handling Architecture Study,"  
*The Telecommunications and Data Acquisition Progress Report 42-107: July-September 1991,*  
pp. 96-103, November 15, 1991.

**Brown, R. D.,**

"Using Single Buffers and Data Reorganization to Implement a Multi-Megasample Fast Fourier Transform,"

*The Telecommunications and Data Acquisition Progress Report 42-108: October-December 1991,*  
pp. 294-306, February 15, 1992.

**Chen, J. C.,**

"X-/Ka-Band Dichroic Plate Design and Grating Lobe Study,"

*The Telecommunications and Data Acquisition Progress Report 42-105: January-March 1991,*  
pp. 21-30, May 15, 1991.

**Cheung, K.-M., and M. Shahshahani,**

"A Comparison of the Fractal and JPEG Algorithms,"

*The Telecommunications and Data Acquisition Progress Report 42-107: July-September 1991,*  
pp. 21-26, November 15, 1991.

**Cheung, K.-M., F. Pollara, and M. Shahshahani,**

"Integer Cosine Transform for Image Compression,"

*The Telecommunications and Data Acquisition Progress Report 42-105: January-March 1991,*  
pp. 45-53, May 15, 1991.

**Cheung, K.-M., L. Swanson, and S. Arnold,**

"Node Synchronization Schemes for the Big Viterbi Decoder,"

*The Telecommunications and Data Acquisition Progress Report 42-108: October-December 1991,*  
pp. 186-200, February 15, 1992.

**Clements, P. A., J. G. Lopez, and M. J. Kelley,**

"An Assembly to Provide a Time Reference for the JPL Network Operations Control Center, Real-Time,"

*The Telecommunications and Data Acquisition Progress Report 42-108: October-December 1991,*  
pp. 214-221, February 15, 1992.

**Collins, O. (Johns Hopkins University, Baltimore, Maryland),**

"A Minimalist Approach to Receiver Architecture,"

*The Telecommunications and Data Acquisition Progress Report 42-107: July-September 1991,*  
pp. 27-35, November 15, 1991.

**Collins, O. (Johns Hopkins University, Baltimore, Maryland), and M. Hizlan (Johns Hopkins University, Baltimore, Maryland),**  
"Determinate-State Convolutional Codes,"  
*The Telecommunications and Data Acquisition Progress Report 42-107: July–September 1991,*  
pp. 36–56, November 15, 1991.

**Cormier, R., and A. Mizuhara (Varian Associates, Inc., Palo Alto, California),**  
"250-kW CW Klystron Amplifier for Planetary Radar,"  
*The Telecommunications and Data Acquisition Progress Report 42-108: October–December 1991,*  
pp. 201–213, February 15, 1992.

**Cowles, K.,**  
"Site Comparison for Optical Visibility Statistics in Southern California,"  
*The Telecommunications and Data Acquisition Progress Report 42-105: January–March 1991,*  
pp. 31–40, May 15, 1991.

**Cowles, K., and D. Erickson,**  
"Alignment of the Atmospheric Visibility Monitoring Telescope,"  
*The Telecommunications and Data Acquisition Progress Report 42-108: October–December 1991,*  
pp. 79–83, February 15, 1992.

**Cwik, T., and J. C. Chen,**  
"DSS 13 Phase II Pedestal Room Microwave Layout,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April–June 1991,*  
pp. 298–306, August 15, 1991.

**Estefan, J. A.,**  
"Precise Orbit Determination of High-Earth Elliptical Orbiters Using Differenced Doppler and Range Measurements,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April–June 1991,*  
pp. 1–22, August 15, 1991.

**Flanagan, M. J.,**  
"The Behavior of Quantization Spectra as a Function of Signal-to-Noise Ratio,"  
*The Telecommunications and Data Acquisition Progress Report 42-107: July–September 1991,*  
pp. 155–168, November 15, 1991.

**Freedman, A. P.,**  
"Combining GPS and VLBI Earth-Rotation Data for Improved Universal Time,"  
*The Telecommunications and Data Acquisition Progress Report 42-105: January–March 1991,*  
pp. 1–12, May 15, 1991.

**Gawronski, W., and J. A. Mellstrom,**  
"Elevation Control System Model for the DSS 13 Antenna,"  
*The Telecommunications and Data Acquisition Progress Report 42-105: January–March 1991,*  
pp. 83–108, May 15, 1991.

**Gawronski, W., and J. A. Mellstrom,**  
"Modeling and Simulations of the DSS 13 Antenna Control System,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April–June 1991,*  
pp. 205–248, August 15, 1991.

**Gawronski, W., B. Bienkiewicz (Colorado State University), and R. E. Hill,**  
"Pointing-Error Simulations of the DSS-13 Antenna Due to Wind Disturbances,"  
*The Telecommunications and Data Acquisition Progress Report 42-108: October–December 1991,*  
pp. 109–134, February 15, 1992.

**Goldstein, R. M., and L. W. Randolph,**  
"Orbital Debris Radar Instrumentation,"  
*The Telecommunications and Data Acquisition Progress Report 42-105: January–March 1991,*  
pp. 146–148, May 15, 1991.

**Gray, D. L.,**  
"ΔVLBI Data Performance in the Galileo Spacecraft Earth Flyby of December 1990,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April–June 1991,*  
pp. 335–352, August 15, 1991.

**Issa, T. N. (Bendix Field Engineering Corporation),**  
"Stochastic Availability Analysis of Operational Data Systems in the Deep Space Network,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April–June 1991,*  
pp. 394–403, August 15, 1991.



**Kahn, R. D., W. M. Folkner, C. D. Edwards, and A. Vijayaraghavan,**  
"Position Determination of a Lander and Rover at Mars With Earth-Based Differential Tracking,"  
*The Telecommunications and Data Acquisition Progress Report 42-108: October-December 1991,*  
pp. 279-293, February 15, 1992.

**Kursinski, E. R., and S. W. Asmar,**  
"Radio Science Ground Data System for the Voyager-Neptune Encounter, Part I,"  
*The Telecommunications and Data Acquisition Progress Report 42-105: January-March 1991,*  
pp. 109-127, May 15, 1991.

**Lee, P., and P. Stanton,**  
"Wideband Waveguide Polarizer Development for SETI,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April-June 1991,*  
pp. 384-393, August 15, 1991.

**Levy, R.,**  
"Algorithms for Structural Natural-Frequency Design,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April-June 1991,*  
pp. 23-29, August 15, 1991.

**Levy, R.,**  
"Computation of Vibration Mode Elastic-Rigid and Effective Weight Coefficients From Finite-Element Computer Program Output,"  
*The Telecommunications and Data Acquisition Progress Report 42-105: January-March 1991,*  
pp. 13-20, May 15, 1991.

**Lin, C. Y., T. Abdel-Hamid (Naval Postgraduate School, Monterey, California), and J. S. Sherif,**  
"Software-Engineering Process Simulation Model (SEPS),"  
*The Telecommunications and Data Acquisition Progress Report 42-108: October-December 1991,*  
pp. 165-185, February 15, 1992.

**Lindqwister, U. J., A. P. Freedman, and G. Blewitt,**  
"A Demonstration of Centimeter-Level Monitoring of Polar Motion With the Global Positioning System,"  
*The Telecommunications and Data Acquisition Progress Report 42-108: October-December 1991,*  
pp. 1-9, February 15, 1992.

**McEliece, R. J., and G. Solomon,**  
"Modifications of the Griesmer Bound,"  
*The Telecommunications and Data Acquisition Progress Report 42-105: January-March 1991,*  
pp. 41-44, May 15, 1991.

**Mellstrom, J., and P. Smyth,**  
"Pattern-Recognition Techniques Applied to Performance Monitoring of the DSS 13 34-Meter Antenna Control Assembly,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April-June 1991,*  
pp. 30-51, August 15, 1991.

**Mellstrom, J., C. Pierson, and P. Smyth,**  
"Real-Time Antenna Fault Diagnosis Experiments at DSS 13,"  
*The Telecommunications and Data Acquisition Progress Report 42-108: October-December 1991,*  
pp. 96-108, February 15, 1992.

**Monk, A. M.,**  
"Carrier-to-Noise Power Estimation for the Block V Receiver,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April-June 1991,*  
pp. 353-363, August 15, 1991.

**Mysoor, N. R., and R. O. Mueller,**  
"Design and Analysis of a Low-Loss Linear Analog Phase Modulator for Deep Space Spacecraft X-Band Transponder Applications,"  
*The Telecommunications and Data Acquisition Progress Report 42-105: January-March 1991,*  
pp. 136-145, May 15, 1991.

**Onyszchuk, I. M.,**  
"Coding Gains and Error Rates From the Big Viterbi Decoder,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April-June 1991,*  
pp. 170-174, August 15, 1991.

**Onyszchuk, I. M.,**  
"Testing Interconnected VLSI Circuits in the Big Viterbi Decoder,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April-June 1991,*  
pp. 175-182, August 15, 1991.

Ortiz, G. G., and S. Padin (Caltech Owens Valley Radio Observatory, Big Pine, California), "A Cooled 1- to 2-GHz Balanced HEMT Amplifier,"

*The Telecommunications and Data Acquisition Progress Report 42-106: April-June 1991*, pp. 52-59, August 15, 1991.

Otoshi, T. Y.,

"A Proposed Far-Field Method for Frequency-Stability Measurements on the DSS 13 Beam-Waveguide Antenna,"

*The Telecommunications and Data Acquisition Progress Report 42-107: July-September 1991*, pp. 81-87, November 15, 1991.

Otoshi, T. Y., M. M. Franco, and H. F. Reilly, Jr., "The Electrical Conductivities of the DSS-13 Beam-Waveguide Antenna Shroud Material and Other Antenna Reflector Surface Materials," *The Telecommunications and Data Acquisition Progress Report 42-108: October-December 1991*, pp. 154-164, February 15, 1992.

Otoshi, T. Y., S. R. Stewart, and M. M. Franco, "A Portable Ka-Band Front-End Test Package for Beam-Waveguide Antenna Performance Evaluation—Part I: Design and Ground Tests," *The Telecommunications and Data Acquisition Progress Report 42-106: April-June 1991*, pp. 249-265, August 15, 1991.

Otoshi, T. Y., S. R. Stewart, and M. M. Franco, "A Portable Ka-Band Front-End Test Package for Beam-Waveguide Antenna Performance Evaluation—Part II: Tests on the Antenna," *The Telecommunications and Data Acquisition Progress Report 42-106: April-June 1991*, pp. 266-282, August 15, 1991.

Otoshi, T. Y., S. R. Stewart, and M. M. Franco, "A Portable Ku-Band Front-End Test Package for Beam-Waveguide Antenna Performance Evaluation," *The Telecommunications and Data Acquisition Progress Report 42-107: July-September 1991*, pp. 73-80, November 15, 1991.

Otoshi, T. Y., S. R. Stewart, and M. M. Franco, "A Portable X-Band Front-End Test Package for Beam-Waveguide Antenna Performance Evaluation—Part II: Tests on the Antenna," *The Telecommunications and Data Acquisition Progress Report 42-105: January-March 1991*, pp. 54-68, May 15, 1991.

Pham, T. T., M. K. Simon, T. K. Peng, M. H. Brockman (M. H. Brockman and Associates), S. S. Kent (Mainstream Engineering), and R. Weller (CDI Consultants), "A Carrier-Arraying Demonstration at Goldstone for Receiving Pioneer 11 Signals," *The Telecommunications and Data Acquisition Progress Report 42-106: April-June 1991*, pp. 307-334, August 15, 1991.

Posner, E. C.,

"Expected Antenna Utilization and Overload," *The Telecommunications and Data Acquisition Progress Report 42-107: July-September 1991*, pp. 104-112, November 15, 1991.

Prestage, J. D., R. L. Tjoelker, G. J. Dick, and L. Maleki,

"A High-Performance Hg<sup>+</sup> Trapped Ion Frequency Standard," *The Telecommunications and Data Acquisition Progress Report 42-108: October-December 1991*, pp. 10-18, February 15, 1992.

Rayhrer, B., B. Lam, L. E. Young, J. M. Srinivasan, and J. B. Thomas, "Design and Status of the RF-Digitizer Integrated Circuit," *The Telecommunications and Data Acquisition Progress Report 42-106: April-June 1991*, pp. 155-159, August 15, 1991.

Rinker, G. C.,

"The X-Windows Interactive Navigation Data Editor," *The Telecommunications and Data Acquisition Progress Report 42-108: October-December 1991*, pp. 66-78, February 15, 1992.

Rochblatt, D. J.,

"A Microwave Holography Methodology for Diagnostics and Performance Improvement for Large Reflector Antennas," *The Telecommunications and Data Acquisition Progress Report 42-108: October-December 1991*, pp. 235-252, February 15, 1992.

Rochblatt, D. J., and B. L. Seidel,

"Performance Improvement of DSS-13 34-Meter Beam-Waveguide Antenna Using the JPL Microwave Holography Methodology," *The Telecommunications and Data Acquisition Progress Report 42-108: October-December 1991*, pp. 253-270, February 15, 1992.

**Rogstad, D. H.,**  
"Suppressed Carrier Full-Spectrum Combining,"  
*The Telecommunications and Data Acquisition Progress Report 42-107: July–September 1991,*  
pp. 12–20, November 15, 1991.

**Sadr, R., R. Bevan, and S. Hinedi,**  
"The Advanced Receiver II Telemetry Test Results at Goldstone,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April–June 1991,*  
pp. 119–131, August 15, 1991.

**Shaik, K.,**  
"Spectral Filters for Laser Communications,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April–June 1991,*  
pp. 93–101, August 15, 1991.

**Shell, J.,**  
"Equivalent Circuit Model of Traveling-Wave Maser Slow-Wave Structures,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April–June 1991,*  
pp. 66–92, August 15, 1991.

**Sherif, J. S., D. S. Remer, and H. R. Buchanan,**  
"Modeling Preparation Costs for Space Missions by Using Major Cost Drivers,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April–June 1991,*  
pp. 404–415, August 15, 1991.

**Shihabi, M., S. Hinedi, and B. Shah,**  
"Symbol Lock Detection in the ARX II and Block V Receivers,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April–June 1991,*  
pp. 132–154, August 15, 1991.

**Slobin, S. D., T. Y. Otsoshi, M. J. Britcliffe, L. S. Alvarez, S. R. Stewart, and M. M. Franco,**  
"Efficiency Calibration of the DSS 13 34-Meter Diameter Beam Waveguide Antenna at 8.45 and 32 GHz,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April–June 1991,*  
pp. 283–297, August 15, 1991.

**Solomon, G.,**  
"Nonlinear, Nonbinary Cyclic Group Codes,"  
*The Telecommunications and Data Acquisition Progress Report 42-108: October–December 1991,*  
pp. 84–95, February 15, 1992.

**Sovers, O. J.,**  
"JPL 1990-3: A 5-nrad Extragalactic Source Catalog Based on Combined Radio Interferometric Observations,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April–June 1991,*  
pp. 364–383, August 15, 1991.

**Stanton, P. H., and H. R. Reilly, Jr.,**  
"The L-/C-Band Feed Design for the DSS 14 70-Meter Antenna (Phobos Mission),"  
*The Telecommunications and Data Acquisition Progress Report 42-107: July–September 1991,*  
pp. 88–95, November 15, 1991.

**Stelzried, C., R. Clauss, W. Rafferty, and S. Petty,**  
"DSN  $G/T_{op}$  and Telecommunications System Performance,"  
*The Telecommunications and Data Acquisition Progress Report 42-108: October–December 1991,*  
pp. 271–278, February 15, 1992.

**Stewart, S. R.,**  
"DSS-13 Beam-Waveguide Antenna Performance in the Bypass Mode,"  
*The Telecommunications and Data Acquisition Progress Report 42-108: October–December 1991,*  
pp. 135–153, February 15, 1992.

**Swanson, L., and K.-M. Cheung,**  
"Frame Error Rate of the NASA Concatenated Coding System,"  
*The Telecommunications and Data Acquisition Progress Report 42-106: April–June 1991,*  
pp. 183–187, August 15, 1991.

**Thurman, S. W., and S. E. Matousek,**  
"Trajectory and Navigation System Design for Robotic and Piloted Missions to Mars,"  
*The Telecommunications and Data Acquisition Progress Report 42-107: July–September 1991,*  
pp. 113–131, November 15, 1991.

**Tjoelker, R. L., J. D. Prestage, and L. Maleki,**  
"Criteria for Ultrastable Operation of the Trapped Ion Frequency Standard,"  
*The Telecommunications and Data Acquisition Progress Report 42-108: October–December 1991,*  
pp. 19–30, February 15, 1992.

Ulvestad, J. S.,  
"Orbit-Determination Performance of Doppler  
Data for Interplanetary Cruise Trajectories—  
Part II: 8.4-GHz Performance and Data-  
Weighting Strategies,"  
*The Telecommunications and Data Acquisition  
Progress Report 42-108: October–December 1991*,  
pp. 49–65, February 15, 1992.

Ulvestad, J. S.,  
"Phasing the Very Large Array on Galileo in the  
Presence of Jupiter's Strong Radio Emission,"  
*The Telecommunications and Data Acquisition  
Progress Report 42-105: January–March 1991*,  
pp. 69–82, May 15, 1991.

Ulvestad, J. S., and S. W. Thurman,  
"Orbit-Determination Performance of Doppler  
Data for Interplanetary Cruise Trajectories—  
Part I: Error Analysis Methodology,"  
*The Telecommunications and Data Acquisition  
Progress Report 42-108: October–December 1991*,  
pp. 31–48, February 15, 1992.

Veruttipong, W., J. C. Chen, and D. A. Bathker,  
"Gaussian Beam and Physical Optics Iteration  
Technique for Wideband Beam Waveguide Feed  
Design,"  
*The Telecommunications and Data Acquisition  
Progress Report 42-105: January–March 1991*,  
pp. 128–135, May 15, 1991.

Vilnrotter, V. A.,  
"Channel Assignments and Array Gain Bounds for  
the Ka-Band Array Feed Compensation System,"  
*The Telecommunications and Data Acquisition  
Progress Report 42-106: April–June 1991*,  
pp. 160–169, August 15, 1991.

Wang, R. T., and G. J. Dick,  
"A Receiver Design for the Superconducting  
Cavity-Maser Oscillator,"  
*The Telecommunications and Data Acquisition  
Progress Report 42-107: July–September 1991*,  
pp. 1–11, November 15, 1991.

Yan, T.-Y.,  
"Analysis of a Multiple Reception Model for  
Processing Images From the Solid-State Imaging  
Camera,"  
*The Telecommunications and Data Acquisition  
Progress Report 42-106: April–June 1991*,  
pp. 111–118, August 15, 1991.

Zimmerman, G. A., and S. Gulkis,  
"Polyphase-Discrete Fourier Transform Spectrum  
Analysis for the Search for Extraterrestrial  
Intelligence Sky Survey,"  
*The Telecommunications and Data Acquisition  
Progress Report 42-107: July–September 1991*,  
pp. 141–154, November 15, 1991.

Zimmerman, G. A., M. F. Garyantes, M. J. Grimm,  
and B. Charny,  
"A 640-MHz 32-Megachannel Real-Time  
Polyphase-FFT Spectrum Analyzer,"  
*The Telecommunications and Data Acquisition  
Progress Report 42-107: July–September 1991*,  
pp. 132–140, November 15, 1991.

## Open Literature, 1990

- Ajello, J. M.,**  
"Solar Minimum Lyman  $\alpha$  Sky Background Observations From Pioneer Venus Orbiter Ultraviolet Spectrometer: Solar Wind Latitude Variation,"  
*Journal of Geophysical Research*,  
Vol. 95, No. A9, pp. 14855-14861, September 1, 1990.
- Albee, A. L., and D. F. Palluconi,**  
"Mars Observer's Global Mapping Mission,"  
*Eos, Transactions, American Geophysical Union*,  
Vol. 71, No. 39, pp. 1099, 1107, September 25, 1990.
- Allen, M., and M. L. Delitsky,**  
"Stratospheric NO, NO<sub>2</sub>, and N<sub>2</sub>O<sub>5</sub>: A Comparison of Model Results With Spacelab 3 Atmospheric Trace Molecule Spectroscopy (ATMOS) Measurements,"  
*Journal of Geophysical Research*,  
Vol. 95, No. D9, pp. 14077-14082, August 20, 1990.
- Anicich, V. G., A. D. Sen, W. T. Huntress, Jr., and M. J. McEwan (University of Canterbury, Christchurch, New Zealand),**  
"Association Reactions at Low Pressure. III. The C<sub>2</sub>H<sub>2</sub><sup>+</sup>/C<sub>2</sub>H<sub>2</sub> System,"  
*Journal of Chemical Physics*,  
Vol. 93, No. 10, pp. 7163-7172, November 15, 1990.
- Ansari, H., B. D. Metscher, and J. R. Lesh,**  
"Experimental Considerations for 2-D Acousto-optic Spectrum Analysis,"  
*Applied Optics*,  
Vol. 29, No. 36, pp. 5317-5319, December 20, 1990.
- Ansari, H., B. Metscher, and J. R. Lesh,**  
"Three-Dimensional Acousto-Optic Spectrum Analysis,"  
*Optics Letters*,  
Vol. 15, No. 21, pp. 1245-1246, November 1, 1990.
- Aumann, H. H., J. W. Fowler, and M. Melnyk,**  
"A Maximum Correlation Method for Image Construction of IRAS Survey Data,"  
*The Astronomical Journal*,  
Vol. 99, No. 5, pp. 1674-1681, May 1990.
- Backes, P. G., and K. S. Tso,**  
"UMI: An Interactive Supervisory and Shared Control System for Telerobotics,"  
*Proceedings of the 1990 IEEE International Conference on Robotics and Automation, Cincinnati, Ohio, May 13-18, 1990*,  
pp. 1096-1101, 1990.
- Bell, L. D., M. H. Hecht, W. J. Kaiser, and L. C. Davis (Ford Motor Company, Dearborn, Michigan),**  
"Direct Spectroscopy of Electron and Hole Scattering,"  
*Physical Review Letters*,  
Vol. 64, No. 22, pp. 2679-2682, May 28, 1990.
- Bellan, J., and K. Harstad,**  
"The Dynamics of Dense and Dilute Clusters of Drops Evaporating in Large, Coherent Vortices,"  
*Twenty-Third Symposium (International) on Combustion*,  
pp. 1375-1381, 1990.
- Beratan, K. K., R. G. Blom, J. E. Nielson (United States Geological Survey, Menlo Park, California), and R. E. Crippen,**  
"Use of Landsat Thematic Mapper Images in Regional Correlation of Syntectonic Strata, Colorado River Extensional Corridor, California and Arizona,"  
*Journal of Geophysical Research*,  
Vol. 95, No. B1, pp. 615-624, January 10, 1990.
- Bergman, L. A., R. Hartmayer, W. Wu, P. Cassell, G. Edgar, J. Lambert, R. Mancini, J. Jeng, C. Pardo, F. Halloran (U.S. Army Communications Electronics-Command, Fort Monmouth, New Jersey), and J. Martinez (U.S. Army Communications Electronics-Command, Fort Monmouth, New Jersey),**  
"A High Performance FDDI NIU for Streaming Voice, Video, and Data,"  
*FDDI, Campus-Wide, and Metropolitan Area Networks*,  
San Jose, California, September 19-21, 1990,  
Vol. 1364, pp. 14-21, 1990.
- Bernius, M. T., and A. Chutjian,**  
"Improved High-Voltage, High-Frequency Square-Wave Generator,"  
*Review of Scientific Instruments*,  
Vol. 61, No. 2, pp. 925-927, February 1990.

