

PUBLICATIONS

APL staff members were authors or coauthors of the following unclassified books and technical articles that were recently published:

- Anderson BJ, Denton RE, Ho G, Hamilton DC, Fusselier SA, and Strangeway RJ**
Observational test of local proton cyclotron instability in the Earth's magnetosphere, *J. Geophys. Res.* 101, 21,527–21,543 (1996).
- Angelopoulos V, Mitchell DG, McEntire RW, Williams DJ, Lui ATY, Krimigis SM, Decker RB, Christon SP, Kokubun S, Yamamoto T, Saito Y, Mukai T, Mozer FS, Tsuruda K, Reeves GD, Hughes WJ, Friis-Christensen E, and Troshichev O**
Tailwind progression of magnetotail acceleration centers: Relationship to substorm current wedge, *J. Geophys. Res.* 101, 24,599–24,619 (1996).
- Belehaki A, Sarris ET, Tsiroupolou G, McEntire RW, Kokubun S, and Yamamoto T**
Flux rope signatures in the distant plasma sheet boundary layer observed by geotail, *Proc. Third Int. Conf. on Substorms*, ESA SP-389, pp. 507–510 (1996).
- Benson RC, Phillips TE, Boies MT, and Uy OM**
Neutral mass spectrometer results from MSX early operations phase, *Proc. SPIE Int. Conf.: Optical System Contamination*, Vol. 2864, pp. 157–168 (1996).
- Betenbaugh TM, and Tomkiewicz RL**
Model testing of the Midcourse Space Experiment (MSX) spacecraft, *Proc. 19th Space Simulation Conf.*, p. 147 (1996).
- Bierman PJ, Cranmer JH, Lebowitz CA (Edison Welding Inst.), and Brown LM (NSWC, Carderock)**
End-of-cure sensing using ultrasonics for autoclave fabrication of composites, *Proc. SPIE Int. Conf.: Nondestructive Evaluation for Process Control in Manufacturing*, Vol. 2948 (1996).
- Boies MT, Cole TD, El-Dinary AS, and Reiter RA**
Optical system development and performance testing of the NEAR Laser Rangefinder, *Proc. SPIE Int. Conf.: Optical Science, Engineering, and Instrumentation*, pp. 169–184 (1996).
- Boies MT, Phillips TE, Silver DM, El-Dinary AS, Uy OM, Dyer JS (Utah State Univ.), and Mill JD (Environmental Research Inst. of Michigan)**
Total pressure sensor results from the early operations phase of the MSX mission, *Proc. SPIE Int. Conf.: Optical System Contamination*, Vol. 2864, pp. 138–156 (1996).
- Bristow WA, and Greenwald RA**
Multiradar observations of medium-scale acoustic gravity waves using the Super Dual Auroral Radar Network, *J. Geophys. Res.* 101, 24,499–24,511 (1996).
- Butler MH, Dakermanji G, Jenkins JE, and Carlsson PU**
The Near Earth Asteroid Rendezvous spacecraft power subsystem, *Proc. 4th European Space Power Conf.*, SP-369, Vol. 1, pp. 277–282 (1996).
- Castella FR**
Combined multisensor alignment and track filtering on a single platform, *Proc. First Australian Data Fusion Symposium*, Adelaide, Australia, pp. 20–24 (Nov 1996).
- Charles HK Jr, Mach KJ, and Edwards RL**
Multichip module (MCM) wirebonding, *Proc. Second Int. Symp. on Electronic Packaging Technology*, The Chinese Packaging Society, Shanghai, PR China, pp. 336–341 (1996).
- Charles HK Jr, Mach KJ, Edwards RL, and Lehtonen SJ**
Wirebonding for multichip modules, *Proc. Int. Microelectronics Symp.*, Reston, VA, pp. 420–426 (1996).
- Cheng AF, and Paranicas CP**
Implications of Io's magnetic signature: Ferromagnetism? *Geophys. Res. Lett.* 23, 2879–2882 (1996).
- Cheng AF, Pieters C, and Murchie S**
Sample collection from planetary surfaces, *Lunar Planetary Sci. XXVII*, pp. 213–214 (1996).
- Christon SP, Gloeckler G, Eastman TE, McEntire RW, Roelof EC, Lui ATY, Williams DJ, Frank LA, Paterson WR, Kokubun S, Matsumoto H, Kojima H, Mukai T, Saito Y, and Yamamoto T**
Average energetic ion flux variations associated with geomagnetic activity from EPIC/STICS on Geotail, *Proc. 3rd Int. Conf. on Substorms*, ESA SP-389, pp. 527–532 (1996).