- Blewitt, G.,**  
 "An Automatic Editing Algorithm for GPS Data,"  
*Geophysical Research Letters*,  
 Vol. 17, No. 3, pp. 199–202, March 1990.
- Borgia, A., and F. J. Spera (University of California, Santa Barbara),**  
 "Error Analysis for Reducing Noisy Wide-Gap Concentric Cylinder Rheometric Data for Nonlinear Fluids: Theory and Applications,"  
*Journal of Rheology*,  
 Vol. 34, No. 1, pp. 117–136, January 1990.
- Borgia, A., J. Burr (MacAllister College, St. Paul, Minnesota), W. Montero (Universidad de Costa Rica, Ciudad Universitaria 'Rodrigo Facio'), L. D. Morales (Universidad de Costa Rica, Ciudad Universitaria 'Rodrigo Facio'), and G. E. Alvarado (Departamento de Geologia Instituto Costarricense de Electricidad, San Jose, Costa Rica),**  
 "Fault Propagation Folds Induced by Gravitational Failure and Slumping of the Central Costa Rica Volcanic Range: Implications for Large Terrestrial and Martian Volcanic Edifices,"  
*Journal of Geophysical Research*,  
 Vol. 95, No. B9, pp. 14357–14382, August 30, 1990.
- Brinca, A. L. (Instituto Superior Tecnico, Lisbon, Portugal), and B. T. Tsurutani,**  
 "Reply,"  
*Journal of Geophysical Research*,  
 Vol. 95, No. A6, pp. 8291, June 1, 1990.
- Brown, R. H., R. L. Kirk (U.S. Geological Survey, Flagstaff, Arizona), T. V. Johnson, and L. A. Soderblom (U.S. Geological Survey, Flagstaff, Arizona),**  
 "Energy Sources for Triton's Geyser-Like Plumes,"  
*Science*,  
 Vol. 250, pp. 431–435, October 19, 1990.
- Bruegge, C. J., J. E. Conel, J. S. Margolis, R. O. Green, G. Toon, V. Carrere, R. G. Holm, and G. Hoover,**  
 "In-Situ Atmospheric Water-Vapor Retrieval in Support of AVIRIS Validation,"  
*Imaging Spectroscopy of the Terrestrial Environment*,  
 Orlando, Florida, February 16–17, 1990,  
 Vol. 1298, pp. 150–163, 1990.
- Bush, M.,**  
 "Improving Software Quality: The Use of Formal Inspections at the Jet Propulsion Laboratory,"  
*Proceedings of the 12th International Conference on Software Engineering*,  
 Nice, France, March 26–30, 1990,  
 pp. 196–199, 1990.
- Bush, M. W.,**  
 "Getting Started on Metrics—Jet Propulsion Laboratory Productivity and Quality,"  
*Proceedings of the 12th International Conference on Software Engineering*,  
 Nice, France, March 26–30, 1990,  
 pp. 133–142, 1990.
- Cebe, P.,**  
 "Annealing Study of Poly (Etheretherketone),"  
*Journal of Materials Science*,  
 Vol. 23, pp. 3721–3731, 1988.
- Cebe, P., and S. Y. Chung,**  
 "Tensile Behaviour of Blends of Poly (Vinylidene Fluoride) With Poly (Methyl Methacrylate),"  
*Journal of Materials Science*,  
 Vol. 25, pp. 2367–2378, 1990.
- Chadwick, O. A., and J. O. Davis (Quaternary Sciences Center Desert Research Institute, Reno, Nevada),**  
 "Soil-Forming Intervals Caused by Eolian Sediment Pulses in the Lahontan Basin, Northwestern Nevada,"  
*Geology*,  
 Vol. 18, pp. 243–246, March 1990.
- Chadwick, O. A., and W. D. Nettleton (National Soil Survey Laboratory, Lincoln, Nebraska),**  
 "Micromorphologic Evidence of Adhesive and Cohesive Forces in Soil Cementation,"  
*Proceedings of the VIIIth International Working Meeting of Soil Micromorphology*,  
 San Antonio, Texas, July 1988,  
 pp. 207–212, 1990.
- Chang, Y.-P. H., and D. S. Stetson,**  
 "Saturn Orbit Insertion Mission Plan for Cassini,"  
*AIAA/AAS Astrodynamics Conference*,  
 Portland, Oregon, August 20–22, 1990,  
 pp. 272–281, 1990.

- Chao, T.-H., and J. Yu,  
 "Real-Time Optical Correlator Using Computer-Generated Holographic Filter on a Liquid Crystal Light Valve,"  
*Optical Information-Processing Systems and Architectures II*,  
 San Diego, California, July 9-13, 1990,  
 Vol. 1347, pp. 211-220, 1990.
- Chao, T.-H., J. Yu, L.-J. Cheng, and J. Lambert,  
 "Acousto-Optic Tunable Filter (AOTF) Imaging Spectrometer for NASA Applications: Breadboard Demonstration,"  
*Optical Information-Processing Systems and Architectures II*,  
 San Diego, California, July 9-13, 1990,  
 Vol. 1347, pp. 655-663, 1990.
- Charlot, P.,  
 "Radio-Source Structure in Astrometric and Geodetic Very Long Baseline Interferometry,"  
*The Astronomical Journal*,  
 Vol. 99, No. 4, pp. 1309-1326, April 1990.
- Chen, C.-C.,  
 "Performance Analysis of a Noncoherently Combined Large Aperture Optical Heterodyne Receiver,"  
*IEEE Transactions on Communications*,  
 Vol. 38, No. 7, pp. 1013-1021, July 1990.
- Cheng, C.-C., and M. Z. Win,  
 "Frequency Noise Measurement of Diode-Pumped Nd:YAG Ring Lasers,"  
*IEEE Photonics Technology Letters*,  
 Vol. 2, No. 11, pp. 772-774, November 1990.
- Cheng, L.-J., and D. T. H. Liu,  
 "Optical Computing and Image Processing Using Photorefractive Gallium Arsenide,"  
*Japanese Journal of Applied Physics*,  
 Vol. 29, No. 7, pp. L1297-L1300, July 1990.
- Cheng, L.-J., and D. T. H. Liu,  
 "Properties and Applications of Photorefractive GaAs,"  
*Nonlinear Optics*,  
 Los Angeles, California, January 18-19, 1990,  
 Vol. 1220, pp. 2-17, 1990.
- Cheng, U., W. J. Hurd, and J. I. Statman,  
 "Spread-Spectrum Code Acquisition in the Presence of Doppler Shift and Data Modulation,"  
*IEEE Transactions on Communications*,  
 Vol. 38, No. 2, pp. 241-250, February 1990.
- Chua, P. L., D. T. H. Liu, and L. J. Cheng,  
 "Self-Pumped and Double Phase Conjugation in GaAs With Applied DC Electric Field,"  
*Applied Physics Letters*,  
 Vol. 57, No. 9, pp. 858-860, August 27, 1990.
- Chutjian, A., S. H. Alajajian, and K.-F. Man,  
 "Measurement of Threshold Temperature Effects in Dissociative Electron Attachment to HI and DI,"  
*Physical Review A*,  
 Vol. 41, No. 3, pp. 1311-1314, February 1, 1990.
- Colussi, A. J.,  
 "Formation and Decay of ( $^3P_1$ )O Atoms in the Laser Flash Photolysis of Chlorine Dioxide (OCIO) at 308 nm,"  
*The Journal of Physical Chemistry*,  
 Vol. 94, No. 26, pp. 8922-8926, 1990.
- Colvin, M., S. K. Chung, M. T. Hyson, M. Chang, and W. K. Rhim,  
 "A New Method for the Production of Large Spherical Monosized Polymer Particles for Biomedical and Chromatographic Applications,"  
*Journal of Polymer Science: Part A: Polymer Chemistry*,  
 Vol. 28, pp. 2085-2095, 1990.
- Conel, J. E.,  
 "Determination of Surface Reflectance and Estimates of Atmospheric Optical Depth and Single Scattering Albedo From Landsat Thematic Mapper Data,"  
*International Journal of Remote Sensing*,  
 Vol. 11, No. 5, pp. 783-828, 1990.
- Crippen, R. E.,  
 "Calculating the Vegetation Index Faster,"  
*Remote Sensing of Environment*,  
 Vol. 34, pp. 71-73, 1990.
- Crisp, D.,  
 "Infrared Radiative Transfer in the Dust-Free Martian Atmosphere,"  
*Journal of Geophysical Research*,  
 Vol. 95, No. B9, pp. 14577-14588, August 30, 1990.
- Crisp, J., and S. Baloga,  
 "A Model for Lava Flows With Two Thermal Components,"  
*Journal of Geophysical Research*,  
 Vol. 95, No. B2, pp. 1255-1270, February 10, 1990.

**Crisp, J., A. B. Kahle, and E. A. Abbott,**  
"Thermal Infrared Spectral Character of  
Hawaiian Basaltic Glasses,"  
*Journal of Geophysical Research,*  
Vol. 95, No. B13, pp. 21657-21669, December 10,  
1990.

**Daud, T., R. Tawel, H. Langenbacher,  
S. P. Eberhardt, and A. P. Thakoor,**  
"Analog Parallel Processor Hardware for High  
Speed Pattern Recognition,"  
*Visual Communications and Image Processing '90,*  
*Lausanne, Switzerland, October 1-4, 1990,*  
Vol. 1360, pp. 359-370, 1990.

**Davidson, B.,**  
"An Experimental Investigation of Delamination  
Buckling and Growth,"  
*31st AIAA/ASME/ASCE/AHS/ASC Structures,  
Structural Dynamics and Materials Conference,*  
*Long Beach, California, April 2-4, 1990,*  
pp. 1218-1226, 1990.

**Davis, Jr., L. (California Institute of Technology),  
and E. J. Smith,**  
"A Model of Saturn's Magnetic Field Based on All  
Available Data,"  
*Journal of Geophysical Research,*  
Vol. 95, No. A9, pp. 15257-15261, September 1,  
1990.

**Deininger, W. D., R. J. Pivrotto, and  
J. R. Brophy,**  
"Effect of Nozzle and Cathode Configuration on  
Arcjet Performance,"  
*Journal of Propulsion and Power,*  
Vol. 6, No. 3, pp. 271-275, May-June 1990.

**Delitsky, M. L., R. P. Turco (University of  
California, Los Angeles) and M. Z. Jacobson  
(University of California, Los Angeles),**  
"Nitrogen Ion Clusters in Triton's Atmosphere,"  
*Geophysical Research Letters,*  
Vol. 17, No. 10, pp. 1725-1728, September 1990.

**DeMets, C., and S. Stein (Northwestern  
University, Evanston, Illinois),**  
"Present-Day Kinematics of the Rivera Plate and  
Implications for Tectonics in Southwestern  
Mexico,"  
*Journal of Geophysical Research,*  
Vol. 95, No. B13, pp. 21931-21948, December 10,  
1990.

**DeMore, W. B.,**  
"Equilibrium Constant for the Reaction  
 $\text{ClO} + \text{O}_2 \leftrightarrow \text{ClOO}_2$ ,"  
*Geophysical Research Letters,*  
Vol. 17, No. 12, pp. 2353-2355, December 1990.

**DeMore, W. B., and E. Tshuikow-Roux  
(University of Calgary, Alberta Canada),**  
"Ultraviolet Spectrum and Chemical Reactivity  
of the ClO Dimer,"  
*The Journal of Physical Chemistry,*  
Vol. 94, No. 15, pp. 5856-5860, 1990.

**Dick, G. J., and J. Saunders,**  
"Measurements and Analysis of a Microwave  
Oscillator Stabilized by a Sapphire Dielectric  
Ring Resonator on Ultra-Low Noise,"  
*IEEE Transactions of Ultrasonics, Ferroelectrics,  
and Frequency Control,*  
Vol. 37, No. 5, pp. 339-346, September 1990.

**Dickey, J. O., T. M. Eubanks, and R. Hide  
(Geophysical Fluid Dynamics Laboratory,  
England, United Kingdom),**  
"Interannual and Decade Fluctuations in the  
Earth's Rotation,"  
*Variations in Earth Rotation,*  
Vol. 59, pp. 157-161, 1990.

**Divsalar, D., and M. K. Simon,**  
"The Use of Interleaving for Reducing Noisy  
Reference Loss in Trellis-Coded Modulation  
Systems,"  
*IEEE Transactions on Communications,*  
Vol. 38, No. 8, pp. 1190-1198, August 1990.

**Divsalar, D., M. K. Simon, and M. Shahshahani,**  
"The Performance of Trellis-Coded MDPSK With  
Multiple Symbol Detection,"  
*IEEE Transactions on Communications,*  
Vol. 38, No. 9, pp. 1391-1403, September 1990.

**Dixon, T. H.,**  
"Comment on 'Timing of Mantle Upwelling:  
Evidence for a Passive Origin for the Red Sea  
Rift' by A. V. McGuire and R. G. Bohannon,"  
*Journal of Geophysical Research,*  
Vol. 95, No. B4, pp. 5163-5164, April 10, 1990.



Dixon, T. H., and S. K. Wolf,  
"Some Tests of Wet Tropospheric Calibration for  
the CASA Uno Global Positioning System  
Experiment,"  
*Geophysical Research Letters*,  
Vol. 17, No. 3, pp. 203–206, March 1990.

Dixon, T., G. Blewitt, K. Larson (Scripps  
Institution of Oceanography, La Jolla,  
California), D. Agnew (Scripps Institution of  
Oceanography, La Jolla, California), B. Hager  
(Massachusetts Institute of Technology),  
P. Kroger, L. Krumega, and W. Strange (National  
Geodetic Survey, Rockville, Maryland),  
"GPS Measurements of Regional Deformation in  
Southern California: Some Constraints on  
Performance,"  
*Eos, Transactions, American Geophysical Union*,  
Vol. 71, No. 35, pp. 1051–1053, 1056, August 28,  
1990.

Durden, S. L., J. J. van Zyl, and H. A. Zebker,  
"The Unpolarized Component in Polarimetric  
Radar Observations of Forested Areas,"  
*IEEE Transactions on Geoscience and Remote  
Sensing*,  
Vol. 28, No. 2, pp. 268–271, March 1990.

Elachi, C., K. E. Im, F. Li, and E. Rodriguez,  
"Global Digital Topography Mapping With a  
Synthetic Aperture Scanning Radar Altimeter,"  
*International Journal of Remote Sensing*,  
Vol. 11, No. 4, pp. 585–601, 1990.

El-Raheb, M. (Dow Chemical Company,  
Midland Michigan), and P. Wagner,  
"Acoustic Response of a Rectangular Levitator  
With Orifices,"  
*Journal of the Acoustical Society of America*,  
Vol. 88, No. 5, pp. 2437–2449, November 1990.

Elson, L. S.,  
"Satellite Observations of Instability in the  
Middle Atmosphere,"  
*Journal of the Atmospheric Sciences*,  
Vol. 47, No. 9, pp. 1065–1074, May 1, 1990.

Erickson, J. K.,  
"The Galileo Orbiter: Command and Telemetry  
Subsystems on Their Way to Jupiter,"  
*IEEE Network Magazine*,  
Vol. 4, No. 5, pp. 8–12, September 1990.

Fanson, J. L., and T. K. Caughey (California  
Institute of Technology),  
"Positive Position Feedback Control for Large  
Space Structures,"  
*AIAA Journal*,  
Vol. 28, No. 4, pp. 717–724, April 1990.

Fathauer, R. W., C. W. Nieh (California  
Institute of Technology), Q. F. Xiao (State  
University of New York at Albany), and  
S. Hashimoto (State University of New York at  
Albany),  
"Columnar Epitaxy of Hexagonal and  
Orthorhombic Silicides on Si(111),"  
*Materials Research Society and Symposium  
Proceedings*,  
Vol. 198, pp. 583–588, 1990.

Fathauer, R. W., C. W. Nieh (California  
Institute of Technology), Q. F. Xiao (State  
University of New York at Albany), and  
S. Hashimoto (State University of New York at  
Albany),  
"Columnar Growth of  $\text{CoSi}_2$  on Si(111), Si(100),  
and Si(110) by Molecular Beam Epitaxy,"  
*Thin Solid Films*,  
Vol. 184, pp. 335–342, 1990.

Fathauer, R. W., J. M. Iannelli, C. W. Nieh  
(California Institute of Technology), and  
S. Hashimoto (State University of New York at  
Albany),  
"Infrared Response From Metallic Particles  
Embedded in a Single-Crystal Si Matrix: The  
Layered Internal Photoemission Sensor,"  
*Applied Physics Letters*,  
Vol. 57, No. 14, pp. 1419–1421, October 1, 1990.

Fathauer, R. W., Q. F. Xiao (State University of  
New York at Albany), S. Hashimoto (State  
University of New York at Albany), and  
C. W. Nieh (California Institute of Technology),  
"Columnar Epitaxy of PtSi on Si(111),"  
*Applied Physics Letters*,  
Vol. 57, No. 7, pp. 686–688, August 13, 1990.

Federman, S. R., W. T. Huntress, Jr., and  
S. S. Prasad,  
"Modeling the Chemistry of Dense Interstellar  
Clouds. I. Observational Constraints for the  
Chemistry,"  
*The Astrophysical Journal*,  
Vol. 354, pp. 504–512, May 10, 1990.

Feynman, J., T. P. Armstrong (University of Kansas, Lawrence), L. Dao-Gibner (Syscon Corporation, Pasadena, California), and S. Silverman (Boston College, Chestnut Hill, Massachusetts),  
"New Interplanetary Proton Fluence Model,"  
*Journal of Spacecraft and Rockets*,  
Vol. 27, No. 4, pp. 403-410, July-August 1990.

Fijany, A., and A. K. Bejczy,  
"An Efficient Algorithm for Computation of Manipulator Inertia Matrix,"  
*Journal of Robotic Systems*,  
Vol. 7, No. 1, pp. 57-80, February 1990.

Finger, M. H., and W. M. Folkner,  
"A Determination of the Radio-Planetary Frame Tie and the DSN Tracking Station Locations,"  
*AIAA/AAS Astrodynamics Conference*,  
Portland, Oregon, August 20-22, 1990,  
pp. 335-353, 1990.

Fleurial, J. P., and A. Borshchevsky,  
"Si-Ge-Metal Ternary Phase Diagram Calculations,"  
*Journal of Electrochemical Society*,  
Vol. 137, No. 9, pp. 2928-2937, September 1990.

Ford, J. P., R. K. Dokka (Louisiana State University, Baton Rouge), R. E. Crippen, and R. G. Blom,  
"Faults in the Mojave Desert, California, as Revealed on Enhanced Landsat Images,"  
*Science*,  
Vol. 248, pp. 1000-1003, May 25, 1990.

Ford, J. P., R. K. Dokka (Louisiana State University, Baton Rouge), and R. G. Blom,  
"Undocumented Faults Revealed in Multisensor Image Analysis, Mojave Desert, California, U.S.A.,"  
*Proceedings, Institution of Mining and Metallurgy*,  
London,  
pp. 27-33, 1990.

Freedman, A. P., and B. Parsons (University of Oxford, United Kingdom),  
"Geoid Anomalies Over Two South Atlantic Fracture Zones,"  
*Earth and Planetary Science Letters*,  
Vol. 100, pp. 18-41, 1990.

Freeman, A., Y. Shen, and C. L. Werner,  
"Polarimetric SAR Calibration Experiment Using Active Radar Calibrators,"  
*IEEE Transactions on Geoscience and Remote Sensing*,  
Vol. 28, No. 2, pp. 224-240, March 1990.

Gawronski, W., C.-H. C. Ih, and S. J. Wang,  
"On Dynamics and Control of Multi-Link Flexible Space Manipulators,"  
*AIAA Guidance, Navigation, and Control Conference*,  
Portland, Oregon, August 20-22, 1990,  
pp. 725-734, 1990.

Glazman, R. E.,  
"Near-Nadir Radar Backscatter From a Well-Developed Sea,"  
*Radio Science*,  
Vol. 25, No. 6, pp. 1211-1219, November/December 1990.

Glazman, R. E., and P. B. Weichman (California Institute of Technology),  
"Reply,"  
*Journal of Geophysical Research*,  
Vol. 95, No. C2, pp. 1771-1773, February 15, 1990.

Glazman, R. E., and S. H. Pilorz,  
"Effects of Sea Maturity on Satellite Altimeter Measurements,"  
*Journal of Geophysical Research*,  
Vol. 95, No. C3, pp. 2857-2870, March 15, 1990.

Goben, C. A., W. E. Price (Space Radiation Effects Consultant, Oceanside, California), and J. R. Coss,  
"Comparison of the Effects of Ionizing Radiation at Twelve Dose Rates From 0.0015 to 100 rad(Si)/s,"  
*Journal of Electronic Materials*,  
Vol. 19, No. 7, pp. 609-615, 1990.

Golshan, N., and A. Vaisnys,  
"Satellite Sound Broadcasting System, Portable Reception,"  
*13th AIAA International Communication Satellite Systems Conference & Exhibit*,  
Los Angeles, California, March 11-15, 1990,  
pp. 186-204, 1990.

- Greenhall, C. A.,**  
 "Orthogonal Sets of Data Windows Constructed From Trigonometric Polynomials,"  
*IEEE Transactions on Acoustics, Speech, and Signal Processing*,  
 Vol. 38, No. 5, pp. 870–872, May 1990.
- Gross, R. S., and B. F. Chao (NASA Goddard Space Flight Center),**  
 "The Global Geodynamic Effect of the Macquarie Ridge Earthquake,"  
*Geophysical Research Letters*,  
 Vol. 17, No. 7, pp. 1009–1012, June 1990.
- Gunson, M. R., C. B. Farmer, R. H. Norton, R. Zander (Universite de Liege, Belgium), C. P. Rinsland (NASA Langley Research Center), J. H. Shaw (Ohio State University, Columbus), and B.-C. Gao (Ohio State University, Columbus),**  
 "Measurements of CH<sub>4</sub>, N<sub>2</sub>O, CO, H<sub>2</sub>O, and O<sub>3</sub> in the Middle Atmosphere by the Atmospheric Trace Molecule Spectroscopy Experiment on Spacelab 3,"  
*Journal of Geophysical Research*,  
 Vol. 95, No. D9, pp. 13867–13882, August 20, 1990.
- Haner, D. A. (California State Polytechnic University, Pomona), and I. S. McDermid,**  
 "Stimulated Raman Shifting of the Nd:YAG Fourth Harmonic (266 nm) in H<sub>2</sub>, HD, and D<sub>2</sub>,"  
*IEEE Journal of Quantum Electronics*,  
 Vol. 26, No. 7, pp. 1292–1298, July 1990.
- Hanner, M. S., R. L. Newburn, R. D. Gehrz (University of Minnesota), T. Harrison (University of Minnesota), E. P. Ney (University of Minnesota), and T. L. Hayward (University of Wyoming),**  
 "The Infrared Spectrum of Comet Bradfield (1987s) and the Silicate Emission Feature,"  
*The Astrophysical Journal*,  
 Vol. 348, pp. 312–321, January 1, 1990.
- Hansen, C. J., A. S. McEwen (U.S. Geological Survey, Flagstaff, Arizona), A. P. Ingersoll (California Institute of Technology), and R. J. Terrile,**  
 "Surface and Airborne Evidence for Plumes and Winds on Triton,"  
*Science*,  
 Vol. 250, pp. 421–424, October 19, 1990.
- Hayati, S., T. Lee, K. Tso, P. Backes, and J. Lloyd (McGill University, Montreal, Quebec, Canada),**  
 "A Testbed for a Unified Teleoperated-Autonomous Dual-Arm Robotic System,"  
*Proceedings of the 1990 IEEE International Conference on Robotics and Automation, Cincinnati, Ohio, May 13–18, 1990*,  
 pp. 1090–1095, 1990.
- Hecht, M. H.,**  
 "Photovoltaic Effects in Photoemission Studies of Schottky Barrier Formation,"  
*Journal of Vacuum Science and Technology B*,  
 Vol. 8, No. 4, pp. 1018–1024, July/August 1990.
- Hecht, M. H.,**  
 "Role of Photocurrent in Low-Temperature Photoemission Studies of Schottky-Barrier Formation,"  
*Physical Review B*,  
 Vol. 41, No. 11, pp. 7918–7921, April 15, 1990.
- Hecht, M. H., L. D. Bell, and W. J. Kaiser,**  
 "Ballistic Electron Emission Microscopy,"  
*Proceedings of the XIIth International Congress for Electron Microscopy, Seattle, Washington, August 13–18, 1990*,  
 pp. 613–614, 1990.
- Hecht, M. H., L. D. Bell, W. J. Kaiser, and L. C. Davis (Ford Motor Company Research Staff, Dearborn, Michigan),**  
 "Ballistic-Hole Spectroscopy of Interfaces,"  
*Physical Review B*,  
 Vol. 42, No. 12, pp. 7663–7666, October 15, 1990.
- Helin, E. F., and R. S. Dunbar,**  
 "Search Techniques for Near-Earth Asteroids,"  
*Vistas in Astronomy*,  
 Vol. 33, pp. 21–37, 1990.
- Hinedi, S., and J. I. Statman,**  
 "Digital Accumulators in Phase and Frequency Tracking Loops,"  
*IEEE Transactions on Aerospace and Electronic Systems*,  
 Vol. 26, No. 1, pp. 169–180, January 1990.
- Horn, L. J., J. Hui, A. L. Lane, and J. E. Colwell (University of Colorado),**  
 "Observations of Neptunian Rings by Voyager Photopolarimeter Experiment,"  
*Geophysical Research Letters*,  
 Vol. 17, No. 10, pp. 1745–1748, September 1990.

Huang, J., and Y. Rahmat-Samii,  
"Fan Beam Generated by a Linear-Array Fed  
Parabolic Reflector,"  
*IEEE Transactions on Antennas and Propagation*,  
Vol. 38, No. 7, pp. 1046-1053, July 1990.

Hudson, J. R. (California Institute of Technology),  
and S. J. Ostro,  
"Doppler Radar Imaging of Spherical Planetary  
Surfaces,"  
*Journal of Geophysical Research*,  
Vol. 95, No. B7, pp. 10947-10963, July 10, 1990.

Hunt, B. D., M. C. Foote, and R. P. Vasquez,  
"Electrical Characterization of Chemically  
Modified  $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$  Surfaces,"  
*Applied Physics Letters*,  
Vol. 56, No. 26, pp. 2678-2680, June 25, 1990.

Jackson, H. W., and P. V. Mason,  
"Third Sound Propagation in Thick Films of  
Superfluid  $^4\text{He}$ ,"  
*Physical Review B—Condensed Matter*,  
Vol. 42, No. 13-A, pp. 7825-7854, November 1990.

Jacobson, R. A., S. P. Synnott, and J. K. Campbell,  
"The Orbits of the Satellites of Mars From  
Spacecraft and Earth-Based Observations,"  
*Astronomy and Astrophysics*,  
Vol. 225, pp. 548-554, 1989.

Janik, G. R., J. D. Prestage, and L. Maleki,  
"Simple Analytic Potentials for Linear Ion  
Traps,"  
*Journal of Applied Physics*,  
Vol. 67, No. 10, pp. 6050-6055, May 15, 1990.

Kahn, R.,  
"Ice Haze, Snow, and the Mars Water Cycle,"  
*Journal of Geophysical Research*,  
Vol. 95, No. B9, pp. 14677-14693, August 30, 1990.

Kapahi, V. K., and V. K. Kulkarni (Poona  
University Campus, Pune, India),  
"VLA Observations of Unidentified Leiden-  
Berkeley Deep-Survey Sources: Luminosity and  
Redshift Dependence of Spectral Properties,"  
*The Astronomical Journal*,  
Vol. 99, No. 5, pp. 1397-1413, May 1990.

Khundkar, L. R., A. E. Stiegman, and J. W. Perry,  
"Solvent-Tuned Intramolecular Charge-  
Recombination Rates in a Conjugated Donor-  
Acceptor Molecule,"  
*The Journal of Physical Chemistry*,  
Vol. 94, pp. 1224-1226, 1990.

Kim, J.-H., R. J. Lang, A. Larsson, L. P. Lee  
(TRW Applied Technology Division, Redondo  
Beach, California), and A. A. Narayanan  
(Hughes Research Laboratory, Malibu,  
California),  
"High-Power AlGaAs/GaAs Single Quantum  
Well Surface-Emitting Lasers With Integrated  
45-Degree Beam Deflectors,"  
*Applied Physics Letters*,  
Vol. 57, No. 20, pp. 2048-2050, November 12, 1990.

Krisher, T. P.,  
"New Tests of the Gravitational Redshift  
Effect,"  
*Modern Physics Letter A*,  
Vol. 5, No. 23, pp. 1809-1813, 1990.

Krisher, T. P., J. D. Anderson, and J. K. Campbell,  
"Test of the Gravitational Redshift Effect at  
Saturn,"  
*Physical Review Letters*,  
Vol. 64, No. 12, pp. 1322-1325, March 19, 1990.

Krishnakumar, E., and S. K. Srivastava,  
"Cross Sections for the Production of  $\text{N}^+_2$ ,  $\text{N}^+ +$   
 $\text{N}^{2+}_2$  and  $\text{N}^{2+}$  by Electron Impact on  $\text{N}_2$ ,"  
*Journal of Physics B: Atomic and Molecular  
Optical Physics*,  
Vol. 23, pp. 1893-1903, 1990.

Krishnakumar, E., and S. K. Srivastava,  
"Dissociative Attachment of Electrons to  $\text{N}_2\text{O}$ ,"  
*Physical Review A*,  
Vol. 41, No. 5, pp. 2445-2452, March 1, 1990.

Kwok, R., J. C. Curlander, R. McConnell (Vexcel  
Corporation, Boulder, Colorado), and S. S. Pang,  
"An Ice-Motion Tracking System at the Alaska  
SAR Facility,"  
*IEEE Journal of Oceanic Engineering*,  
Vol. 15, No. 1, pp. 44-54, January 1990.

- Lang, H. R., M. J. Bartholomew, C. I. Grove, and E. D. Paylor,  
 "Spectral Reflectance Characterization (0.4 to 2.5 and 8.0 to 12.0  $\mu\text{m}$ ) of Phanerozoic Strata, Wind River Basin and Southern Bighorn Basin Areas, Wyoming,"  
*Journal of Sedimentary Petrology*,  
 Vol. 60, No. 4, pp. 504–524, July 1990.
- Larsson, A., J. Cody, S. Forouhar, and R. J. Lang,  
 "Highly Efficient Pseudomorphic InGaAs/GaAs/AlGaAs Single Quantum Well Lasers for Monolithic Integration,"  
*Applied Physics Letters*,  
 Vol. 56, No. 18, pp. 1731–1733, April 30, 1990.
- Larsson, A., S. Forouhar, J. Cody, and R. J. Lang,  
 "High-Power Operation of Highly Reliable Narrow Stripe Pseudomorphic Single Quantum Well Lasers Emitting at 980 nm,"  
*IEEE Photonics Technology Letters*,  
 Vol. 2, No. 5, pp. 307–309, May 1990.
- Larsson, A., S. Forouhar, J. Cody, R. J. Lang, and P. A. Andrekson,  
 "A 980 nm Pseudomorphic Single Quantum Well Laser for Pumping Erbium-Doped Optical Fiber Amplifiers,"  
*IEEE Photonics Technology Letters*,  
 Vol. 2, No. 8, pp. 540–542, August 1990.
- Leaver, E. W.,  
 "The Quasinormal Modes of Reissner–Nordstrom Black Holes,"  
*Physical Review D*,  
 Vol. 41, No. 10, pp. 2986–2997, May 15, 1990.
- Lestrade, J.-F., A. E. E. Rogers (Massachusetts Institute of Technology), A. R. Whitney (Massachusetts Institute of Technology), A. E. Niell (Massachusetts Institute of Technology), R. B. Phillips (Massachusetts Institute of Technology), and R. A. Preston,  
 "Phase-Referenced VLBI Observations of Weak Radio Sources. Milliarcsecond Position of Algol,"  
*The Astronomical Journal*,  
 Vol. 99, No. 5, pp. 1663–1673, May 1990.
- Li, F. K., and R. M. Goldstein,  
 "Studies of Multibaseline Spaceborne Interferometric Synthetic Aperture Radars,"  
*IEEE Transactions on Geoscience and Remote Sensing*,  
 Vol. 28, No. 1, pp. 88–97, January 1990.
- Lichten, S. M.,  
 "Towards GPS Orbit Accuracy of Tens of Centimeters,"  
*Geophysical Research Letters*,  
 Vol. 17, No. 3, pp. 215–218, March 1990.
- Liewer, P. C., and D. G. Payne,  
 "Linear Tearing Modes of a Forced Current-Sheet Equilibrium,"  
*The Astrophysical Journal*,  
 Vol. 353, pp. 658–665, April 20, 1990.
- Lin, T. L., and J. M. Iannelli,  
 "Fabrication of IrSi<sub>3</sub>/p-Si Schottky Diodes by a Molecular Beam Epitaxy Technique,"  
*Applied Physics Letters*,  
 Vol. 56, No. 20, pp. 2013–2015, May 14, 1990.
- Lin, T. L., and J. Maserjian,  
 "Novel Si<sub>1-x</sub>Ge<sub>x</sub>/Si Heterojunction Internal Photoemission Long-Wavelength Infrared Detectors,"  
*Applied Physics Letters*,  
 Vol. 57, No. 14, pp. 1422–1424, October 1, 1990.
- Lindal, G. F., J. R. Lyons, D. N. Sweetnam, V. R. Eshleman (Stanford University, California), D. P. Hinson (Stanford University, California), and G. L. Tyler (Stanford University, California),  
 "The Atmosphere of Neptune: Results of Radio Occultation Measurements With the Voyager 2 Spacecraft,"  
*Geophysical Research Letters*,  
 Vol. 17, No. 10, pp. 1733–1736, September 1990.
- Lindqwister, U. J., S. M. Lichten, and G. Blewitt,  
 "Precise Regional Baseline Estimation Using A Priori Orbital Information,"  
*Geophysical Research Letters*,  
 Vol. 17, No. 3, pp. 219–222, March 1990.
- Linfield, R. P., G. S. Levy, C. D. Edwards, J. S. Ulvestad, C. H. Ottenhoff (TRW Space and Technology Group), H. Hirabayashi (Nobeyama Radio Observatory), M. Morimoto (Nobeyama Radio Observatory), M. Inoue (Nobeyama Radio Observatory), D. L. Jauncey (Commonwealth Scientific and Industrial Organization), J. Reynolds (Australian National University), T. Nishimura (Institute for Space and Astronautical Science), T. Hayashi (Institute for Space and Astronautical Science), T. Takano (Institute for Space and Astronautical Science),

T. Yamada (Institute for Space and Astronautical Science), J. W. Barrett (Massachusetts Institute of Technology), S. R. Conner (Massachusetts Institute of Technology), M. B. Heflin (Massachusetts Institute of Technology), J. Lehar (Massachusetts Institute of Technology), B. F. Burke (Massachusetts Institute of Technology), D. H. Roberts (Brandeis University), A. R. Whitney (Haystack Observatory), R. J. Cappallo (Haystack Observatory), A. E. E. Rogers (Haystack Observatory), M. W. Pospieszalski (National Radio Astronomy Observatory), S. J. DiNardo, L. J. Skjerve, L. R. Stavert, and M. J. Maher (Bendix Field Engineering Corporation), "15 GHz Space VLBI Observations Using an Antenna on TDRSS Satellite," *The Astrophysical Journal*, Vol. 358, No. 1, Pt. 1, pp. 350-358, July 20, 1990.

Liu, D. T. H., L.-J. Cheng, T.-H. Chao, and J. W. Yu, "Real-Time Optical Correlator Using Photorefractive GaAs," *Optical Information-Processing Systems and Architectures II*, San Diego, California, July 9-13, 1990, Vol. 1347, pp. 156-168, 1990.

Liu, W. T., "Evaporation Over Global Oceans Derived From Satellite Data and AGCM," *Second Symposium on Global Change Studies*, New Orleans, Louisiana, January 14-18, 1991, pp. 33-36, 1990.

Liu, W. T., and C. Gautier (Scripps Institution of Oceanography, La Jolla, California), "Thermal Forcing on the Tropical Pacific From Satellite Data," *Journal of Geophysical Research*, Vol. 95, No. C8, pp. 13209-13217 and 13579-13580, August 15, 1990.

Liu, W. T., and D. Mock, "The Variability of Atmospheric Equivalent Temperature for Radar Altimeter Range Correction," *Journal of Geophysical Research*, Vol. 95, No. C3, pp. 2933-2938, March 15, 1990.

Liu, W. T., and P. P. Niiler (Scripps Institution of Oceanography, La Jolla, California), "The Sensitivity of Latent Heat Flux to the Air Humidity Approximations Used in Ocean General Circulation Models," *Journal of Geophysical Research*, Vol. 95, No. C6, pp. 9745-9753, June 15, 1990.

Long, D. G., and J. M. Mendel (University of Southern California, Los Angeles), "Model-Based Estimation of Wind Fields Over the Ocean From Wind Scatterometer Measurements, Part I: Development of the Wind Field Model," *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 28, No. 3, pp. 349-360, May 1990.

Lopes, R. M. C., and C. R. J. Kilburn (Osservatorio Vesuviano, Naples, Italy), "Emplacement of Lava Flow Fields: Application of Terrestrial Studies to Alba Patera, Mars," *Journal of Geophysical Research*, Vol. 95, No. B9, pp. 14383-14397, August 30, 1990.

Lundgren, P. R., and D. Giardini (Istituto Nazionale di Geofisica, Rome, Italy), "Lateral Structure of the Subducting Pacific Plate Beneath the Hokkaido Corner From Intermediate and Deep Earthquakes," *Pageoph*, Vol. 134, No. 3, pp. 385-404, 1990.

Mack, C. B. (University of Arizona, Tucson), O. A. Chadwick, and H. Eswaran (USDA-SCS, Soil Management Support Service, Washington, DC), "Classification, Properties, and Management of Aridisols," *Journal of Agronomic Education*, Vol. 19, No. 1, pp. 64-65, 1990.

Maleki, L., B. J. Blasenheimer, and G. R. Janik, "The Influence of Hg( $6^3P_2$ ) Population on Emission Processes in a Low-Pressure Mercury-Argon Discharge," *Journal of Applied Physics*, Vol. 68, No. 6, pp. 2661-2666, September 15, 1990.

- Manhart, P. K.,**  
 "Cophasing Segmented Mirrors With Large Surface Errors Using Physical and Geometrical Ray-Based Techniques,"  
*Adaptive Optics and Optical Structures, The Hague, The Netherlands, March 12-14, 1990,*  
 Vol. 1271, pp. 99-107, 1990.
- Marder, S. R., J. W. Perry, W. P. Schaefer (California Institute of Technology), B. G. Tiemann, P. C. Groves (California Institute of Technology), and K. J. Perry,**  
 "New Organic and Organometallic Salts for Second-Order Nonlinear Optics,"  
*Nonlinear Optical Properties of Organic Materials II, San Diego, California, August 10-11, 1989,*  
 Vol. 1147, pp. 108-115, 1990.
- Margolis, J. S.,**  
 "Empirical Values of the Ground State Energies for Methane Transitions Between 5500 and 6150  $\text{cm}^{-1}$ ,"  
*Applied Optics,*  
 Vol. 29, No. 15, pp. 2295-2302, May 20, 1990.
- Maserjian, J., F. J. Grunthaler, and C. T. Elliott (Royal Signals and Radar Establishment, Great Malvern, United Kingdom),**  
 "LWIR Detector Arrays Based on Nipi Superlattices,"  
*Infrared Physics,*  
 Vol. 30, No. 1, pp. 27-32, 1990.
- May, R. D., and C. R. Webster,**  
 "Balloon-Borne Laser Spectrometer Measurements of  $\text{NO}_2$  With Gas Absorption Sensitivities Below  $10^{-5}$ ,"  
*Applied Optics,*  
 Vol. 29, No. 34, pp. 5042-5045, December 1, 1990.
- May, R. D., and C. R. Webster,**  
 "Laboratory Measurements of  $\text{NO}_2$  Line Parameters Near  $1600 \text{ cm}^{-1}$  for the Interpretation of Stratospheric Spectra,"  
*Geophysical Research Letters,*  
 Vol. 17, No. 12, pp. 2157-2160, November 1990.
- McDermid, I. S., S. M. Godin, and L. O. Lindqvist (Santa Fe Energy Research Corporation, New Mexico),**  
 "Ground-Based Laser DIAL System for Long-Term Measurements of Stratospheric Ozone,"  
*Applied Optics,*  
 Vol. 29, No. 25, pp. 3603-3612, September 1, 1990.
- McDermid, I. S., S. M. Godin, and T. D. Walsh,**  
 "Lidar Measurements of Stratospheric Ozone and Inter-Comparisons and Validation,"  
*Applied Optics,*  
 Vol. 29, No. 33, pp. 4914-4923, November 20, 1990.
- McDermid, I. S., S. M. Godin, L. O. Lindqvist (Santa Fe Energy Research Corporation, New Mexico), T. D. Walsh, J. Burris (NASA Goddard Space Flight Center), J. Butler (ST Systems Corporation, Lanham, Maryland), R. Ferrare (NASA Goddard Space Flight Center), D. Whiteman (NASA Goddard Space Flight Center), and T. J. McGee (NASA Goddard Space Flight Center),**  
 "Measurement Intercomparison of the JPL and GSFC Stratospheric Ozone Lidar Systems,"  
*Applied Optics,*  
 Vol. 29, No. 31, pp. 4671-4676, November 1, 1990.
- McDermid, I. S., S. M. Godin, P.-H. Wang (Science and Technology Corporation, Hampton, Virginia), and M. P. McCormick (NASA Langley Research Center),**  
 "Comparison of Stratospheric Ozone Profiles and Their Seasonal Variations as Measured by Lidar and Stratospheric Aerosol and Gas Experiment During 1988,"  
*Journal of Geophysical Research,*  
 Vol. 95, No. D5, pp. 5605-5612, April 20, 1990.
- McDermid, I. S., S. M. Godin, R. A. Barnes (Chemal, Inc., Wallops Island, Virginia), C. L. Parsons (NASA Goddard Space Flight Center), A. Torres (NASA Goddard Space Flight Center), M. P. McCormick (NASA Langley Research Center), W. P. Chu (NASA Langley Research Center), P. Wang (Science and Technology Corporation, Hampton, Virginia), J. Butler (ST Systems, Inc., Lanham, Maryland), P. Newman (NASA Goddard Space Flight Center), J. Burris (NASA Goddard Space Flight Center), R. Ferrare (NASA Goddard Space Flight Center), D. Whiteman (NASA Goddard Space Flight Center), and T. J. McGee (NASA Goddard Space Flight Center),**

"Comparison of Ozone Profiles From Ground-Based Lidar, Electrochemical Concentration Cell Balloon Sonde, ROCOZ-A Rocket Ozone Sonde, and Stratospheric Aerosol and Gas Experiment Satellite Measurements,"

*Journal of Geophysical Research*,  
Vol. 95, No. D7, pp. 10037-10042, June 20, 1990.