- Cloeren JM, and Hamilton C**
Precision crystal oscillator for interplanetary radio science, *Proc. 1996 IEEE Int. Frequency Control Symp.*, pp. 761–766 (1996).
- Cole TD, Cheng AF, Zuber MT, and Smith D**
The Laser Rangefinder on the Near Earth Asteroid Rendezvous spacecraft, *Proc. 2nd IAA Int. Conf. on Low-Cost Planetary Missions*, JHU/APL, Laurel, MD, Paper IAA-L-0910 (1996).
- Cole TD, and Davidson F**
Performance evaluation of the NEAR Laser Rangefinder, *Proc. SPIE Int. Conf.: Optical Science, Engineering, and Instrumentation*, Paper 2811-18 (1996).
- Colvin AE Jr (Process Technologies, Inc.), Phillips TE, Miragliotta JA, Givens RB, and Bergeron CB**
A novel solid-state oxygen sensor, *Johns Hopkins APL Tech. Dig.* 17(4), 377–385 (1996).
- Conn RA, and Kam M (Drexel Univ.)**
On the moving-obstacle path-planning algorithm of Shih, Lee, and Gruver, *IEEE Trans. Systems, Man, and Cybernetics—Part B: Cybernetics* 27(1), 136–138 (1997).
- Constantikes KT, Thomas ME, and Claussen ED**
Diurnal variation of desert midwave infrared images, *Johns Hopkins APL Tech. Dig.* 17(4), 357–361 (1996).
- Corvelli AA (JHU-BME), Biermann PJ, and Roberts JC**
The design, analysis, and fabrication of a composite intramedullary implant, *Proc. American Society for Composites, 11th Technical Conf.*, pp. 707–716 (1996).
- Crawford LJ, Coughlin TB, and Ebert WL**
Cost estimation and modeling for space missions at JHU/APL, *Proc. 2nd IAA Int. Conf. on Low-Cost Planetary Missions*, JHU/APL, Laurel, MD, Paper IAA-L-0806 (1996).
- DeBoy CC, Schwarz PD, and Huebschman RK**
Midcourse Space Experiment spacecraft and ground segment telemetry design and implementation, *Proc. Int. Telemetering Conf.* pp. 435–446 (1996).
- Denton RE, Anderson BJ, Ho G, and Hamilton DC**
Effects of wave superposition on the polarization of electromagnetic ion cyclotron waves, *J. Geophys. Res.* 101, 24,869–24,885 (1996).

- Diver DA, Brown JC, and Rust DM**
A possible mechanism governing the production and evolution of Ellerman bombs, *Solar Phys.* **168**, 105–114 (1996).
- Dragonette RA**
Computer modelling of spacecraft performance for flight operations: Lessons learned taking a model from concept to operational software, *Proc. 4th Int. Symp. on Space Mission Operations and Ground Data Systems, Simulation and Modelling Session*, CD-ROM (1996).
- Dunham DW, Farquhar RW, and McAdams JV**
Near Earth Asteroid Rendezvous (NEAR), NASA's first Discovery mission, *Proc. 20th Int. Symp. on Space Technology and Science*, Paper 96-I-10, (1996).
- Eisenreich P, Hersman CB, Boldt JD, Oden SF, and Temkin DK**
Modular design of data processing hardware for spacecraft instruments, *Proc. 2nd IAA Int. Conf. on Low-Cost Planetary Missions*, JHU/APL, Laurel, MD, Paper IAA-L-0915 (1996).
- El-Dinary AS, and Cole TD**
Pre-launch and post-launch testing of the Near Earth Asteroid Rendezvous Laser Rangefinder, *Proc. SPIE Int. Conf.: Optical Science, Engineering, and Instrumentation* (1996).
- El-Dinary AS, Cole TD, Reiter RA, and Rodriguez DE**
Control software for the Near Earth Asteroid Rendezvous Laser Rangefinder, *Proc. SPIE Int. Conf.: Optical Science, Engineering, and Instrumentation*, p. 2811 (1996).
- Ercol CJ, and Krein SJ**
NEAR spacecraft thermal vacuum testing, *Proc. 19th Space Simulation Conf.*, p. 93 (1996).