Metzger, A. E., and D. M. Drake (Los Alamos National Laboratory, New Mexico),  
"Identification of Lunar Rock Types and Search for Polar Ice by Gamma Ray Spectroscopy,"

*Journal of Geophysical Research*,  
Vol. 95, No. B1, pp. 449-460, January 10, 1990.

Metzger, A. E., and E. L. Haines (Sunrise Research, Inc., Eugene, Oregon),  
"Atmospheric Measurements at Mars via Gamma Ray Spectroscopy,"

*Journal of Geophysical Research*,  
Vol. 95, No. B9, pp. 14695-14715, August 30, 1990.

Milder, S. J. (University of California, Santa Cruz), M. P. Castellani (University of Oregon, Eugene), T. J. R. Weakley (University of Oregon, Eugene), D. R. Tyler (University of Oregon, Eugene), V. M. Miskowski, and A. E. Stiegman,  
"Photophysical Behavior of Doubly Bridged  $d^7 - d^7$  Metal-Metal Bonded Compounds: The Crystal Structure and the Excited- and Ground-State Electronic Spectra of  $\text{Re}_2(\text{CO})_6(\text{dmpm})_2$  [dmpm = Bis dimethylphosphinomethane] of  $\text{Re}_2(\text{CO})_6 \dots$ ,"

*The Journal of Physical Chemistry*,  
Vol. 94, No. 17, pp. 6599-6603, 1990.

Molina, M. J. (Massachusetts Institute of Technology), A. J. Colussi, L. T. Molina (Massachusetts Institute of Technology), R. N. Schindler (Institut für Physikalische Chemie der Christian-Albrechts-Universität zu Kiel, Federal Republic of Germany), and T.-L. Tso (Tsing Hua National University, Taiwan),

"Quantum Yield of Chlorine-Atom Formation in the Photodissociation of Chlorine Peroxide ( $\text{ClOOCl}$ ) at 308 nm,"

*Chemical Physics Letters*,  
Vol. 173, No. 4, pp. 310-315, October 12, 1990.

Moore, S. B., L. F. Keyser, M.-T. Leu, R. P. Turco (University of California, Los Angeles), and R. H. Smith,

"Heterogeneous Reactions on Nitric Acid Trihydrate,"

*Nature*,  
Vol. 345, No. 6273, pp. 333-335, May 24, 1990.

Nagasubramanian, G., and S. Di Stefano,  
"12-Crown-4 Ether-Assisted Enhancement of Ionic Conductivity and Interfacial Kinetics in Polyethylene Oxide Electrolytes,"

*Journal of the Electrochemical Society*,  
Vol. 137, No. 12, pp. 3830-3835, December 1990.

Nelson, R. M., B. J. Buratti, B. D. Wallis, W. D. Smythe, L. J. Horn, A. L. Lane, M. J. Mayo, and K. E. Simmons (University of Colorado),  
"Spectral Geometric Albedo and Bolometric Bond Albedo of Neptune's Satellite Triton From Voyager Observations,"

*Geophysical Research Letters*,  
Vol. 17, No. 10, pp. 1761-1764, September 1990.

Nelson, R. M., W. D. Smythe, B. D. Wallis, L. J. Horn, A. L. Lane, and M. J. Mayo,  
"Temperature and Thermal Emissivity of the Surface of Neptune's Satellite Triton,"

*Science*,  
Vol. 250, pp. 429-431, October 19, 1990.

Nelson, R. M., W. D. Smythe, B. W. Hapke (University of Pittsburgh, Pennsylvania), and A. J. Cohen (University of Pittsburgh, Pennsylvania),

"On the Effect of X-Rays on the Color of Elemental Sulfur: Implications for Jupiter's Satellite Io,"

*Icarus*,  
Vol. 85, pp. 326-334, 1990.

Neugebauer, M., A. J. Coates (University College London, Surrey, United Kingdom), and F. M. Neubauer (Universität Köln, Cologne, Federal Republic of Germany),

"Comparison of Picked-Up Protons and Water Group Ions Upstream of Comet Halley's Bow Shock,"

*Journal of Geophysical Research*,  
Vol. 95, No. A11, pp. 18745-18753, November 1, 1990.



O'Connor, D. B. (University of California, Riverside), G. W. Scott (University of California, Riverside), D. R. Coulter, V. M. Miskowski, and A. Yavrouian, "Photophysics of Poly (2,3,4,5,6,-Pentafluorostyrene) Film," *The Journal of Physical Chemistry*, Vol. 94, No. 16, pp. 6495-6503, 1990.

O'Neil, W. J., "Project Galileo," *AIAA Space Programs and Technologies Conference*, Huntsville, Alabama, September 25-28, 1990, pp. 1-13, 1990.

Onuchic, J. N. (Universidade de Sao Paulo, Brazil), and D. N. Beratan, "A Predictive Theoretical Model for Electron Tunneling Pathways in Proteins," *Journal of Chemical Physics*, Vol. 92, No. 1, pp. 722-733, January 1, 1990.

Orient, O. J., A. Chutjian, and E. Murad (Geophysics Laboratory, Hanscom Air Force Base, Massachusetts), "Recombination Reactions of 5-eV O(<sup>3</sup>P) Atoms on a MgF<sub>2</sub> Surface," *Physical Review A*, Vol. 41, No. 7, pp. 4106-4108, April 1, 1990.

Orient, O. J., A. Chutjian, and E. Murad (Hanscom Air Force Base, Massachusetts), "Reaction and Electronic Excitation in Crossed-Beams Collision of Low-Energy O(<sup>3</sup>P) Atoms With H<sub>2</sub>O and CO<sub>2</sub>," *Physical Review Letters*, Vol. 65, No. 19, pp. 2359-2361, November 5, 1990.

Ostro, S. J., and E. M. Shoemaker (U.S. Geological Survey, Flagstaff, Arizona), "The Extraordinary Radar Echoes From Europa, Ganymede, and Callisto: A Geological Perspective," *Icarus*, Vol. 85, pp. 335-345, 1990.

Ostro, S. J., D. B. Campbell (Cornell University, Ithaca, New York), A. A. Hine (National Astronomy and Ionosphere Center, Arecibo, Puerto Rico), I. I. Shapiro (Harvard-Smithsonian Center for Astrophysics, Cambridge, Massachusetts), J. F. Chandler (Harvard-Smithsonian Center for Astrophysics, Cambridge, Massachusetts), C. L. Werner, and K. D. Rosema, "Radar Images of Asteroid 1627 Ivar," *The Astronomical Journal*, Vol. 99, No. 6, pp. 2012-2018, June 1990.

Ostro, S. J., J. F. Chandler (Harvard-Smithsonian Center for Astrophysics, Cambridge, Massachusetts), A. A. Hine (National Astronomy and Ionosphere Center, Arecibo, Puerto Rico), K. D. Rosema, I. I. Shapiro (Harvard-Smithsonian Center for Astrophysics, Cambridge, Massachusetts), and D. K. Yeomans, "Radar Images of Asteroid 1989 PB," *Science*, Vol. 248, pp. 1523-1528, June 22, 1990.

Ostro, S. J., K. D. Rosema, and R. F. Jurgens, "The Shape of Eros," *Icarus*, Vol. 84, pp. 334-351, 1990.

Perigaud, C., "Sea Level Oscillations Observed With Geosat Along the Two Shear Fronts of the Pacific North Equatorial Countercurrent," *Journal of Geophysical Research*, Vol. 95, No. C5, pp. 7239-7248, May 15, 1990.

Plescia, J. B., "Geologic Exploration of Mars," *AIAA Space Programs and Technologies Conference*, Huntsville, Alabama, September 25-28, 1990, 1990.

Posner, E. C., L. L. Rauch and B. D. Madsen, "Voyager Mission Telecommunication Firsts," *IEEE Communications Magazine*, Vol. 28, No. 9, pp. 22-27, September 1990.

Prestage, J. D., G. R. Janik, G. J. Dick, and L. Maleki, "Linear Ion Trap for Second-Order Doppler Shift Reduction in Frequency Standard Applications," *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, Vol. 37, No. 6, pp. 535-542, November 1990.

Ramesham, R., S. Thakoor, T. Daud, and A. P. Thakoor,  
"Solid-State Reprogrammable Analog Resistive Devices for Electronic Neural Networks,"  
*Journal of the Electrochemical Society*,  
Vol. 137, No. 6, pp. 1935-1939, June 1990.

Ratnakumar, B. V., S. Di Stefano, and G. Halpert,  
"Electrochemistry of Metal Chloride Cathodes in Sodium Batteries,"  
*Journal of the Electrochemical Society*,  
Vol. 137, No. 10, pp. 2991-2997, October 1990.

Rees, D., and I. S. McDermid,  
"Doppler Lidar Atmospheric Wind Sensor: Re-evaluation of a 355-nm Incoherent Doppler Lidar,"  
*Applied Optics*,  
Vol. 29, No. 28, pp. 4133-4144, October 1, 1990.

Rhim, W.-K., and S. K. Chung,  
"Isolation of Crystallizing Droplets by Electrostatic Levitation,"  
*Methods: A Companion to Methods in Enzymology*,  
Vol. 1, No. 1, pp. 118-127, August 1990.

Riedel, J. E., W. M. Owen, Jr., J. A. Stuve, S. P. Synnott, and R. M. Vaughan (California Institute of Technology),  
"Optical Navigation During the Voyager Neptune Encounter,"  
*AIAA/AAS Astrodynamics Conference, Portland, Oregon, August 20-22, 1990*,  
pp. 118-128, 1990.

Rockey, D. E.,  
"High Resolution Imaging Spectrometer (HIRIS)—A Major Advance in Imaging Spectrometry,"  
*Imaging Spectroscopy of the Terrestrial Environment*,  
Orlando, Florida, February 16-17, 1990,  
Vol. 1298, pp. 93-104, 1990.

Rudnick, J. (University of California, Los Angeles), and M. Barnatz,  
"Oscillational Instabilities in Single-Mode Acoustic Levitators,"  
*The Journal of the Acoustical Society of America*,  
Vol. 87, No. 1, pp. 81-92, January 1990.

Saunders, R. S., A. R. Dobrovolskis (Arizona State University, Tempe), R. Greeley (Arizona State University, Tempe), and S. D. Wall,  
"Large-Scale Patterns of Eolian Sediment Transport on Venus: Predictions for Magellan,"  
*Geophysical Research Letters*,  
Vol. 17, No. 9, pp. 1365-1368, August 1990.

Saunders, R. S., G. H. Pettengill (Massachusetts Institute of Technology), R. E. Arvidson (Washington University, St. Louis, Missouri), W. L. Sjogren, W. T. K. Johnson, and L. Pieri,  
"The Magellan Venus Radar Mapping Mission,"  
*Journal of Geophysical Research*,  
Vol. 95, No. B6, pp. 8339-8355, June 10, 1990.

Scholl, M. S., and G. N. Lawrence (University of Arizona, Tucson),  
"Diffraction Modeling of a Space Relay Experiment,"  
*Optical Engineering*,  
Vol. 29, No. 3, pp. 271-278, March 1990.

Schwartz, J. A.,  
"Laser Ranging Error Budget for the TOPEX/POSEIDON Satellite,"  
*Applied Optics*,  
Vol. 29, No. 25, pp. 3590-3596, September 1, 1990.

Schwartz, J. A.,  
"Pulse Spreading and Range Correction Analysis for Satellite Laser Ranging,"  
*Applied Optics*,  
Vol. 29, No. 25, pp. 3597-3602, September 1, 1990.

Sekanina, Z.,  
"Gas and Dust Emission From Comets and Life Spans of Active Areas on Their Rotating Nuclei,"  
*The Astronomical Journal*,  
Vol. 100, No. 4, pp. 1293-1314, October 1990.

Sekanina, Z.,  
"Periodic Comet Machholz and Its Idiosyncrasies,"  
*The Astronomical Journal*,  
Vol. 99, No. 4, pp. 1268-1278, April 1990.

Seraji, H., and R. Colbaugh (New Mexico State University, Las Cruces),  
"Improved Configuration Control for Redundant Robots,"  
*Journal of Robotic Systems*,  
Vol. 7, No. 6, pp. 897-928, 1990.

Seraji, H., T. Lee, and M. Delpech (Centre National d'Etudes Spatiales, Toulouse, France), "Experimental Study on Direct Adaptive Control of a PUMA 560 Industrial Robot," *Journal of Robotic Systems*, Vol. 7, No. 1, pp. 81-105, 1990.

Shahid-Saless, B., "Curvature-Squared Cosmology in the First-Order Formalism," *Journal of Mathematical Physics*, Vol. 31, No. 10, pp. 2429-2433, October 1990.

Shahid-Saless, B., "Local Gravitomagnetism," *General Relativity and Gravitation*, Vol. 22, No. 10, pp. 1147-1156, 1990.

Shakkottai, P., E. Y. Kwack, and D. Lawson, "Lignin Analyzer Based on Pyrolysis-Mass Spectrometry of Pulp in Hydrogen or Helium," *Review of Scientific Instruments*, Vol. 61, No. 7, pp. 1958-1965, July 1990.

Shakkottai, P., E. Y. Kwack, and L. H. Back, "Acoustic Measurements of Gas Density," *Review of Scientific Instruments*, Vol. 61, No. 5, pp. 1518-1521, May 1990.

Shakkottai, P., E. Y. Kwack, and L. H. Back, "Tone Generation by Aeroacoustic Sources in Pipes With Flow," *Journal of Acoustical Society of America*, Vol. 87, No. 4, pp. 1489-1496, April 1990.

Shing, Y. H., and F. S. Pool, "Electron Cyclotron Resonance Deposition of Diamond-Like Films," *Vacuum*, Vol. 41, Nos. 4-6, pp. 1368-1370, 1990.

Shiozaki, A. (Osaka Electro-Communication University, Osaka, Japan), T. K. Truong, K. M. Cheung, and I. S. Reed (University of Southern California, Los Angeles), "Fast Transform Decoding of Nonsystematic Reed-Solomon Codes," *IEEE Proceedings*, Vol. 137, No. 2, Pt. E, pp. 139-143, March 1990.

Sinha, M. P., "Characterization of Individual Particles in Gaseous Media by Mass Spectrometry," *Particles in Gases and Liquids 2*, pp. 197-209, 1990.

Sjogren, W. L., G. B. Trager (Sterling IMD, Inc.), and G. R. Roldan (Bendix Field Engineering Corporation), "Venus: A Total Mass Estimate," *Geophysical Research Letters*, Vol. 17, No. 10, pp. 1485-1488, September 1990.

Skinner, D. L., L. E. Bass, D. V. Byrnes, J. T. Cheng, J. E. Fordyce, P. C. Knocke, D. T. Lyons, J. L. Pojman, D. S. Stetson, and A. A. Wolf, "Mission Design Applications of QUICK," *AIAA/AAS Astrodynamics Conference, Portland, Oregon, August 20-22, 1990*, pp. 950-984, 1990.

Slade, M. A., S. Zohar, and R. F. Jurgens, "Venus: Improved Spin Vector From Goldstone Radar Observations," *The Astronomical Journal*, Vol. 100, No. 4, pp. 1369-1401, October 1990.

Smith, E. J., "The Heliospheric Current Sheet and Modulation of Galactic Cosmic Rays," *Journal of Geophysical Research*, Vol. 95, No. A11, pp. 18731-18743, November 1, 1990.

Smith, R. H., "Formation of Nitric Acid Hydrates—A Chemical Equilibrium Approach," *Geophysical Research Letters*, Vol. 17, No. 9, pp. 1291-1294, August 1990.

Spence, W. (U.S. Geological Survey, Denver, Colorado), and R. S. Gross, "A Tomographic Glimpse of the Upper Mantle Source of Magmas of the Jemez Lineament, New Mexico," *Journal of Geophysical Research*, Vol. 95, No. B7, pp. 10829-10849, July 10, 1990.

Standish, Jr., E. M., "An Approximation to the Outer Planet Ephemeris Errors in JPL's DE200," *Astronomy and Astrophysics*, Vol. 233, pp. 272-274, 1990.

Standish, Jr., E. M., "The Observational Basis for JPL's DE 200, the Planetary Ephemerides of the Astronomical Almanac," *Astronomy and Astrophysics*, Vol. 233, pp. 252-271, 1990.

**Stofan, E. R. and R. S. Saunders,**  
"Geologic Evidence of Hotspot Activity on Venus:  
Predictions for Magellan,"  
*Geophysical Research Letters*,  
Vol. 17, No. 9, pp. 1377-1380, August 1990.

**Strayer, D. M., J. J. Bautista, A. L. Riley and  
G. J. Dick,**  
"Microwave Applications and Characterization  
of the Microwave Properties of High  
Temperature Superconducting Films,"  
*Superconductivity Applications for Infrared and  
Microwave Devices*,  
Orlando, Florida, April 19-20, 1990,  
Vol. 1292, pp. 54-70, 1990.

**Thakoor, S., A. Moopenn, T. Daud, and  
A. P. Thakoor,**  
"Solid-State Thin-Film Memistor for Electronic  
Neural Networks,"  
*Journal of Applied Physics*,  
Vol. 67, No. 6, pp. 3132-3135, March 15, 1990.

**Toon, G. C., and C. B. Farmer,**  
"Detection of HOCL in the Antarctic  
Stratosphere,"  
*Geophysical Research Letters*,  
Vol. 16, No. 12, pp. 1375-1377, December 1989.

**Tran, A. V., and D. J. Collins,**  
"The Incident Solar Irradiance at the Sea  
Surface,"  
*Ocean Optics X*,  
Orlando, Florida, April 16-18, 1990,  
Vol. 1302, pp. 443-453, 1990.

**Trinh, E. H.,**  
"Fluid Dynamics and Solidification of Levitated  
Drops and Shells,"  
*Progress in Astronautics and Aeronautics*,  
Vol. 130, pp. 515-536, 1990.

**Tsurutani, B. T.,**  
"Cometary Plasma Waves and Instabilities,"  
*Comets in the Post-Halley Era*,  
Vol. 2, pp. 1171-1210, 1990.

**Tsurutani, B. T., and W. D. Gonzalez (Instituto de  
Pesquisas Espaciais, Sao Paulo, Brazil),**  
"Reply,"  
*Journal of Geophysical Research*,  
Vol. 95, No. A8, pp. 12305-12306, August 1, 1990.

**Tsurutani, B. T., B. E. Goldstein, E. J. Smith,  
W. D. Gonzalez (Instituto Nacional de Pesquisas  
Espaciais, Brazil), F. Tang (California Institute  
of Technology, Pasadena), S. I. Akasofu  
(University of Alaska, Fairbanks), and  
R. R. Anderson (University of Iowa, Iowa City),**  
"The Interplanetary and Solar Causes of  
Geomagnetic Activity,"  
*Planetary Space Science*,  
Vol. 38, No. 1, pp. 109-126, 1990.

**Tsurutani, B. T., E. J. Smith, H. Matsumoto (Kyoto  
University, Uji, Japan), A. L. Brinca (Centro de  
Electrodinamica, Lisboa Codex, Portugal), and  
N. Omid (University of California, San Diego),**  
"Highly Nonlinear Magnetic Pulses at Comet  
Giacobini-Zinner,"  
*Geophysical Research Letters*,  
Vol. 17, No. 6, pp. 757-760, May 1990.

**Tsurutani, B. T., M. Sugiura (Kyoto University,  
Japan), T. Iyemori (Kyoto University, Japan),  
B. E. Goldstein, W. D. Gonzalez (National  
Institute of Space Research, Sao Paulo, Brazil),  
S. I. Akasofu (University of Alaska, Fairbanks),  
and E. J. Smith,**  
"The Nonlinear Response of AE to the IMF  $B_z$ : A  
Spectral Break at 5 Hours,"  
*Geophysical Research Letters*,  
Vol. 17, No. 3, pp. 279-282, March 1990.

**Underwood, I. M., N. J. Bachman, W. L. Taber,  
T.-C. Wang, and C. H. Acton,**  
"The Near Real Time Image Navigation of  
Pictures Returned by Voyager 2 at Neptune,"  
*AIAA/AAS Astrodynamics Conference*,  
Portland, Oregon, August 20-22, 1990,  
pp. 150-156, 1990.

**van Zyl, J. J.,**  
"Calibration of Polarimetric Radar Images Using  
Only Image Parameters and Trihedral Corner  
Reflector Responses,"  
*IEEE Transactions on Geoscience and Remote  
Sensing*,  
Vol. 28, No. 3, pp. 337-348, May 1990.

**Varsi, G.,**  
"Telerobotics for the Efficient Utilisation of  
Space,"  
*Journal of the British Interplanetary Society*,  
Vol. 43, pp. 273-280, 1990.

Vasquez, R. P.,  
"XPS Core Level Spectra of Some Y Compounds,"  
*Journal of Electron Spectroscopy and Related Phenomena*,  
Vol. 50, pp. 167-170, 1990.

Vasquez, R. P., and R. M. Housley (Rockwell International Science Center, Thousand Oaks, California),  
"Chemical Removal of Contaminants From Thin Film  $\text{Bi}_4\text{Sr}_3\text{Ca}_3\text{Cu}_4\text{O}_{16+x}$  Surfaces,"  
*Journal of Applied Physics*,  
Vol. 67, No. 11, pp. 7141-7144, June 1, 1990.

Vasquez, R. P., B. D. Hunt, and M. C. Foote,  
"Wet Chemical Passivation of  $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ ,"  
*Journal of the Electrochemical Society*,  
Vol. 137, No. 7, pp. 2344-2350, July 1990.

Vazquez, J., V. Zlotnicki, and L. L. Fu,  
"Sea Level Variabilities in the Gulf Stream Between Cape Hatteras and 50 degrees W: A Geosat Study,"  
*Journal of Geophysical Research*,  
Vol. 95, No. C10, pp. 17957-17964, October 15, 1990.

Veruttipong, T. W.,  
"Time Domain Version of the Uniform GTD,"  
*IEEE Transactions on Antennas and Propagation*,  
Vol. 38, No. 11, pp. 1757-1764, November 1990.

Wada, B. K.,  
"Adaptive Structures: An Overview,"  
*Journal of Spacecraft and Rockets*,  
Vol. 27, No. 3, pp. 330-337, May-June 1990.

Walton, A. L., and D. C. Hall,  
"Solar Power,"  
*Contemporary Policy Issues*,  
Vol. 8, No. 3, pp. 240-254, July 1990.

Wannier, P. G., R. Sahai (University of Gothenburg, Sweden), B.-G. Andersson (University of Gothenburg, Sweden), and H. R. Johnson (Indiana University),  
"Mass Loss From Red Giant Stars: II. Carbon Stars,"  
*The Astrophysical Journal*,  
Vol. 358, pp. 251-261, July 20, 1990.

Way, J., J. Paris, E. Kasischke (Environmental Research Institute of Michigan, Ann Arbor), C. Slaughter (Institute of Northern Forestry, Fairbanks, Alaska), L. Viereck (Institute of Northern Forestry, Fairbanks, Alaska), N. Christensen (Duke University, Durham, North Carolina), M. C. Dobson (University of Michigan, Ann Arbor), F. Ulaby (University of Michigan, Ann Arbor), J. Richards (University of New South Wales, Kensington, Australia), A. Milne (University of New South Wales, Kensington, Australia), A. Sieber (Joint Research Centre Ispra Establishment, Varese, Italy), F. J. Ahern (Canada Centre for Remote Sensing, Ottawa), D. Simonett (University of California, Santa Barbara), R. Hoffer (Colorado State University, Fort Collins), M. Imhoff (Stanford University, California), and J. Weber (Environmental Research Laboratory, Corvallis, Oregon),  
"The Effect of Changing Environmental Conditions on Microwave Signatures of Forest Ecosystems: Preliminary Results of the March 1988 Alaskan Aircraft SAR Experiment,"  
*International Journal of Remote Sensing*,  
Vol. 11, No. 7, pp. 1119-1144, 1990.

Webster, C. R., R. D. May, R. Toumi (University of Cambridge, England), and J. A. Pyle (University of Cambridge, England),  
"Active Nitrogen Partitioning and the Nighttime Formation of  $\text{N}_2\text{O}_5$  in the Stratosphere: Simultaneous In-Situ Measurements of  $\text{NO}$ ,  $\text{NO}_2$ ,  $\text{HNO}_3$ ,  $\text{O}_3$ , and  $\text{N}_2\text{O}$  Using the BLISS Diode Laser Spectrometer,"  
*Journal of Geophysical Research*,  
Vol. 95, No. D9, pp. 13851-13866, August 20, 1990.

Webster, C. R., S. P. Sander, R. Beer, R. D. May, R. G. Knollenberg (Particle Measuring Systems, Boulder, Colorado), D. M. Hunten (University of Arizona, Tucson), and J. Ballard (Rutherford Appleton Laboratory, Didcot, United Kingdom),  
"Tunable Diode Laser Infrared Spectrometer for In Situ Measurements of the Gas Phase Composition and Particle Size Distribution of Titan's Atmosphere,"  
*Applied Optics*,  
Vol. 29, No. 7, pp. 907-917, March 1, 1990.

Weissman, P. R.,  
"The Oort Cloud,"  
*Nature*,  
Vol. 344, No. 6269, pp. 825-830, April 26, 1990.

Weissman, P., and J. Wasson (University of California, Los Angeles),  
"Naked Stars and Hot Meteorites,"  
*Nature*,  
Vol. 345, No. 6272, pp. 208–209, May 17, 1990.

West, R., D. Crisp, and L. Chen,  
"Mapping Transformations for Broadband Atmospheric Radiation Calculations,"  
*Journal of Quantitative Spectroscopy Radiative Transfer*,  
Vol. 43, No. 3, pp. 191–199, 1990.

Williams, R. M., B. Jeffries–Nakamura, M. L. Underwood, C. P. Bankston, and J. T. Kummer,  
"Kinetics and Transport at AMTEC Electrodes II. Temperature Dependence of the Interfacial Impedance of Na(g)/Porous Mo/Na-Beta Alumina,"  
*Journal of the Electrochemical Society*,  
Vol. 137, No. 6, pp. 1716–1723, June 1990.

Williams, R. M., M. E. Loveland, B. Jeffries–Nakamura, M. L. Underwood, C. P. Bankston, H. Leduc, and J. T. Kummer,  
"Kinetics and Transport at AMTEC Electrodes I. The Interfacial Impedance Model,"  
*Journal of the Electrochemical Society*,  
Vol. 137, No. 6, pp. 1709–1716, June 1990.

Williamson, III, R. S. (California Institute of Technology), and D. L. Jones,  
"Numerical Simulation of Solar Wind Density Fluctuations and Their Effects on VLF Radio Interferometry,"  
*Radio Science*,  
Vol. 25, No. 5, pp. 743–755, September–October 1990.

Wolf, S. K., T. H. Dixon, and J. T. Freymueller (University of South Carolina),  
"The Effect of Tracking Network Configuration on GPS Baseline Estimates for the CASA Uno Experiment,"  
*Geophysical Research Letters*,  
Vol. 17, No. 5, pp. 647–650, April 1990.

Wolff, P. J., S. N. Mohan, F. M. Stienon, and G. J. Bierman,  
"Computation of the Factorized Error Covariance of the Difference Between Correlated Estimators,"  
*IEEE Transactions on Automatic Control*,  
Vol. 35, No. 12, pp. 1284–1292, December 1990.

Yunck, T. P., S.–C. Wu, J.–T. Wu, and C. L. Thornton,  
"Precise Tracking of Remote Sensing Satellites With the Global Positioning System,"  
*IEEE Transactions on Geoscience and Remote Sensing*,  
Vol. 28, No. 1, pp. 108–116, January 1990.

Zak, M.,  
"Weakly Connected Neural Nets,"  
*Applied Mathematics Letters*,  
Vol. 3, No. 3, pp. 131–135, 1989.

Zander, R. (University of Liege, Belgium), M. R. Gunson, J. C. Foster, C. P. Rinsland (NASA Langley Research Center), and J. Namkung (ST Systems Corporation, Hampton, Virginia),  
"Stratospheric ClONO<sub>2</sub>, HCl, and HF Concentration Profiles Derived From Atmospheric Trace Molecule Spectroscopy Experiment Spacelab 3 Observations: An Update,"  
*Journal of Geophysical Research*,  
Vol. 95, No. D12, pp. 20519–20525, November 20, 1990.

Zebker, H. A., and Y. Lou,  
"Phase Calibration of Imaging Radar Polarimeter Stokes Matrices,"  
*IEEE Transactions on Geoscience and Remote Sensing*,  
Vol. 28, No. 2, pp. 246–252, March 1990.

Zetner, P. W., S. Trajmar, and G. Csanak (Los Alamos National Laboratory, New Mexico),  
"Influence of a Finite Scattering Volume on the Determination of Electron-Impact Coherence Parameters,"  
*Physical Review A*,  
Vol. 41, No. 11, pp. 5980–5999, June 1, 1990.

## Open Literature, 1991

Abrams, M., E. Abbott, and A. Kahle,  
"Combined Use of Visible, Reflected Infrared,  
and Thermal Infrared Images for Mapping  
Hawaiian Lava Flows,"  
*Journal of Geophysical Research*,  
Vol. 96, No. B1, pp. 475-484, January 10, 1991.

Abrams, M., L. Glaze, and M. Sheridan  
(SUNY Buffalo, New York),  
"Monitoring Colima Volcano, Mexico, Using  
Satellite Data,"  
*Bulletin of Volcanology*,  
Vol. 53, pp. 571-574, 1991.

Alajajian, S. H., K.-F. Man, and A. Chutjian,  
"Electron Attachment Line Shapes, Cross Sections  
and Rate Constants at Ultralow Energies in  
 $\text{CF}_3\text{SO}_3\text{H}$ ,  $(\text{CF}_3\text{SO}_2)_2\text{O}$ , and  $\text{CF}_3\text{I}$ ,"  
*Journal of Chemical Physics*,  
Vol. 94, No. 5, pp. 3629-3632, March 1, 1991.

Albee, A. L., and F. D. Palluconi,  
"Mars Observer: The Next Mars Mission,"  
*Journal of Spacecraft and Rockets*,  
Vol. 28, No. 5, pp. 498-500, September-October  
1991.

Allen, M., and M. L. Delitsky,  
"A Test of Odd-Oxygen Photochemistry Using  
Spacelab 3 Atmospheric Trace Molecule  
Spectroscopy Observations,"  
*Journal of Geophysical Research*,  
Vol. 96, No. D7, pp. 12883-12891, July 20, 1991.

Allen, M., and M. L. Delitsky,  
"Inferring the Abundances of ClO and HO<sub>2</sub> From  
Spacelab 3 Atmospheric Trace Molecule  
Spectroscopy Observations,"  
*Journal of Geophysical Research*,  
Vol. 96, No. D2, pp. 2913-2919, February 20, 1991.

Andersson, B.-G., P. G. Wannier, and M. Morris  
(University of California, Los Angeles),  
"Warm Neutral Halos Around Molecular Clouds.  
III. Interpretation of HI and CO J = 1 - 0 Data,"  
*The Astrophysical Journal*,  
Vol. 366, pp. 464-473, January 10, 1991.

Anicich, V. G., A. D. Sen, W. T. Huntress, and  
M. J. McEwan (University of Canterbury,  
Christchurch, New Zealand),  
"Lifetime Measurement of a Collision Complex  
Using Ion Cyclotron Double Resonance  $\text{H}_2\text{C}_6\text{N}_2^+$ ,"  
*Journal of Chemical Physics*,  
Vol. 94, No. 6, pp. 4189-4191, March 15, 1991.

Ansari, H., and J. R. Lesh,  
"Superfine Resolution Acousto-optic Spectrum  
Analysis,"  
*Applied Optics*,  
Vol. 30, No. 11, pp. 1396-1400, April 10, 1991.

Argus, D. F., and R. G. Gordon (Northwestern  
University),  
"No-Net-Rotation Model of Current Plate  
Velocities Incorporating Plate Motion Model  
Nuvel-1,"  
*Geophysical Research Letters*,  
Vol. 18, No. 11, pp. 2039-2042, November 1991.

Bayard, D. S.,  
"A Forward Method for Optimal Stochastic  
Nonlinear and Adaptive Control,"  
*IEEE Transactions on Automatic Control*,  
Vol. 36, No. 9, pp. 1046-1053, September 1991.

Beerer, J. G., and R. B. Roncoli,  
"Mars Observer Trajectory and Orbit Design,"  
*Journal of Spacecraft and Rockets*,  
Vol. 28, No. 5, pp. 515-521, September-October  
1991.

Bell, III, J. F. (University of Hawaii, Honolulu),  
D. Crisp, P. G. Lucey (University of Hawaii,  
Honolulu), T. A. Ozoroski (University of Hawaii,  
Honolulu), W. M. Sinton (University of Hawaii,  
Honolulu), S. C. Willis (University of  
Washington, Seattle), and B. A. Campbell  
(University of Hawaii, Honolulu),  
"Spectroscopic Observations of Bright and Dark  
Emission Features on the Night Side of Venus,"  
*Science*,  
Vol. 252, pp. 1293-1296, May 31, 1991.

- Beratan, K. K.,**  
 "Miocene Synextension Sedimentation Patterns, Whipple Mountains, Southeastern California: Implications for the Geometry of the Whipple Detachment System,"  
*Journal of Geophysical Research*,  
 Vol. 96, No. B7, pp. 12425–12442, July 10, 1991.
- Bishop, D. F.,**  
 "The Effect of Ionospheric Reflected Noise on the Performance of an Orbital-Debris Radar System,"  
*IEEE Transactions on Electromagnetic Compatibility*,  
 Vol. 33, No. 4, pp. 362–366, November 1991.
- Biswas, A., E. W. Leung, and E. H. Trinh,**  
 "Rotation of Ultrasonically Levitated Glycerol Drops,"  
*Journal of Acoustical Society of America*,  
 Vol. 90, No. 3, pp. 1502–1507, September 1991.
- Blume, W. H., S. R. Dodd, and C. W. Whetsel,**  
 "Mars Observer Mission Plan,"  
*Journal of Spacecraft and Rockets*,  
 Vol. 28, No. 5, pp. 522–529, September–October 1991.
- Brown, R. H., T. V. Johnson, J. D. Goguen, G. Schubert (University of California, Los Angeles), and M. N. Ross (Aerospace Corporation, Los Angeles, California),**  
 "Triton's Global Heat Budget,"  
*Science*,  
 Vol. 251, pp. 1465–1467, March 22, 1991.
- Bruegge, C. J., A. E. Stiegman, D. R. Coulter, R. R. Hale, D. J. Diner, and A. W. Springsteen (Labsphere, North Sutton, New Hampshire),**  
 "Reflectance Stability Analysis of Spectralon Diffuse Calibration Panels,"  
*Calibration of Passive Remote Observing Optical and Microwave Instrumentation*,  
 Orlando, Florida, April 3–5, 1991,  
 Vol. 1493, pp. 132–142, 1991.
- Buratti, B. J., and R. S. Dunbar,**  
 "Observation of a Rapid Decrease in the Brightness of the Coma of 2060 Chiron in 1990 January,"  
*The Astrophysical Journal*,  
 Vol. 366, No. 1, pp. L47–L49, January 1, 1991.
- Buratti, B. J., A. L. Lane, J. Gibson, H. Burrows, R. M. Nelson, D. Bliss, W. Smythe, V. Garkanian, and B. Wallis,**  
 "Triton's Surface Properties: A Preliminary Analysis From Ground-Based, Voyager Photopolarimeter Subsystem, and Laboratory Measurements,"  
*Journal of Geophysical Research*,  
 Vol. 96, pp. 19197–19202, October 30, 1991.
- Bush, M. W.,**  
 "Process Assessments in NASA,"  
*Proceedings of the 13th International Conference on Software Engineering*,  
 Austin, Texas, May 13–16, 1991,  
 pp. 299–304, 1991.
- Carlson, R. W., K. H. Baines, Th. Encrenaz (Observatoire de Paris, Meudon, France), F. W. Taylor (Oxford University, United Kingdom), P. Drossart (Observatoire de Paris, Meudon, France), L. W. Kamp, J. B. Pollack (NASA Ames Research Center), E. Lellouch (Observatoire de Paris, Meudon, France), A. D. Collard (Oxford University, United Kingdom), S. B. Calcutt (Oxford University, United Kingdom), D. Grinspoon (University of Colorado, Boulder), P. R. Weissman, W. D. Smythe, A. C. Ocampo, G. E. Danielson (California Institute of Technology), F. P. Fanale (University of Hawaii, Honolulu), T. V. Johnson, H. H. Kieffer (U.S. Geological Survey, Flagstaff, Arizona), D. L. Matson, T. B. McCord (University of Hawaii, Honolulu), and L. A. Soderblom (U.S. Geological Survey, Flagstaff, Arizona),**  
 "Galileo Infrared Imaging Spectroscopy Measurements at Venus,"  
*Science*,  
 Vol. 253, pp. 1541–1548, September 27, 1991.
- Carter, T. E.,**  
 "Optimal Impulsive Space Trajectories Based on Linear Equations,"  
*Journal of Optimization Theory and Applications*,  
 Vol. 70, No. 2, pp. 277–297, August 1991.
- Casey, D., and J. Way,**  
 "Orbit Selection for the EOS Mission and Its Synergism Implications,"  
*IEEE Transactions on Geoscience and Remote Sensing*,  
 Vol. 29, No. 6, pp. 822–835, November 1991.



Chen, G.-S., R. J. Bruno, and M. Salama,  
"Optimal Placement of Active/Passive Members  
in Truss Structures Using Simulated Annealing,"  
*AIAA Journal*,  
Vol. 29, No. 8, pp. 1327-1334, August 1991.

Chew, W., L. J. Bajuk, T. W. Cooley, M. C. Foote,  
B. D. Hunt, D. L. Rascoe, and A. L. Riley,  
"High-T<sub>c</sub> Superconductor Coplanar Waveguide  
Filter,"  
*IEEE Electron Device Letters*,  
Vol. 12, No. 5, pp. 197-199, May 1991.

Chua, P. L., J. L. Lambert, J. M. Morookian, and  
L. A. Bergman,  
"Optical Protocols for Terabit Networks,"  
*AIAA Computing in Aerospace VIII*,  
Baltimore, Maryland, October 21-24, 1991,  
pp. 516-524, 1991.

Colussi, A. J., and S. P. Sander,  
"Induced ClO Vacuum Ultraviolet Fluorescence,"  
*Chemical Physics Letters*,  
Vol. 187, Nos. 1, 2, pp. 85-92, November 29, 1991.

Colussi, A. J., S. P. Sander, and R. R. Friedl,  
"Thermodynamics of Acetylene van der Waals  
Dimerization,"  
*Chemical Physics Letters*,  
Vol. 178, Nos. 5, 6, pp. 497-503, April 5, 1991.

Crisp, D., D. A. Allen (Anglo-Australian  
Observatory, New South Wales, Australia),  
D. H. Grinspoon (NASA Ames Research Center),  
and J. B. Pollack (NASA Ames Research Center),  
"The Dark Side of Venus: Near-Infrared Images  
and Spectra From the Anglo-Australian  
Observatory,"  
*Science*,  
Vol. 253, pp. 1263-1266, September 13, 1991.

Crisp, D., S. McMuldroy (California Institute of  
Technology), S. K. Stephens (California Institute  
of Technology), W. M. Sinton (University of  
Hawaii, Honolulu), B. Ragert (San Jose State  
University Foundation, California),  
K.-W. Hodapp (University of Hawaii,  
Honolulu), R. G. Probst (Kitt Peak National  
Observatory, Tucson, Arizona), L. R. Doyle  
(NASA Ames Research Center), D. A. Allen  
(Anglo-Australian Observatory, New South  
Wales, Australia), and J. Elias (Cerro Tololo  
Inter-American Observatory, La Serena, Chile),

"Ground-Based Near-Infrared Imaging  
Observations of Venus During the Galileo  
Encounter,"  
*Science*,  
Vol. 253, pp. 1538-1541, September 27, 1991.

DeMore, W. B.,  
"Tests of Stratospheric Models: The Reactions of  
Atomic Chlorine With O<sub>3</sub> and CH<sub>4</sub> at Low  
Temperature,"  
*Journal of Geophysical Research*,  
Vol. 96, No. D3, pp. 4995-5000, March 20, 1991.

Dick, G. J., and R. T. Wang,  
"Ultra-Stable Performance of the  
Superconducting Cavity Maser,"  
*IEEE Transactions on Instrumentation and  
Measurement*,  
Vol. 40, No. 2, pp. 174-177, April 1991.