- Erlandson RE, Boies MT, Uy OM, Grebowsky J (NASA Goddard), and Coulson JT (SAIC)**
MSX contamination experiment ion mass spectrometer observations during early operations, *Proc. SPIE Int. Conf.: Optical System Contamination*, Vol. 2864, pp. 201–207 (1996).
- Erlandson RE, Mursula K, and Bosinger T**
Simultaneous ground-satellite observations of structured PC pulsations, *J. Geophys. Res.* **101**, 27,149–27,156 (1996).
- Eviatar A, Vasiliunas VM, and Richardson JD**
Correction to plasma temperature profiles in the magnetosphere of neptune, *J. Geophys. Res.* **101**, 27,463 (1996).
- Farquhar RW**
Mission to gather data on Mathilde, Eros, and Earth, *The Near-Earth Objects News*, 1 (Fall 1996).
- Franson JD**
Change and uncertainty in quantum systems, *Phys. Rev. A* **54**(5), 3808–3812 (1996).
- Freund DE, McCally RL, Farrell RA, and Sliney DH (US Army)**
A theoretical comparison of retinal temperature changes resulting from exposure to rectangular and Gaussian beams, *Lasers in the Life Sci.* **7**(2), 71–89 (1996).
- Galica GE (Physical Sciences, Inc.), Atkinson JJ (Visidyne), Aurilio G (Visidyne), Shepherd O (Visidyne), Lesho JC, and Uy OM**
Optical measurement of the MSX local H₂O density, *Proc. SPIE Int. Conf.*, Vol. 2864, pp. 181–186 (1996).
- Galica GE (Physical Sciences, Inc.), Green BD (Physical Sciences, Inc.), Atkinson JJ (Visidyne), Aurilio G (Visidyne), Shepherd O (Visidyne), Lesho JC, and Uy OM**
Flashlamp measurement of the MSX particulate environments, *Proc. SPIE Int. Conf.*, Vol. 2864, pp. 169–180 (1996).
- Ginther MJ, Folkerts JT, Uy OM, Street K Jr (NASA Lewis), and Naumann J Jr (NASA Lewis)**
Use of a NASA-developed ion exchange material for removal of zinc from electroplating, *Proc. AESF SUR-FIN Conf.*, Cleveland, OH (Jun 1996).
- Givens RB, Murphy JC, Osiander R, Kistenmacher TJ, and Wickenden DK**
A high sensitivity, wide dynamic range magnetometer designed on a xylophone resonator, *Applied Phys. Lett.* **69**(18), 2755–2757 (1996).
- Goldsten JO, McNutt RL, Gold RE, Gary SA, Fiore EM, Schneider SE, Hayes JR, and Trombka JI**
The X-ray/gamma-ray spectrometer on the Near Earth Asteroid Rendezvous mission, *Proc. 2nd IAA Int. Conf. on Low-Cost Planetary Missions*, JHU/APL, Laurel, MD, Paper IAA-L-0907 (1996).
- Graber HC, Thompson DR, and Carande RE**
Ocean surface features and currents measured with SAR interferometry and HF radar, *J. Geophys. Res., Oceans* **101**, 25,813–25,832 (1996).
- Green BD (Physical Sciences, Inc.), Galica GE (Physical Sciences, Inc.), Mulhall PA (Physical Sciences, Inc.), Dyer J (Utah State Univ.), and Uy OM**
Particle trajectories and clearing times after mechanical door openings on the MSX satellite, *Proc. SPIE Int. Conf.*, Vol. 2864, pp. 195–200 (1996).
- Greenwald RA**
What is SuperDARN? *Proc. US-Japan Workshop on Arctic Res.*, pp. 145–151 (1996).
- Greenwald RA, Ruohoniemi JM, Bristow WA, Sofko GJ, Villain JP, Huuskonen A, Kokubun S, and Frank LA**
Mesoscale dayside convection vortices and their relation to substorm phase, *J. Geophys. Res.* **101**, 21,697–21,713 (1996).
- Harvey RJ**
Applications of spacecraft autonomy and their influence over mission operations, *Proc. 4th Int. Symp. on Space Mission Operations and Ground Data Systems, Operations Automation Session* (1996).
- Harvey RJ, and Baer GE**
MSX mission operations center, *Proc. Int. Telemetering Conf.* (1996).
- Hawkins SE III**
Overview of the multi-spectral imager on the NEAR spacecraft, *Proc. 2nd IAA Int. Conf. on Low-Cost Planetary Missions*, JHU/APL, Laurel, MD, Paper IAA-0901 (1996).