Dickey, J. O., M. Ghil (University of California,  
Los Angeles), and S. L. Marcus,  
"Extratropical Aspects of the 40-50 Day  
Oscillation in Length-of-Day and Atmospheric  
Angular Momentum,"  
*Journal of Geophysical Research*,  
Vol. 96, No. D12, pp. 22643-22658, December 20,  
1991.

Diner D. J., E. F. Tubbs, S. L. Gaiser, and  
R. P. Korechoff,  
"Infrared Imaging of Extrasolar Planets,"  
*Journal of the British Interplanetary Society*,  
Vol. 44, pp. 505-512, 1991.

Dixon, T. H.,  
"An Introduction to the Global Positioning System  
and Some Geological Applications,"  
*Reviews of Geophysics*,  
Vol. 29, No. 2, pp. 249-276, May 1991.

Dixon, T. H., E. R. Ivins, and B. J. Franklin,  
"Reply,"  
*Tectonics*,  
Vol. 10, No. 3, pp. 653-656, June 1991.

Dixon, T. H., G. Gonzalez, S. M. Lichten, and  
E. Katsigris,  
"First Epoch Geodetic Measurements With the  
Global Positioning System Across the Northern  
Caribbean Plate Boundary Zone,"  
*Journal of Geophysical Research*,  
Vol. 96, No. B2, pp. 2397-2415, February 10, 1991.

Dixon, T. H., G. Gonzalez, S. M. Lichten, D. M. Tralli, G. E. Ness (Oregon State University), and J. P. Dauphin (Oregon State University),  
"Preliminary Determination of Pacific-North America Relative Motion in the Southern Gulf of California Using the Global Positioning System,"  
*Geophysical Research Letters*,  
Vol. 18, No. 5, pp. 861-864, May 1991.

Drinkwater, M. R.,  
"Ku-Band Airborne Radar Altimeter Observations of Marginal Sea Ice During the 1984 Marginal Ice Zone Experiment,"  
*Journal of Geophysical Research*,  
Vol. 96, No. C3, pp. 4555-4572, March 15, 1991.

Drinkwater, M. R., R. Kwok, D. P. Winebrenner (University of Washington, Seattle), and E. Rignot,  
"Multifrequency Polarimetric Synthetic Aperture Radar Observations of Sea Ice,"  
*Journal of Geophysical Research*,  
Vol. 96, No. C11, pp. 20679-20698, November 15, 1991.

Durden, S. L., J. D. Klein, and H. A. Zebker,  
"Polarimetric Radar Measurements of a Forested Area Near Mt. Shasta,"  
*IEEE Transactions on Geoscience and Remote Sensing*,  
Vol. 29, No. 3, pp. 444-450, May 1991.

Duxbury, T. C.,  
"An Analytic Model for the Phobos Surface,"  
*Planetary Space Science*,  
Vol. 39, No. 1/2, pp. 355-376, 1991.

Eberhardt, S. P., T. Daud, D. A. Kerns (California Institute of Technology), T. X. Brown, and A. P. Thakoor,  
"Competitive Neural Architecture for Hardware Solution to the Assignment Problem,"  
*Neural Networks*,  
Vol. 4, pp. 431-442, 1991.

Edmonds, L. D.,  
"Charge Collected by Diffusion From an Ion Track Under Mixed Boundary Conditions,"  
*IEEE Transactions on Nuclear Science*,  
Vol. 38, No. 2, pp. 834-837, April 1991.

Edmonds, L. D.,  
"A Simple Estimate of Funnelling-Assisted Charge Collection,"  
*IEEE Transactions on Nuclear Science*,  
Vol. 38, No. 2, pp. 828-833, April 1991.

Edwards, C., D. Rogstad, D. Fort, L. White, and B. Iijima,  
"A Demonstration of Real-Time Connected Element Interferometry for Spacecraft Navigation,"  
*Astrodynamics* 1991,  
Vol. 76, pp. 1179-1192, 1991.

Edwards, Jr., C. D., W. M. Folkner, J. S. Border, and L. J. Wood,  
"Spacecraft-Spacecraft Very Long Baseline Interferometry for Planetary Approach Navigation,"  
*Spaceflight Mechanics* 1991,  
Vol. 75, pp. 1161-1181, 1991.

Elachi, C., E. Im, L. E. Roth, and C. L. Werner,  
"Cassini Titan Radar Mapper,"  
*Proceedings of the IEEE*,  
Vol. 79, No. 6, pp. 867-880, June 1991.

Erickson, K. D., and E. L. McKinley,  
"Mars Observer Mission Operations,"  
*Journal of Spacecraft and Rockets*,  
Vol. 28, No. 5, pp. 542-551, September-October 1991.

Esposito, P., D. Roth, and S. Demcak (OAO Corporation, Altadena, California),  
"Mars Observer Orbit Determination Analysis,"  
*Journal of Spacecraft and Rockets*,  
Vol. 28, No. 5, pp. 530-535, September-October 1991.

Evans, D. L., and M. O. Smith (University of Washington, Seattle),  
"Separation of Vegetation and Rock Signatures in Thematic Mapper and Polarimetric SAR Images,"  
*Remote Sensing of Environment*,  
Vol. 37, pp. 63-75, 1991.

Fathauer, R. W., A. Ksendzov, J. M. Iannelli, and T. George,  
"Controllable Surface-Plasmon Resonance in Engineered Nanometer Epitaxial Silicide Particles Embedded in Silicon,"  
*Physical Review B*,  
Vol. 44, No. 3, pp. 1345-1348, July 15, 1991.

- Federman, S. R., and M. Allen,**  
 "Formaldehyde in Envelopes of Interstellar Dark Clouds,"  
*The Astrophysical Journal*,  
 Vol. 375, No. 1, pp. 157–162, July 1, 1991.
- Fijany, A., and A. K. Bejczy,**  
 "Parallel Computation of Manipulator Inverse Dynamics,"  
*Journal of Robotic Systems*,  
 Vol. 8, No. 5, pp. 599–635, October 1991.
- Freedman, A. P.,**  
 "Measuring Earth Orientation With the Global Positioning System,"  
*Bulletin Geodesique*,  
 Vol. 65, pp. 53–65, 1991.
- Freeland, R. E., and R. D. Johnston (Hexcel Corporation, Dublin, California),**  
 "Development of Structural Composite Mirror Technology for Submillimeter Space Telescopes,"  
*42nd Congress of the International Astronautical Federation*,  
 Montreal, Canada, October 5–11, 1991,  
 pp. 1–9, 1991.
- Freeman, A.,**  
 "A New System Model for Radar Polarimeters,"  
*IEEE Transactions on Geoscience and Remote Sensing*,  
 Vol. 29, No. 5, pp. 761–767, September 1991.
- Fu, L.-L., and R. Glazman,**  
 "The Effect of the Degree of Wave Development on the Sea State Bias in Radar Altimetry Measurement,"  
*Journal of Geophysical Research*,  
 Vol. 96, No. C1, pp. 829–834, January 15, 1991.
- Fu, L.-L., E. J. Christensen, and M. Lefebvre (Centre National d'Etudes Spatiales, Cedex, France),**  
 "TOPEX/POSEIDON: The Ocean Topography Experiment,"  
*Eos, Transactions, American Geophysical Union*,  
 Vol. 72, No. 35, pp. 369 and 372–373, August 27, 1991.
- Fu, L.-L., J. Vazquez, and C. Perigaud,**  
 "Fitting Dynamic Models to the Geosat Sea Level Observations in the Tropical Pacific Ocean. Part I: A Free Wave Model,"  
*Journal of Physical Oceanography*,  
 Vol. 21, No. 6, pp. 798–809, June 1991.
- Galindo-Israel, V., S. R. Rengarajan (California State University, Northridge), W. A. Imbriale, and R. Mittra (University of Illinois, Urbana),**  
 "Offset Dual-Shaped Reflectors for Dual Chamber Compact Ranges,"  
*IEEE Transactions on Antennas and Propagation*,  
 Vol. 39, No. 7, pp. 1007–1013, July 1991.
- Galindo-Israel, V., W. A. Imbriale, R. Mittra (University of Illinois, Urbana), and K. Shogen (NHK, Japan),**  
 "On the Theory of the Synthesis of Offset Dual-Shaped Reflectors—Case Examples,"  
*IEEE Transactions on Antennas and Propagation*,  
 Vol. 39, No. 5, pp. 620–626, May 1991.
- Gary, B. L., and S. J. Keihm,**  
 "Microwave Sounding Units and Global Warming,"  
*Science*,  
 Vol. 251, pp. 316–317, January 18, 1991.
- George, T., and R. W. Fathauer,**  
 "Endotaxial Growth of CoSi<sub>2</sub> Within (111) Oriented Si in a Molecular Beam Epitaxy System,"  
*Applied Physics Letters*,  
 Vol. 59, No. 25, pp. 3249–3251, December 16, 1991.
- Gershman, R., M. D. Rayman, and M. Shao,**  
 "A Moderate Space Mission for Optical Interferometry,"  
*42nd Congress of the International Astronautical Federation*,  
 Montreal, Canada, October 5–11, 1991,  
 pp. 1–9, 1991.
- Glaze, L. S., and S. Self (University of Hawaii, Honolulu),**  
 "Ashfall Dispersal for the 16 September 1986, Eruption of Lascar, Chile, Calculated by a Turbulent Diffusion Model,"  
*Geophysical Research Letters*,  
 Vol. 18, No. 7, pp. 1237–1240, July 1991.
- Glazman, R. E.,**  
 "Reply,"  
*Journal of Geophysical Research*,  
 Vol. 96, No. C3, pp. 4979–4983, March 15, 1991.

**Glazman, R. E.,**

"Statistical Problems of Wind-Generated Gravity Waves Arising in Microwave Remote Sensing of Surface Winds,"

*IEEE Transactions on Geoscience and Remote Sensing,*

Vol. 29, No. 1, pp. 135-142, January 1991.

**Glazman, R. E., and M. A. Srokosz (Institute of Oceanographic Sciences Deacon Laboratory, Surrey, England),**

"Equilibrium Wave Spectrum and Sea State Bias in Satellite Altimetry,"

*Journal of Physical Oceanography,*

Vol. 21, No. 11, pp. 1609-1621, November 1991.

**Goldstein, R.,**

"Comment on 'Ion Acceleration at the Contact Surface of Comet P/Halley', by C. Gurgiolo, and J. D. Winningham,"

*Journal of Geophysical Research,*

Vol. 96, No. A7, pp. 11641, July 1, 1991.

**Goldstein, R., B. E. Goldstein, H. Balsiger (Universitat Bern, Switzerland), A. J. Coates (University College of London, United Kingdom), W. Curdt (Max-Planck-Institut fur Aeronomie, Katlenburg-Lindau, Germany), H. U. Keller (Max-Planck-Institut fur Aeronomie, Katlenburg-Lindau, Germany), F. M. Neubauer (Universitat zu Koln, Germany), C. Perry (University of Kent at Canterbury, United Kingdom), and J. Zarnecki (University of Kent at Canterbury, United Kingdom),**

"The Composition and Plasma Signature of a Large Dust Impact on the Giotto Spacecraft,"

*Journal of Geophysical Research,*

Vol. 96, No. A8, pp. 13739-13747, August 1, 1991.

**Greenhall, C. A.,**

"Recipes for Degrees of Freedom of Frequency Stability Estimators,"

*IEEE Transactions on Instrumentation and Measurement,*

Vol. 40, No. 6, pp. 994-999, December 1991.

**Halloran, F. (U.S. Army Communications Electronics Command, Fort Monmouth, New Jersey), L. A. Bergman, E. G. Edgar, R. Hartmayer, and J. Jeng,**

"An FDDI Network for Tactical Applications,"

*IEEE LCS the Magazine of Lightwave Communication Systems,*

Vol. 2, No. 1, pp. 29-35, February 1991.

**Halpern, D.,**

"The NASA Ocean Data System at the Jet Propulsion Laboratory,"

*Advances in Space Research,*

Vol. 11, No. 3, pp. 255-262, 1991.

**Halsell, C. A., and W. E. Bollman,**

"Mars Observer Trajectory and Orbit Control,"

*Journal of Spacecraft and Rockets,*

Vol. 28, No. 5, pp. 536-541, September-October

1991.

**Harstad, K., and J. Bellan,**

"A Model of the Evaporation of Binary-Fuel Clusters of Drops,"

*Atomization and Sprays,*

Vol. 1, pp. 367-388, 1991.

**Hecht, M. H.,**

"Time Dependence of Photovoltaic Shifts in Photoelectron Spectroscopy of Semiconductors,"

*Physical Review B,*

Vol. 43, No. 14, pp. 12102-12105, May 15, 1991.

**Hide, R. (Robert Hooke Institute, Oxford, United Kingdom), and J. O. Dickey,**

"Earth's Variable Rotation,"

*Science,*

Vol. 253, pp. 629-637, August 9, 1991.

**Hiland, J. E., T. Bicknell, and C. L. Miller,**

"Alaska Synthetic Aperture Radar (SAR) Facility Science Data Processing Architecture,"

*42nd Congress of the International Astronautical Federation,*

Montreal, Canada, October 5-11, 1991,

pp. 1-11, 1991.

**Hook, S. J., C. D. Elvidge (University of Nevada System, Reno), M. Rast (European Space Agency, Noordwijk, The Netherlands), and H. Watanabe (Japex Geoscience Institute, Tokyo, Japan),**

"An Evaluation of Short-Wave-Infrared (SWIR) Data From the AVIRIS and GEOSCAN

Instruments for Mineralogical Mapping at

Cuprite, Nevada,"

*Geophysics,*

Vol. 56, No. 9, pp. 1432-1440, September 1991.

**Huang, J., and A. C. Densmore,**

"Microstrip Yagi Array Antenna for Mobile Satellite Vehicle Application,"

*IEEE Transactions on Antennas and Propagation,*

Vol. 39, No. 7, pp. 1024-1030, July 1991.

- Huberman, M. L., A. Ksendzov, A. Larsson, R. Terhune, and J. Maserjian, "Optical Absorption by Free Holes in Heavily Doped GaAs," *Physical Review B*, Vol. 44, No. 3, pp. 1128-1133, July 15, 1991.
- Hunt, B. D., M. C. Foote, and L. J. Bajuk, "All High  $T_c$  Edge-Geometry Weak Links Utilizing Y-Ba-Cu-O Barrier Layers," *Applied Physics Letters*, Vol. 59, No. 8, pp. 982-984, August 19, 1991.
- Huntress, Jr., W. T., M. Allen, and M. Delitsky, "Carbon Suboxide in Comet Halley?," *Nature*, Vol. 352, pp. 316-318, July 25, 1991.
- Im, E., A. Tanner, W. Wilson, R. Denning, S. Durden, and F. Li, "Laboratory Demonstration of an Effective Range Sidelobe Suppression Technique for Spaceborne Rain Radars," *Seventh Symposium on Meteorological Observations and Instrumentation and Special Sessions on Laser Atmospheric Studies, New Orleans, Louisiana, January 14-18, 1991*, pp. 184-188, 1991.
- Imbriale, W. A., V. Galindo-Israel, and Y. Rahmat-Samii (University of California, Los Angeles), "On the Reflectivity of Complex Mesh Surfaces," *IEEE Transactions on Antennas and Propagation*, Vol. 39, No. 9, pp. 1352-1365, September 1991.
- Jackson, H. W., and M. Barmatz, "Microwave Absorption by a Lossy Dielectric Sphere in a Rectangular Cavity," *Journal of Applied Physics*, Vol. 70, No. 10, Pt. 1, pp. 5193-5204, November 15, 1991.
- Jacobson, R. A., G. D. Lewis, W. M. Owen, J. E. Riedel, D. C. Roth, S. P. Synnott, and A. H. Taylor, "Ephemerides of the Major Neptunian Satellites Determined From Earth-Based Astrometric and Voyager Imaging Observations," *AIAA/AAS Astrodynamics Conference, Portland, Oregon, August 20-22, 1990*, pp. 157-167, 1991.
- Jacobson, R. A., J. E. Riedel, and A. H. Taylor, "The Orbits of Triton and Nereid From Spacecraft and Earth-Based Observations," *Astronomy and Astrophysics*, Vol. 247, pp. 565-575, 1991.
- Jain, A., "Unified Formulation of Dynamics for Serial Rigid Multibody Systems," *Journal of Guidance, Control, and Dynamics*, Vol. 14, No. 3, pp. 531-542, May-June 1991.
- Jedrey, T. C., K. I. Dessouky, and N. E. Lay, "An Aeronautical-Mobile Satellite Experiment," *IEEE Transactions on Vehicular Technology*, Vol. 40, No. 4, pp. 741-749, November 1991.
- Johnson, T. V., C. M. Yeates, R. Young (NASA Ames Research Center), and J. Dunne, "The Galileo Venus Encounter," *Science*, Vol. 253, pp. 1457-1612, September 27, 1991.
- Johnson, W. T. K., "Magellan Imaging Radar Mission to Venus," *Proceedings of the IEEE*, Vol. 79, No. 6, pp. 777-790, June 1991.
- Juergens, D. W., J. E. Duval, R. F. Lockhart, Y. Langevin (Universite Paris Sud-Orsay, Cedex, France), V. Formisano (Istituto di Fisica dello Spazio Interplanetario, Roma, Italy), and G. Bellucci (Istituto di Fisica dello Spazio Interplanetario, Roma, Italy), "Visible and Infrared Mapping Spectrometer for Exploration of Comets, Asteroids, and the Saturnian System of Rings and Moons," *International Journal of Imaging Systems and Technology*, Vol. 3, pp. 108-120, 1991.
- Kahn, R., and J. Appleby, "Planetary Atmospheres," *Reviews of Geophysics, Supplement*, pp. 328-337, April 1991.
- Kaiser, W. J., M. H. Hecht, R. W. Fathauer, L. D. Bell, E. Y. Lee (Rensselaer Polytechnic Institute, Troy, New York), and L. C. Davis (Ford Motor Company, Dearborn, Michigan), "Ballistic-Carrier Spectroscopy of the  $\text{CoSi}_2/\text{Si}$  Interface," *Physical Review B*, Vol. 44, No. 12, pp. 6546-6549, September 15, 1991.

Kenny, T. W., S. B. Waltman, J. K. Reynolds, and W. J. Kaiser,  
"Micromachined Silicon Tunnel Sensor for Motion Detection,"  
*Applied Physics Letters*,  
Vol. 58, No. 1, pp. 100-102, January 7, 1991.

Kenny, T. W., W. J. Kaiser, S. B. Waltman (National Institute of Standards and Technology, Boulder, Colorado), and J. K. Reynolds,  
"Novel Infrared Detector Based on a Tunneling Displacement Transducer,"  
*Applied Physics Letters*,  
Vol. 59, No. 15, pp. 1820-1822, October 7, 1991.

Kilburn, C. R. J. (Osservatorio Vesuviano, Napoli, Italy), and R. M. C. Lopes,  
"General Patterns of Flow Field Growth: Aa and Blocky Lavas,"  
*Journal of Geophysical Research*,  
Vol. 96, No. B12, pp. 19721-19732, November 10, 1991.

Kim, J.-H., A. Larsson and L. P. Lee (TRW Applied Technology Division, California),  
"Pseudomorphic  $\text{In}_y\text{Ga}_{1-y}\text{As}/\text{GaAs}/\text{Al}_x\text{Ga}_{1-x}\text{As}$  Single Quantum Well Surface-Emitting Lasers With Integrated 45-Degree Beam Deflectors,"  
*Applied Physics Letters*,  
Vol. 58, No. 1, pp. 7-9, January 7, 1991.

Kim, Y., and D. L. Jaggard (University of Pennsylvania, Philadelphia),  
"Wave Interactions With Continuous Fractal Layers,"  
*Wave Propagation and Scattering in Varied Media II*,  
San Diego, California, July 22-24, 1991,  
Vol. 1558, pp. 113-119, 1991.

Kinman, P. W., S. M. Hinedi, R. C. LaBelle, R. P. Bevan, H. M. Del Castillo, and D. C. Chong,  
"Digital Doppler Measurement With Spacecraft,"  
*IEEE Transactions on Instrumentation and Measurement*,  
Vol. 40, No. 4, pp. 727-731, August 1991.

Kliore A. J., J. G. Luhmann (University of California, Los Angeles), and M. H. G. Zhang (Austrian Academy of Sciences, Graz, Austria),  
"The Effect of the Solar Cycle on the Maintenance of the Nightside Ionosphere of Venus,"  
*Journal of Geophysical Research*,  
Vol. 96, No. A7, pp. 11065-11071, July 1, 1991.

Kolyuka, Y. (Flight Control Center, Moscow, USSR), V. Tikhonov (Flight Control Center, Moscow, USSR), N. Ivanov (Flight Control Center, Moscow, USSR), V. Polyakov (Flight Control Center, Moscow, USSR), G. Avanesov (Space Research Institution, Moscow, USSR), V. Heifetz (Space Research Institution, Moscow, USSR), B. Zhukov (Space Research Institution, Moscow, USSR), E. Akim (Keldish Applied Mathematical Institute, Moscow, USSR), V. Stepanyants (Keldish Applied Mathematical Institute, Moscow, USSR), O. Papkov (Babakin Center, Moscow, USSR) and T. Duxbury,  
"Phobos and Deimos Astrometric Observations From the Phobos Mission,"  
*Astronomy and Astrophysics*,  
Vol. 244, pp. 236-241, 1991.

Krisher, T. P., J. D. Anderson, and A. H. Taylor,  
"Voyager 2 Test of the Radar Time-Delay Effect,"  
*The Astrophysical Journal*,  
Vol. 373, pp. 665-670, June 1, 1991.

Krisher, T. P., J. D. Anderson, D. D. Morabito, S. W. Asmar, S. E. Borutzki, M. L. Delitsky, A. C. Densmore, P. M. Eshe, G. D. Lewis, M. J. Maurer, D. C. Roth, Y. H. Son, T. R. Spilker, D. N. Sweetnam, A. H. Taylor, G. L. Tyler (Stanford University, California), D. L. Gresh (Stanford University, California), and P. A. Rosen (Stanford University, California),  
"Radio Range Measurements of Coronal Electron Densities at 13 and 3.6 Centimeter Wavelengths During the 1988 Solar Conjunction of Voyager 2,"  
*The Astrophysical Journal*,  
Vol. 375, No. 2, pp. L57-L60, July 10, 1991.

Krishnakumar, E., S. K. Srivastava, and I. Iga (Universidade Federal de Sao Carlos, Sao Paulo, Brazil),

"Dissociative Attachment of Electrons With  $\text{Si}_2\text{H}_6$ ,"

*International Journal of Mass Spectrometry and Ion Processes*,

Vol. 103, pp. 107–115, 1991.

Krogh, F. T., and W. Van Snyder,

"Algorithm 699: A New Representation of Patterson's Quadrature Formulae,"

*ACM Transactions on Mathematical Software*,

Vol. 17, No. 4, pp. 457–461, December 1991.

Ksendzov, A., F. J. Grunthaler, J. K. Liu,

D. H. Rich, R. W. Terhune, and B. A. Wilson,

"Absorption and Photoluminescence of Ultrathin Pseudomorphic InAs/GaAs Quantum Wells,"

*Physical Review B*,

Vol. 43, No. 18, pp. 14574–14580, June 15, 1991.

Lang, R. J., A. G. Larsson, and J. G. Cody,

"Lateral Modes of Broad Area Semiconductor Lasers: Theory and Experiment,"

*IEEE Journal of Quantum Electronics*,

Vol. 27, No. 3, pp. 312–320, March 1991.

Larson, K. M. (University of Colorado, Boulder), F. H. Webb, and D. C. Agnew (Scripps Institution of Oceanography, La Jolla, California),

"Application of the Global Positioning System to Crustal Deformation Measurement 2. The Influence of Errors in Orbit Determination Networks,"

*Journal of Geophysical Research*,

Vol. 96, No. B10, pp. 16567–16584, September 10, 1991.

Larsson, A., and J. Maserjian,

"Optically Induced Absorption Modulation in a Periodically  $\Delta$ -Doped InGaAs/GaAs Multiple Quantum Well Structure,"

*Applied Physics Letters*,

Vol. 58, No. 18, pp. 1946–1948, May 6, 1991.

Larsson, A., and J. Maserjian,

"Optically Induced Excitonic Electroabsorption in a Periodically  $\Delta$ -Doped InGaAs/GaAs Multiple Quantum Well Structure,"

*Applied Physics Letters*,

Vol. 59, No. 16, pp. 1946–1948, October 14, 1991.

Larsson, A., S. Forouhar, J. Cody, R. J. Lang, and P. A. Andrekson (AT&T Bell Laboratories, Murray Hill, New Jersey),

"High-Power Single-Element Pseudomorphic InGaAs/GaAs/AlGaAs Single Quantum Well Lasers for Pumping Er-Doped Fiber Amplifiers," *Laser Diode Technology and Applications III*, Los Angeles, California, January 23–25, 1991, Vol. 1418, pp. 292–297, 1991.

Leu, M.-T., S. B. Moore, and L. F. Keyser,

"Heterogeneous Reactions of Chlorine Nitrate and Hydrogen Chloride on Type I Polar Stratospheric Clouds,"

*The Journal of Physical Chemistry*,

Vol. 95, pp. 7763–7771, 1991.

Liewer, P. C., V. K. Decyk (University of

California, Los Angeles), J. M. Dawson

(University of California, Los Angeles), and

B. Lembege (Centre de Recherches en Physique de l'Environnement, Issy-les-Moulineaux, France),

"Numerical Studies of Electron Dynamics in Oblique Quasi-Perpendicular Collisionless Shock Waves,"

*Journal of Geophysical Research*,

Vol. 96, No. A6, pp. 9455–9465, June 1, 1991.

Lindqwister, U. J., J. F. Zumberge, F. H. Webb, and G. Blewitt,

"Few Millimeter Precision for Baselines in the California Permanent GPS Geodetic Array,"

*Geophysical Research Letters*,

Vol. 18, No. 6, pp. 1135–1138, June 1991.

Liu, D. T. H., and L.-J. Cheng,

"Resolution of a Target-Tracking Optical Novelty Filter,"

*Optical Engineering*,

Vol. 30, No. 5, pp. 571–576, May 1991.

Liu, D. T. H., L.-J. Cheng, and K. L. Luke

(California State University, Long Beach),

"Optical Processing Using Photorefractive GaAs and InP,"

*Nonlinear Optics*,

Los Angeles, California, January 23–25, 1991,

Vol. 1409, pp. 116–126, 1991.

Liu, W. T., W. Tang, and P. P. Niiler

(Scripps Institution of Oceanography, La Jolla, California),

"Humidity Profiles Over the Ocean,"

*Journal of Climate*,

Vol. 4, No. 10, pp. 1023–1034, October 1991.

Livingstone, C. E., and M. R. Drinkwater,  
"Springtime C-Band SAR Backscatter Signatures  
of Labrador Sea Marginal Ice: Measurements  
Versus Modeling Predictions,"  
*IEEE Transactions on Geoscience and Remote  
Sensing*,  
Vol. 29, No. 1, pp. 29-41, January 1991.

Long, D. G., and J. M. Mendel,  
"Identifiability in Wind Estimation From  
Scatterometer Measurements,"  
*IEEE Transactions on Geoscience and Remote  
Sensing*,  
Vol. 29, No. 2, pp. 268-276, March 1991.

Lyzenga, G. A., A. Raefsky, and S. G. Mulligan,  
"Models of Recurrent Strike-Slip Earthquake  
Cycles and the State of Crustal Stress,"  
*Journal of Geophysical Research*,  
Vol. 96, No. B13, pp. 21623-21640, December 10,  
1991.

Mahoney, M. J.,  
"Four NASA Submillimeter-Wavelength Space-  
Astrophysics Missions,"  
*42nd Congress of the International Astronautical  
Federation*,  
Montreal, Canada, October 5-11, 1991,  
pp. 1-9, 1991.

Mahoney, M. J., and K. A. Marsh,  
"SALSA: A Synthesis Array for Lunar  
Submillimeter Astronomy,"  
*Space Astronomical Telescopes and Instruments*,  
Orlando, Florida, April 1-4, 1991,  
Vol. 1494, pp. 182-193, 1991.

Manion, S. J., L. D. Bell, W. J. Kaiser,  
P. D. Maker, and R. E. Muller,  
"Lateral Tunneling Through Voltage-Controlled  
Barriers,"  
*Applied Physics Letters*,  
Vol. 59, No. 2, pp. 213-215, July 8, 1991.

Manney, G. L.,  
"On the Dependence of Travelling Wave  
Stability on Basic State Wave Phase Speed,"  
*Quarterly Journal of Royal Meteorological  
Society*,  
Vol. 117, pp. 319-331, 1991.

Manney, G. L.,  
"The Stratospheric 4-Day Wave in NMC Data,"  
*Journal of the Atmospheric Sciences*,  
Vol. 48, No. 15, pp. 1798-1811, August 1, 1991.

Manney, G. L., J. D. Farrara (University of  
California, Los Angeles), and C. R. Mechoso  
(University of California, Los Angeles),  
"Simulations of Stratospheric Warmings in the  
Northern and Southern Hemispheres,"  
*Eighth Conference on the Middle Atmosphere*,  
Atlanta, Georgia, January 5-10, 1991,  
pp. 2-7, 1991.

Manney, G. L., J. D. Farrara (University of  
California, Los Angeles), and C. R. Mechoso  
(University of California, Los Angeles),  
"The Behavior of Wave 2 in the Southern  
Hemisphere Stratosphere During Late Winter  
and Early Spring,"  
*Journal of the Atmospheric Sciences*,  
Vol. 48, No. 7, pp. 976-998, April 1, 1991.

Manshadi, F.,  
"End-Loaded Crossed-Slot Radiating Elements,"  
*IEEE Transactions on Antennas and Propagation*,  
Vol. 39, No. 8, pp. 1237-1240, August 1991.

Margolis, J. S., and R.L. Poynter,  
"Low Temperature Hydrogen Broadened  
Linewidths of Ammonia in the (0,1,0,0) →  
(0,0,0,0) Band,"  
*Applied Optics*,  
Vol. 30, No. 21, pp. 3023-3028, July 20, 1991.

May, R. D.,  
"Absolute Linestrengths in the H<sub>2</sub>O<sub>2</sub> v<sub>6</sub> Band,"  
*Journal Quantitative Spectroscopy Radiation  
Transfer*,  
Vol. 45, No. 5, pp. 267-272, 1991.

McDermid, I. S., D. A. Haner, M. M. Kleiman,  
T. D. Walsh, and M. L. White,  
"Differential Absorption Lidar Systems for  
Tropospheric and Stratospheric Ozone  
Measurements,"  
*Optical Engineering*,  
Vol. 30, No. 1, pp. 22-30, January 1991.

McDermid, I. S., M. Schmue, and T. D. Walsh,  
"Ground-Based Lidar for Long-Term and Network  
Measurements of Ozone,"  
*Remote Sensing of Atmospheric Chemistry*,  
Orlando, Florida, April 1-3, 1991,  
Vol. 1491, pp. 175-181, 1991.



McGuckin, B. T., R. T. Menzies, and H. Hemmati,  
"Efficient Energy Extraction From a Diode-  
Pumped Q-Switched Tm,Ho:YLiF<sub>4</sub> Laser,"  
*Applied Physics Letters*,  
Vol. 59, No. 23, pp. 2926–2928, December 2, 1991.

McKinley, E. L.,  
"Mars Observer Project: An Introduction,"  
*Journal of Spacecraft and Rockets*,  
Vol. 28, No. 5, pp. 489–490, September–October  
1991.

Meier, D. L., A. C. Sadun (Agnes Scott College,  
Decatur, Georgia), and K. R. Lind (Naval  
Research Laboratory, Washington, D.C.),  
"Heavy, Overpressured Jets and the Radio Source  
Hercules A,"  
*The Astrophysical Journal*,  
Vol. 379, No. 1, pp. 141–156, September 20, 1991.

Melbourne, R. K., J. D. Prestage, and L. Maleki,  
"Analytical Potential in a Linear Radio-  
Frequency Quadrupole Trap With Cylindrical  
Electrodes,"  
*Journal of Applied Physics*,  
Vol. 69, No. 5, pp. 2768–2775, March 1, 1991.

Menzies, R. T., and D. M. Tratt,  
"Aerosol and Cloud Observations With a CO<sub>2</sub>  
Backscatter Lidar on the NASA DC-8 Globe  
Pacific Missions,"  
*Seventh Symposium on Meteorological  
Observations and Instrumentation and Special  
Sessions on Laser Atmospheric Studies*,  
New Orleans, Louisiana, January 14–18, 1991,  
pp. J265–J267, 1991.

Menzies, R. T., and M. J. Post (NOAA Wave  
Propagation Laboratory, Boulder, Colorado),  
"GLOBE Backscatter: Climatologies and Mission  
Results,"  
*Laser Radar VI*,  
Los Angeles, California, January 23–25, 1991,  
Vol. 1416, pp. 139–146, 1991.

Milman, M., M. Salama, R. E. Scheid, R. Bruno,  
and J. S. Gibson (University of California, Los  
Angeles),  
"Combined Control-Structure Optimization,"  
*Computational Mechanics*,  
Vol. 8, pp. 1–18, 1991.

Moriarty–Schieven, G. H., and P. G. Wannier,  
"A Second Outflow From L1551/IRS 5?,"  
*The Astronomical Journal*,  
Vol. 373, No. 1, pp. L23–L26, May 20, 1991.

Moriarty–Schieven, G. H., R. L. Snell  
(University of Massachusetts, Amherst), and  
V. A. Hughes (Queen's University, Ontario,  
Canada),  
"Probing the Core of Cepheus A: Millimeter and  
Submillimeter Observations,"  
*The Astrophysical Journal*,  
Vol. 374, No. 1, pp. 169–176, June 10, 1991.

Moses, J. I. (California Institute of Technology),  
and D. B. Nash,  
"Phase Transformations and the Spectral  
Reflectance of Solid Sulfur: Can Metastable  
Sulfur Allotropes Exist on Io?,"  
*Icarus*,  
Vol. 89, pp. 277–304, 1991.

Moshir, M.,  
"The IRAS Faint Source Survey,"  
*Journal of the British Interplanetary Society*,  
Vol. 44, pp. 495–504, 1991.

Naderi, F. M., M. H. Freilich, and D. G. Long,  
"Spaceborne Radar Measurement of Wind  
Velocity Over the Ocean—An Overview of the  
NSCAT Scatterometer System,"  
*Proceedings of the IEEE*,  
Vol. 79, No. 6, pp. 850–866, June 1991.

Narayanan, S. R., S. Surampudi, A. I. Attia, and  
C. P. Bankston,  
"Analysis of Redox Additive-Based Overcharge  
Protection for Rechargeable Lithium Batteries,"  
*Journal of the Electrochemical Society*,  
Vol. 138, No. 8, pp. 2224–2229, August 1991.

Nerheim, N.,  
"A Fiber-Coupled Heterodyne Interferometric  
Displacement Sensor,"  
*Active and Adaptive Optical Systems*,  
San Diego, California, July 22–24, 1991,  
Vol. 1542, pp. 523–533, 1991.

Neugebauer, M., and C. J. Alexander (University  
of Michigan, Ann Arbor),  
"Shuffling Foot Points and  
Magnetohydrodynamic Discontinuities in the  
Solar Wind,"  
*Journal of Geophysical Research*,  
Vol. 96, No. A6, pp. 9409–9418, June 1, 1991.

Neugebauer, M., R. Goldstein, B. E. Goldstein, S. A. Fuselier (Lockheed Palo Alto Research Laboratory), H. Balsiger (University of Bern, Switzerland), and W.-H. Ip (Max-Planck-Institut für Aeronomie, Katlenburg-Lindau, Germany),  
"Densities and Abundances of Hot Cometary Ions in the Coma of P/Halley,"  
*The Astrophysical Journal*,  
Vol. 372, No. 1, pp. 291-300, May 1, 1991.

Nguyen, T. M.,  
"Space Telemetry Degradation due to Manchester Data Asymmetry Induced Carrier Tracking Phase Error,"  
*IEEE Transactions on Electromagnetic Compatibility*,  
Vol. 33, No. 3, pp. 262-268, August 1991.

Nguyen, T. M.,  
"The Impact of NRZ Data Asymmetry on the Performance of a Space Telemetry System,"  
*IEEE Transactions on Electromagnetic Compatibility*,  
Vol. 33, No. 4, pp. 343-350, November 1991.

Nichols, D. K., L. S. Smith, H. R. Schwartz, G. Soli, and K. Watson, R. Koga (The Aerospace Corporation, El Segundo, California), W. R. Crain (The Aerospace Corporation, El Segundo, California), B. Crawford (The Aerospace Corporation, El Segundo, California), S. J. Hansel (The Aerospace Corporation, El Segundo, California), and D. D. Lau (The Aerospace Corporation, El Segundo, California),  
"Update on Parts See Susceptibility From Heavy Ions,"  
*IEEE Transactions on Nuclear Science*,  
Vol. 38, No. 6, pp. 1529-1539, December 1991.

Norton, R. H., and C. P. Rinsland (NASA Langley Research Center),  
"ATMOS Data Processing and Science Analysis Methods,"  
*Applied Optics*,  
Vol. 30, No. 4, pp. 389-400, February 1, 1991.

O'Conner, D. B. (University of California, Riverside), G. W. Scott (University of California, Riverside), D. R. Coulter, and A. Yavrouian,  
"Emission Spectra and Kinetics of Copolymer Films of Styrene and 2,3,4,5,6-Pentafluorostyrene,"  
*Macromolecules*,  
Vol. 24, No. 9, pp. 2355-2360, 1991.

Onyszchuk, I. M.,  
"Truncation Length for Viterbi Decoding,"  
*IEEE Transactions on Communications*,  
Vol. 39, No. 7, pp. 1023-1026, July 1991.

Orton, G. S., A. J. Friedson, J. Caldwell (York University, Ontario, Canada), H. B. Hammel (Massachusetts Institute of Technology), K. H. Baines, J. T. Bergstralh (NASA Headquarters), T. Z. Martin, M. E. Malcom (TRW, Redondo Beach, California), R. A. West, W. F. Golisch (University of Hawaii, Honolulu), D. M. Griep (University of Hawaii, Honolulu), C. D. Kaminski (University of Hawaii, Honolulu), A. T. Tokunaga (University of Hawaii, Honolulu), R. Baron (University of Hawaii, Honolulu), and M. Shure (University of Hawaii, Honolulu),  
"Thermal Maps of Jupiter: Spatial Organization and Time Dependence of Stratospheric Temperatures, 1980 to 1990,"  
*Science*,  
Vol. 252, pp. 537-542, April 26, 1991.

Ostro, S. J., D. B. Campbell (Cornell University, Ithaca, New York), J. F. Chandler (Harvard-Smithsonian Center for Astrophysics, Cambridge, Massachusetts), A. A. Hine (National Astronomy and Ionosphere Center, Arecibo, Puerto Rico), R. S. Hudson (Washington State University, Pullman), K. D. Rosema, and I. I. Shapiro (Harvard-Smithsonian Center for Astrophysics, Cambridge, Massachusetts),  
"Asteroid 1986 DA: Radar Evidence for a Metallic Composition,"  
*Science*,  
Vol. 252, pp. 1399-1404, June 7, 1991.

- Ostro, S. J., D. B. Campbell (Cornell University, Ithaca, New York), J. F. Chandler (Harvard-Smithsonian Center for Astrophysics, Cambridge, Massachusetts), I. I. Shapiro (Harvard-Smithsonian Center for Astrophysics, Cambridge, Massachusetts), A. A. Hine (National Astronomy and Ionosphere Center, Arecibo, Puerto Rico), R. Velez (National Astronomy and Ionosphere Center, Arecibo, Puerto Rico), R. F. Jurgens, K. D. Rosema, R. Winkler, and D. K. Yeomans, "Asteroid Radar Astrometry," *The Astronomical Journal*, Vol. 102, No. 4, pp. 1490-1502, October 1991.
- Owen, Jr., W. M., R. M. Vaughan, and S. P. Synnott, "Orbits of the Six New Satellites of Neptune," *The Astronomical Journal*, Vol. 101, No. 4, pp. 1511-1515, April 1991.
- Peterson, D. B., and H. M. Pickett, "Cryogenic Far-Infrared Fabry-Perot Etalon," *Applied Optics*, Vol. 30, No. 31, pp. 4493-4495, November 1, 1991.
- Pickett, H. M., and D. B. Peterson, "Far-IR Fabry-Perot Spectrometer for OH Measurements," *Remote Sensing of Atmospheric Chemistry, Orlando, Florida, April 1-3, 1991*, Vol. 1491, pp. 308-313, 1991.
- Plescia, J. B., "Graben and Extension in Northern Tharsis, Mars," *Journal of Geophysical Research*, Vol. 96, No. E3, pp. 18883-18895, October 25, 1991.
- Plescia, J. B., "Wrinkle Ridges in Lunae Planum Mars: Implications for Shortening and Strain," *Geophysical Research Letters*, Vol. 18, No. 5, pp. 913-916, May 1991.
- Pope, K. O. (Geo Eco Arc Research, La Canada, California), A. C. Ocampo, and C. E. Duller (NASA Ames Research Center), "Mexican Site for K/T Impact Crater?," *Nature*, Vol. 351, p. 105, May 9, 1991.
- Potts, D. L., "Mars Observer Spacecraft Description," *Journal of Spacecraft and Rockets*, Vol. 28, No. 5, pp. 507-514, September-October 1991.
- Pravdo, S. H., "The Astrometric Imaging Telescope: A Space-Based Observatory for Extra-Solar Planet Detection," *42nd Congress of the International Astronautical Federation, Montreal, Canada, October 5-11, 1991*, pp. 1-7, 1991.
- Prestage, J. D., A. Williams, L. Maleki, M. J. Djomehri, and E. Harabetian, "Dynamics of Charged Particles in a Paul Radio-Frequency Quadrupole Trap," *Physical Review Letters*, Vol. 66, No. 23, pp. 2964-2967, June 10, 1991.
- Prestage, J. D., G. J. Dick, and L. Maleki, "Linear Ion Trap Based Atomic Frequency Standard," *IEEE Transactions on Instrumentation and Measurement*, Vol. 40, No. 2, pp. 132-136, April 1991.
- Rao, M. V. V. S., and S. K. Srivastava, "Cross Sections for Direct and Dissociative Ionization of NH<sub>3</sub> and CS<sub>2</sub> by Electron Impact," *Journal of Geophysical Research*, Vol. 96, No. E2, pp. 17563-17567, September 25, 1991.
- Ratliff, J. M., G. K. James, S. Trajmar, J. M. Ajello, and D. E. Shemansky (University of Arizona, Tucson), "Electron Impact Excitation and Dissociation of N<sub>2</sub> via the b<sup>1</sup>II<sub>u</sub> State," *Journal of Geophysical Research*, Vol. 96, No. E2, pp. 17559-17561, September 25, 1991.
- Ratnakumar, B. V., A. I. Attia, and G. Halpert, "Alternate Cathodes for Sodium-Metal Chloride Batteries," *Journal of the Electrochemical Society*, Vol. 138, No. 3, pp. 883-884, March 1991.