- Hersman C, Boldt J, Eisenreich PJ, Oden S, and Temkin D**
Modular design of data processing hardware for spacecraft instruments, *Proc. 2nd IAA Int. Conf. on Low-Cost Planetary Missions*, JHU/APL, Laurel, MD, Paper IAA-L-0915 (1996).
- Howser LM**
Modeling and measuring scan modulation of an infrared seeker, *Proc. SPIE Int. Conf.: Infrared Imaging Systems: Design, Analysis, Modeling, and Testing VII*, Orlando, FL, Vol. 2743, pp. 113–122 (1996).
- Jacobs BC, and Franson JD**
Quantum cryptography in free space, *Opt. Lett.* **21**(22), 1854–1856 (1996).
- Jenkins AL (Univ. of MD Baltimore County), Murray G (Univ. of MD Baltimore County), and Uy OM**
A polymer-based optical sensor for the chemical agents sarin and soman, *Proc. Scientific Conf. on Chemical and Biological Defense Research*, Paper No. 140, Aberdeen Proving Ground, MD (1996).

- Jensen JR, and Raney RK**
The advanced satellite radar altimeter, *Proc. 47th Int. Astronautical Congress*, Paper IAF-96-B.3.P101 (1996).
- Kennedy MJ, Friedman SD, Barkhouser RH, Hampton J, and Nikulla P**
Design of the Far Ultraviolet Spectroscopic Explorer mirror assemblies, *Proc. SPIE Int. Conf.: Optical Science, Engineering, and Instrumentation*, Vol. 2807, pp. 172–183 (1996).
- Kennedy MJ, Sahnow DJ, VanDyke CM, Gong Q, and Bremer J**
Optical performance budget for the Far Ultraviolet Spectroscopic Explorer, *Proc. SPIE Int. Conf.: Optical Science, Engineering, and Instrumentation*, Vol. 2863, pp. 27–35 (1996).
- Krein JA, and Mehoke DS**
MSX spacecraft thermal vacuum testing, *Proc. 19th Space Simulation Conf.*, p. 81 (1996).
- Le BQ**
Light-weight Laser Rangefinder packaging design, *Proc. 2nd IAA Int. Conf. on Low-Cost Planetary Missions*, JHU/APL, Laurel, MD (1996).
- Le BQ, Cole TD, Rodriguez DE, Reiter RA, Moore RC, Boies MT, Schafer ED, Stillman LE, and Krein SJ**
The NEAR Laser Rangefinder light-weight packaging design, *Proc. SPIE Int. Conf.: Optical Science, Engineering, and Instrumentation*, Vol. 2811, pp. 208–216 (1996).
- Le BQ, Nhan E, Lew AL, Maurer RH, Clatterbaugh GC, and Lohr D**
Miniaturized, low-cost design of the Freja magnetometer signal processor using COB technology, *Proc. 2nd IAA Int. Conf. on Low-Cost Planetary Missions*, JHU/APL, Laurel, MD, Paper IAA-L-0904P (1996).
- Lee SC, and Santo AG**
Near Earth Asteroid Rendezvous spacecraft safing design, *Proc. 2nd IAA Int. Conf. on Low-Cost Planetary Missions*, JHU/APL, Laurel, MD, Paper IAA-L-0517 (1996).
- Lu G, Emery BA, Rodger AS, Lester M, Taylor JR, Evans DS, Ruohoniemi JM, Denig WF, de la Beaujardiere O, Frahm RA, Winingham JD, and Chenette DL**
High-latitude ionospheric electrodynamics as determined by the assimilative mapping of ionospheric electrodynamics procedure for the conjunctive SUNDIAL/ATLAS 1/GEM period of March 28–29, 1992, *J. Geophys. Res.* 101, 26,697–26,718 (1996).
- Lui ATY**
Local and global effects of the cross-field current instability, *Proc. Third Int. Conf. on Substorms*, ESA SP-389, pp. 387–392 (1996).
- Marshall MH, Landshof JA, and van der Ha JC**
Reducing mission cost, Chap. 6 in *Reducing Space Mission Cost*, JR Wertz and WJ Larson (eds.), pp. 193–227 (1996).
- Maurer RH, Heins RJ, and Cole TD**
Qualification of the NEAR laser transmitter, *Proc. SPIE Int. Conf.: Optical Science, Engineering, and Instrumentation*, pp. 218–221 (1996).
- Matsuzawa M (Riken), Weight FF (NIAAA), Potember RS, and Liesi P (NIAAA)**
Directional neurite outgrowth and axonal differentiation of embryonic hippocampal neurons are promoted by a neurite outgrowth domain of the B2-chair of laminin, *Int. J. Dev. Neurosci.* 14(1), 283–295 (1996).
- McEntire RW, Cheng AF, Murchie SL, Keath EP, Managadze GG, and Rosenbauer HR**
Instrumentation for measuring the elemental and isotopic surface composition of small bodies and planetary moons, *Proc. 2nd IAA Int. Conf. on Low-Cost Planetary Missions*, JHU/APL, Laurel, MD, Paper IAA-L-0909 (1996).
- McNutt RL Jr, Gold RE, Keath EP, Rust DM, Krimigis SM, Zanetti LJ, Willey CE, Williams BD, Kurth WS, Gurnett DA, Acuna MH, Burlaga LF, Gloeckler G, Ipavich FM, Lazarus AJ, Steinberg JT, Brueckner G, Socker D, Holzer TE, Bochsler PA, Kallenbach R, and Roux A**
An advanced solar probe experiment module (AD SOLEM), *Proc. SPIE Int. Conf.: Optical Science, Engineering, and Instrumentation*, Vol. 2804, pp. 1–13 (1996).
- McNutt RL Jr, Mitchell DG, Keath EP, Paschalidis N, Gold RE, and McEntire RW**
A compact particle detector for low-energy particle measurements, *Proc. 2nd IAA Int. Conf. on Low-Cost Planetary Missions*, JHU/APL, Laurel, MD, Paper IAA-L-0911 (1996).
- Meng CI**
Current optical remote sensing programs at JHU/APL, *Proc. US-Japan Workshop on Arctic Research*, pp. 321–337 (1996).
- Miragliotta J, and Wickenden DK**
Transient photocurrent induced in gallium nitride by two-photon absorption, *Appl. Phys. Lett.* 69(14), 2095–2097 (1996).
- Moore RC, and Rodriguez DE**
Single board digital processing system approach for the NEAR Laser Rangefinder instrument, *Proc. SPIE Int. Conf.: Optical Science, Engineering, and Instrumentation*, pp. 185–193 (1996).
- Mueller JT, and Wingate CA**
The Far Ultraviolet Spectroscopic Explorer (FUSE): A blueprint for future missions, *Proc. 47th AIAA Int. Astronautical Federation Congress*, Paper IAF-96-U.1.02 (1996).
- Murphy GA, Rust DM, Strohbehn K, Keil SL, and Keller CU**
Flare Genesis experiment, *Proc. SPIE Int. Conf.: Optical Science, Engineering, and Instrumentation*, Vol. 2804, pp. 141–152 (1996).
- Newell PT, Lyons KM, and Meng CI**
Correction to a large survey of electron acceleration events, *J. Geophys. Res.* 101, 25,003 (1996).
- Noreen G, Kinman P, and Bokulic RS**
Detection of very weak transmission from deep space, *Proc. 2nd IAA Int. Conf. on Low-Cost Planetary Missions*, JHU/APL, Laurel, MD, Paper IAA-L-0306 (1996).
- Norton JR, Cloeren JM, and Sulzer PG**
Brief history of the development of ultra-precise oscillators for ground and space applications, *Proc. IEEE Int. Frequency Control Symp.*, pp. 47–57 (1996).
- Ohtani S, Takahashi K, Higuchi T, Lui ATY, and Spence HE**
AMPTE/CCE and SCATHA simultaneous observations of magnetic signatures associated with a substorm onset, *Proc. 3rd Int. Conf. on Substorms*, ESA SP-389, pp. 279–283 (1996).
- Osiander R, Ecelberger SA, Givens RB, Wickenden DK, Murphy JC, and Kistenmacher TJ**
A microelectromechanical-based magnetostrictive magnetometer, *Appl. Phys. Lett.* 69(19), 2930–2931 (1996).
- Paranicas CP**
Non-dipolar L shells for Galileo–Ganymede encounters and Non-dipolar L shells for Voyager-1 Io encounter, published on the Galileo EPD web site (www.sd-www.jhuapl.edu/Galileo_EPD/Jup.html) (1996).
- Paschalidid NP, Keath EP, McNutt RL Jr, Mitchell DG, McEntire RW, Jaskulek SE, Schlemm C, Tossman BE, Krimigis SM, Stamatopoulos N, Karadamoglou K, and Sarris ET**
Electronics miniaturization of spacecraft instruments and subsystems, *Proc. 2nd IAA Int. Conf. on Low-Cost Planetary Missions*, JHU/APL, Laurel, MD, Paper IAA-L-0914 (1996).