**Reeve, R. T.,**  
"Thermal Redesign of the Galileo Spacecraft for a VEEGA Trajectory,"  
*Journal of Spacecraft and Rockets,*  
Vol. 28, No. 2, pp. 130-138, March-April 1991.

**Rengarajan, S. R. (California State University, Northridge), V. Galindo-Israeli, and W. A. Imbriale,**  
"Amplitude and Phase-Shaping Effects in Beamwaveguides,"  
*IEEE Transactions on Antennas and Propagation,*  
Vol. 39, No. 5, pp. 687-690, May 1991.

**Rhea, W. J.,**  
"A New Technique for Enlargement and Reconstruction of Digital Sensor Imagery,"  
*International Journal of Remote Sensing,*  
Vol. 12, No. 3, pp. 627-634, 1991.

**Rhim, W.-K., and S. K. Chung,**  
"Containerless Protein Crystal Growth Method,"  
*Journal of Crystal Growth,*  
Vol. 110, pp. 293-301, 1991.

**Rich, D. H., A. Ksendzov, R. W. Terhune, F. J. Grunthaler, B. A. Wilson, H. Shen (U.S. Army Electronics Technology and Devices Laboratory, Fort Monmouth, New Jersey), M. Dutta (U.S. Army Electronics Technology and Devices Laboratory, Fort Monmouth, New Jersey), S. M. Vernon (Spire Corp., Massachusetts), and T. M. Dixon (Spire Corp., Massachusetts),**  
"Polarized-Cathodoluminescence Study of Uniaxial and Biaxial Stress in GaAs/Si,"  
*Physical Review B,*  
Vol. 43, No. 8, pp. 6836-6839, March 15, 1991.

**Rochblatt, D. J., and Y. Rahmat-Samii (University of California, Los Angeles),**  
"Effects of Measurement Errors on Microwave Antenna Holography,"  
*IEEE Transactions on Antennas and Propagation,*  
Vol. 39, No. 7, pp. 933-942, July 1991.

**Rodriguez, E.,**  
"Beyond the Kirchhoff Approximation II Electromagnetic Scattering,"  
*Radio Science,*  
Vol. 26, No. 1, pp. 121-132, January-February 1991.

**Ross, Jr., R. G.,**  
"A Systems Approach to Solder Joint Fatigue in Spacecraft Electronic Packaging,"  
*Journal of Electronic Packaging,*  
Vol. 113, pp. 121-128, June 1991.

**Ruf, C. S.,**  
"Error Analysis of Image Reconstruction by a Synthetic Aperture Interferometric Radiometer,"  
*Radio Science,*  
Vol. 26, No. 6, pp. 1419-1434, November/December 1991.

**Schenk, P. M.,**  
"Fluid Volcanism on Miranda and Ariel: Flow Morphology and Composition,"  
*Journal of Geophysical Research,*  
Vol. 96, No. B2, pp. 1887-1906, February 10, 1991.

**Schimmerling, W.,**  
"The NASA Radiation Health Program,"  
*21st International Conference on Environmental Systems,*  
*San Francisco, California, July 15-18, 1991,*  
pp. 1-5, 1991.

**Schneeberger, D. M. (SNR Company, Laguna Hills, California), and D. C. Pieri,**  
"Geomorphology and Stratigraphy of Alba Patera, Mars,"  
*Journal of Geophysical Research,*  
Vol. 96, No. B2, pp. 1907-1930, February 10, 1991.

**Sekanina, Z.,**  
"Comprehensive Model for the Nucleus of Periodic Comet Tempel 2 and Its Activity,"  
*The Astronomical Journal,*  
Vol. 102, No. 1, pp. 350-388, July 1991.

**Sekanina, Z.,**  
"Encke, the Comet,"  
*Journal of the Royal Astronomical Society of Canada,*  
Vol. 85, No. 6, pp. 324-376, December 1991.

**Sekanina, Z.,**  
"Randomization of Dust-Ejecta Motions and the Observed Morphology of Cometary Heads,"  
*The Astronomical Journal,*  
Vol. 102, No. 5, pp. 1870-1878, November 1991.

Sen, A. D., W. T. Huntress, Jr., V. G. Anicich, M. J. McEwan (University of Canterbury, New Zealand), and A. B. Denison (University of Wyoming, Laramie),  
"Association Reactions at Low Pressure. IV. The  $\text{HC}_3\text{N}^+/\text{HC}_3\text{N}$  System,"  
*Journal of Chemical Physics*,  
Vol. 94, No. 8, pp. 5462–5470, April 15, 1991.

Shaffer, S. J., R. S. Dunbar, S. V. Hsiao, and D. G. Long,  
"A Median-Filter-Based Ambiguity Removal Algorithm for NSCAT,"  
*IEEE Transactions on Geoscience and Remote Sensing*,  
Vol. 29, No. 1, pp. 167–174, January 1991.

Shahid-Saless, B.,  
"Palatini Variation of Curvature-Squared Action and Gravitational Collapse,"  
*Journal of Mathematical Physics*,  
Vol. 32, No. 3, pp. 694–697, March 1991.

Shahid-Saless, B., R. W. Hellings, and N. Ashby (University of Colorado, Boulder),  
"A Picosecond Accuracy Relativistic VLBI Model via Fermi Normal Coordinates,"  
*Geophysical Research Letters*,  
Vol. 18, No. 6, pp. 1139–1142, June 1991.

Shakkottai, P., E. Y. Kwack, and L. H. Back,  
"Aeroacoustic Flow Sensor,"  
*Review of Scientific Instruments*,  
Vol. 62, No. 9, pp. 2205–2212, September 1991.

Shing, Y. H., and F. S. Pool,  
"Electron Cyclotron Resonance Microwave Plasma Deposition of a-Si:H and a-SiC:H Films,"  
*Solar Cells*,  
Vol. 30, pp. 391–401, 1991.

Siegel, P. H., and R. J. Dengler,  
"The Dielectric-Filled Parabola: A New Millimeter/Submillimeter Wavelength Receiver/Transmitter Front End,"  
*IEEE Transactions on Antennas and Propagation*,  
Vol. 39, No. 1, pp. 40–47, January 1991.

Siegel, P. H., I. Mehdi, and J. East (University of Michigan, Ann Arbor),  
"Improved Millimeter-Wave Mixer Performance Analysis at Cryogenic Temperatures,"  
*IEEE Microwave and Guided Wave Letters*,  
Vol. 1, No. 6, pp. 129–131, June 1991.

Sinha, M. P., and A. D. Tomassian,  
"Development of a Miniaturized, Light-Weight Magnetic Sector for a Field-Portable Mass Spectrograph,"  
*Review of Scientific Instruments*,  
Vol. 62, No. 11, pp. 2618–2620, November 1991.

Smith, E. J., D. E. Page (European Space Agency, Noordwijk, The Netherlands), and K.-P. Wenzel (European Space Agency, Noordwijk, The Netherlands),  
"Ulysses: A Journey Above the Sun's Poles,"  
*Eos, Transactions, American Geophysical Union*,  
Vol. 72, No. 22, pp. 241, 245–246, and 248, May 28, 1991.

Smith, R. H., M.-T. Leu, and L. F. Keyser,  
"Infrared Spectra of Solid Films Formed From Vapors Containing Water and Nitric Acid,"  
*The Journal of Physical Chemistry*,  
Vol. 95, No. 15, pp. 5924–5930, 1991.

Smith, S. J., K.-F. Man, R. J. Mawhorter (Pomona College, Claremont, California), I. D. Williams (Queens University, Belfast, United Kingdom), and A. Chutjian,  
"Absolute, Cascade-Free Cross Sections for the  $2\text{S} \rightarrow 2\text{P}$  Transition in  $\text{Zn}^+$  Using Electron-Energy-Loss and Merged-Beams Methods,"  
*Physical Review Letters*,  
Vol. 67, No. 1, pp. 30–33, July 1, 1991.

Srivastava, S. K., E. Krishnakumar, and A. C. de A. e Souza,  
"Cross-Sections for the Formation of Negative Ions by Electron Impact on Silane,"  
*International Journal of Mass Spectrometry and Ion Processes*,  
Vol. 107, pp. 83–89, 1991.

Stanfill, IV, D. F.,  
"Using Image Pyramids for the Visualization of Large Terrain Data Sets,"  
*International Journal of Imaging Systems and Technology*,  
Vol. 3, pp. 157–166, 1991.

Stultz J. W.,  
"Thermal Design of the Galileo Bus and Retropropulsion Module,"  
*Journal of Spacecraft and Rockets*,  
Vol. 28, No. 2, pp. 146–151, March–April 1991.

- Stultz, J. W.,**  
 "Thermal Design of the Galileo Spun and Despun Science,"  
*Journal of Spacecraft and Rockets*,  
 Vol. 28, No. 2, pp. 139-145, March-April 1991.
- Sybert, C. B., J. B. Jones, and J. D. Anderson,**  
 "Small Body Mass Determination From a Flyby,"  
*Spaceflight Mechanics 1991*,  
 Vol. 75, pp. 885-896, 1991.
- Synnott, S. P.,**  
 "The Filled Arm Fizeau Telescope (FFT),"  
*Space Astronomical Telescopes and Instruments*,  
 Orlando, Florida, April 1-4, 1991,  
 Vol. 1494, pp. 334-343, 1991.
- Tamura, M., I. Gatley (National Optical Astronomy Observatories, Tucson, Arizona), W. Waller (University of Washington, Seattle), and M. W. Werner,**  
 "Two Micron Morphology of Candidate Protostars,"  
*The Astrophysical Journal*,  
 Vol. 374, pp. L25-L28, June 10, 1991.
- Tarokh, M. (California State University, San Diego), and H. Seraji,**  
 "A Multivariable Control Scheme for Robot Manipulators,"  
*Journal of Robotic Systems*,  
 Vol. 8, No. 1, pp. 1-19, 1991.
- Thakoor, A. P., S. P. Eberhardt, and T. Daud,**  
 "Electronic Neural Network for Dynamic Resource Allocation,"  
*AIAA Computing in Aerospace VIII*,  
 Baltimore, Maryland, October 21-24, 1991,  
 pp. 339-347, 1991.
- Timmer, C., S. K. Srivastava, T. E. Hall (Claremont Colleges, California), and A. F. Fucaloro (Claremont Colleges, California),**  
 "Enhanced Line Emission From Laser-Produced Plasmas,"  
*Journal of Applied Physics*,  
 Vol. 70, No. 3, pp. 1888-1890, August 1, 1991.
- Tinto, M., and J. W. Armstrong,**  
 "Coincidence Probabilities for Spacecraft Gravitational Wave Experiments: Massive Coalescing Binaries,"  
*The Astrophysical Journal*,  
 Vol. 372, No. 2, pp. 545-553, May 10, 1991.
- Toth, R. A.,**  
 "Line-Frequency Measurements and Analysis of N<sub>2</sub>O Between 900 and 4700 cm<sup>-1</sup>,"  
*Applied Optics*,  
 Vol. 30, No. 36, pp. 5289-5315, December 20, 1991.
- Toumi, R. (University of Cambridge, United Kingdom), J. A. Pyle (University of Cambridge, United Kingdom), C. R. Webster, and R. D. May,**  
 "Theoretical Interpretation of N<sub>2</sub>O<sub>5</sub> Measurements,"  
*Geophysical Research Letters*,  
 Vol. 18, No. 7, pp. 1213-1216, July 1991.
- Tralli, D. M.,**  
 "Spectral Comparison of Continuous Global Positioning System and Strainmeter Measurements of Crustal Deformation,"  
*Geophysical Research Letters*,  
 Vol. 18, No. 7, pp. 1285-1288, July 1991.
- Treuhaft, R. N., and S. T. Lowe,**  
 "A Measurement of Planetary Relativistic Deflection,"  
*The Astronomical Journal*,  
 Vol. 102, No. 5, pp. 1879-1888, November 1991.
- Tsurutani, B. T.,**  
 "Comets: A Laboratory for Plasma Waves and Instabilities,"  
*Geophysical Monograph 61*,  
 pp. 189-209, 1991.
- Tsurutani, B. T., and W. D. Gonzalez (Instituto de Pesquisas Espaciais, Brazil),**  
 "Comment on 'Do Interplanetary Alfvén Waves Cause Auroral Activity' by D. A. Roberts and M. L. Goldstein,"  
*Journal of Geophysical Research*,  
 Vol. 96, No. A2, pp. 1877-1878, February 1, 1991.
- Ulvestad, J. S., and R. R. J. Antonucci (University of California, Santa Barbara),**  
 "Second-Epoch VLA Observations of Compact Radio Sources in NGC 253,"  
*The Astronomical Journal*,  
 Vol. 102, No. 3, pp. 875-881, September 1991.
- van Zyl, J. J., and C. F. Burnette,**  
 "Data Volume Reduction for Single-Look Polarimetric Imaging Radar Data,"  
*IEEE Transactions on Geoscience and Remote Sensing*,  
 Vol. 29, No. 5, pp. 784-786, September 1991.

van Zyl, J. J., C. F. Burnette, and T. G. Farr,  
"Inference of Surface Power Spectra From  
Inversion of Multifrequency Polarimetric Radar  
Data,"  
*Geophysical Research Letters*,  
Vol. 18, No. 9, pp. 1787-1790, September 1991.

Varsi, G.,  
"Advances in Space Robotics,"  
*Acta Astronautica*,  
Vol. 25, No. 4, pp. 199-207, 1991.

Vasquez, R. P., A. Gupta (IBM Thomas J. Watson  
Research Center, Yorktown Heights, New York),  
and A. Kussmaul (Massachusetts Institute of  
Technology),  
"X-Ray Photoelectron Spectroscopy Study of  
Chemically-Etched Nd-Ce-Cu-O Surfaces,"  
*Solid State Communications*,  
Vol. 78, No. 4, pp. 303-306, 1991.

Vasquez, R. P., M. C. Foote, B. D. Hunt, and  
L. Bajuk,  
"Chemical Nature of the Barrier in  
Pb/YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> Tunneling Structures,"  
*Journal of Vacuum Science and Technology A*,  
Vol. 9, No. 3, Pt. 1, pp. 570-573, May/June 1991.

Vaughan, A. H.,  
"Diagnosing the Optical State of the Hubble  
Space Telescope,"  
*Journal of the British Interplanetary Society*,  
Vol. 44, pp. 487-494, 1991.

Vining C. B.,  
"A Model for the High-Temperature Transport  
Properties of Heavily Doped n-Type Silicon-  
Germanium Alloys,"  
*Journal of Applied Physics*,  
Vol. 69, No. 1, pp. 331-341, January 1, 1991.

Wadhams, P. (University of Cambridge,  
England), and B. Holt,  
"Waves in Frazil and Pancake Ice and Their  
Detection on Seasat Synthetic Aperture Radar  
Imagery,"  
*Journal of Geophysical Research*,  
Vol. 96, No. C5, pp. 8835-8852, May 15, 1991.

Wannier, P. G., B.-G. Andersson, H. Olofsson  
(Onsala Space Observatory, Sweden), N. Ukita  
(Nobeyama Radio Observatory, Nagano, Japan),  
and K. Young (California Institute of  
Technology),  
"Abundances in Red Giant Stars: Nitrogen  
Isotopes in Carbon-Rich Molecular Envelopes,"  
*The Astrophysical Journal*,  
Vol. 380, pp. 593-605, October 20, 1991.

Wannier, P. G., B.-G. Andersson, M. Morris  
(University of California, Los Angeles), and  
S. M. Lichten,  
"Warm Neutral Halos Around Molecular Clouds.  
II. HI and CO (J=1-0) Observations,"  
*The Astrophysical Journal Supplement Series*,  
Vol. 75, pp. 987-998, April 1991.

Wannier, P. G., L. Pagani (Observatoire de Paris,  
Meudon, France), T. B. H. Kuiper, M. A. Frerking,  
S. Gulkis, P. Encrenaz (Observatoire de Paris,  
Meudon, France), H. M. Pickett, A. Lecacheux  
(Observatoire de Paris, Meudon, France), and  
W. J. Wilson,  
"Water in Dense Molecular Clouds,"  
*The Astrophysical Journal*,  
Vol. 377, pp. 171-186, August 10, 1991.

Watkins, J. L., C. O. Hagenlocher, and M.  
Barmatz,  
"Measurement of Cavity Perturbation to  
Determine the Microwave Absorption of a Sphere  
in a Single Mode Resonator,"  
*Ceramic Transactions*,  
Vol. 21, pp. 271-279, 1991.

Way, J., and E. A. Smith,  
"The Evolution of Synthetic Aperture Radar  
Systems and Their Progression to the EOS SAR,"  
*IEEE Transactions on Geoscience and Remote  
Sensing*,  
Vol. 29, No. 6, pp. 962-985, November 1991.

Way, J., J. Paris, M. C. Dobson (University of Michigan, Ann Arbor), K. McDonald, F. T. Ulaby (University of Michigan, Ann Arbor), J. A. Weber (Environmental Research Laboratory, Corvallis, Oregon), S. L. Ustin (University of California, Davis), V. C. Vanderbilt (NASA Ames Research Center), and E. S. Kasischke (Environmental Institute of Michigan, Ann Arbor),  
"Diurnal Change in Trees as Observed by Optical and Microwave Sensors: The EOS Synergism Study,"  
*IEEE Transactions on Geoscience and Remote Sensing*,  
Vol. 29, No. 6, pp. 807-821, November 1991.

Weisbin, C., and D. Perillard,  
"Jet Propulsion Laboratory Robotic Facilities and Associated Research,"  
*Robotica*,  
Vol. 9, pp. 7-21, 1991.

Weissman, P.,  
"Why Did Halley Hiccup?,"  
*Nature*,  
Vol. 353, pp. 793-794, October 31, 1991.

Weissman, P. R.,  
"The Angular Momentum of the Oort Cloud,"  
*Icarus*,  
Vol. 89, pp. 190-193, 1991.

West, R. A.,  
"Optical Properties of Aggregate Particles Whose Outer Diameter is Comparable to the Wavelength,"  
*Applied Optics*,  
Vol. 30, No. 36, pp. 5316-5324, December 20, 1991.

West, R. A., and P. H. Smith (University of Arizona, Tucson),  
"Evidence for Aggregate Particles in the Atmospheres of Titan and Jupiter,"  
*Icarus*,  
Vol. 90, pp. 330-333, 1991.

Williams, J. G., X. X. Newhall, and J. O. Dickey,  
"Luni-Solar Precession: Determination From Lunar Laser Ranges,"  
*Astronomy and Astrophysics*,  
Vol. 241, pp. L9-L12, 1991.

Willson, R. C., and H. S. Hudson (University of California, San Diego),  
"The Sun's Luminosity Over a Complete Solar Cycle,"  
*Nature*,  
Vol. 351, pp. 42-44, May 2, 1991.

Woo, R., and A. J. Kliore,  
"Magnetization of the Ionospheres of Venus and Mars: Results From Radio Occultation Measurements,"  
*Journal of Geophysical Research*,  
Vol. 96, No. A7, pp. 11073-11081, July 1, 1991.

Woo, R., and R. Schwenn (Max-Planck-Institut für Aeronomie, Katlenburg-Lindau, Germany),  
"Comparison of Doppler Scintillation and in Situ Spacecraft Plasma Measurements of Interplanetary Disturbances,"  
*Journal of Geophysical Research*,  
Vol. 96, No. A12, pp. 21227-21244, December 1, 1991.

Wood, L. J.,  
"Sufficient Conditions for a Local Minimum of the Bolza Problem With a Scalar Terminal Point Constraint,"  
*Astrodynamics 1991*,  
Vol. 76, pp. 2053-2072, 1991.

Zebker, H. A., and J. J. van Zyl,  
"Imaging Radar Polarimetry: A Review,"  
*Proceedings of the IEEE*,  
Vol. 79, No. 11, pp. 1583-1606, November 1991.

Zebker, H. A., J. J. van Zyl, S. L. Durden, and L. Norikane,  
"Calibrated Imaging Radar Polarimetry: Technique, Examples, and Applications,"  
*IEEE Transactions on Geoscience and Remote Sensing*,  
Vol. 29, No. 6, pp. 942-961, November 1991.

Zieger, A. R., D. W. Hancock (NASA Goddard Space Flight Center), G. S. Hayne (NASA Goddard Space Flight Center), and C. L. Purdy (NASA Goddard Space Flight Center),  
"NASA Radar Altimeter for the TOPEX/POSEIDON Project,"  
*Proceedings of the IEEE*,  
Vol. 79, No. 6, pp. 810-826, June 1991.



**Zipse, J. E., R. Y. Yeung, B. A. Zimmerman,  
R. Morillo, D. B. Olster, J. W. Flower (ParaSoft  
Corporation, Pasadena, California), and T. Mizuo  
(Aura Systems, Inc., El Segundo, California),**  
"A Multicomputer Simulation of the Galileo  
Spacecraft Command and Data Subsystem,"  
*Proceedings of the Sixth Distributed Memory  
Computing Conference,*  
*Portland, Oregon, April 28-May 1, 1991,*  
pp. 11-18, 1991.

**Zlotnicki, V.,**  
"Sea Level Differences Across the Gulf Stream  
and Kuroshio Extension,"  
*Journal of Physical Oceanography,*  
Vol. 21, No. 4, pp. 599-609, April 1991.