- Payne RR**
Crawling the World Wide Web to access financials information, *Oracle Applications Users Group Fall 1996 Proc.*, pp. 63-1 to 63-7 (1996).
- Persons DF**
Mechanical testing of the NEAR spacecraft, *Proc. 19th Space Simulation Conf.*, p. 95 (1996).
- Potemra TA, and Blomberg LG**
A survey of Pc 5 pulsations in the dayside high latitude regions observed by Viking, *J. Geophys. Res.* **101**, 24,801-24,813 (1996).
- Raney RK, and Gasparovic RF**
POES companion: Objectives and science methodology, *Proc. IAA Int. Symp. on Small Satellites for Earth Observation*, pp. 251-254 (1996).
- Rapport ID, Balkcom GW, Stirrat CR, and Wilson RL**
System-level testing in operational environments, *Johns Hopkins APL Tech. Dig.* **17**(4), 412-419 (1996).
- Roberts JC**
A comparison of analytic, finite element and experimental results for unstiffened and hat-stiffened rectangular orthotropic plates under in-plane and out-of-plane loads, *Proc. American Society for Composites, 11th Technical Conf.*, Atlanta, GA, pp. 3-11 (1996).
- Ruohoniemi JM, and Greenwald RA**
Statistical patterns of high-latitude convection obtained from Goose Bay HF radar observations, *J. Geophys. Res.* **101**, 21,743-21,763 (1996).
- Rzemien R**
Coherent radar—Opportunities and demands, *Johns Hopkins APL Tech. Dig.* **17**(4), 386-400 (1996).
- Santo AG, Krimigis SM, Jenkins RE, Reynolds EL, and Coughlin TB**
Lessons for the future: The NEAR mission in NASA's Discovery program, *Proc. 47th AIAA Int. Astronautical Congress*, Paper IAF-96-U.2.04 (1996).
- Schaefer ED**
Evaluating the vibroacoustic behavior of spacecraft structure, *Proc. 19th Space Simulation Conf.*, p. 149 (1996).
- Schaefer ED, and Lacy JM**
Structural evaluation of Topaz II—The Russian spaced-based nuclear reactor, *Proc. 19th Space Simulation Conf.*, p. 141 (1996).
- Sears RD, Romick G, Morrison D, and Murphy P**
Stratospheric and lower mesospheric structure sounding using UV-visible band spectral imagery, *Proc. SPIE Int. Conf.: Optical Science, Engineering, and Instrumentation* (1996).
- Seegar WS (US Army Edgewood Research Center), Cutchis PN, Fuller MR (Dept. of the Interior), Suter JJ, Bhatnagar V, and Wall JG**
Fifteen years of satellite tracking development and application to wildlife research and conservation, *Johns Hopkins APL Tech. Dig.* **17**(4), 401-411 (1996).
- Silver DM, Benson RC, Boies MT, Dyer JS (Utah State Univ.), Erlandson RE, Galica GE (Physical Sciences, Inc.), Green BD (Physical Sciences, Inc.), Hall DF, Lesho JC, Phillips TE, Uy OM, and Wood BE (Arnold Eng. Dev. Center)**
Midcourse Space Experiment molecular contamination modeling predictions for early orbital operations, *Proc. 19th Space Simulations Conf.*, Baltimore, MD (1996).
- Sinsky JH, and Westgate CR**
A new approach to designing active MMIC tuning elements using second-generation current conveyors, *Proc. IEEE Microwave and Guided Wave Letters*, Vol. 6, No. 9, pp. 326-328 (1996).
- Srinivasan R, Gopalan P, Zarriello PR, Myles-Tochko CJ, and Meyer JH**
Design of cathodic protection of rebars in concrete structures: An electrochemical engineering approach, *Johns Hopkins APL Tech. Dig.* **17**(4), 362-370 (1996).
- Stapor WJ, Knudson A, Kinnison JD, Carkhuff BG, and Dussault H**
A comparison of single-event results from lower energy and higher energy ion beams, *Proc. Nuclear and Space Radiation Effects Conf.* (1996).
- Straka SA (NASA Goddard), Chen PT (NASA Goddard), McIntosh R (NASA Goddard), Banks B (NASA Lewis), Uy OM, Rugby DC (Swales), Triolo JJ (Swales), and Bettini R (Swales)**
The coatings and environmental effects monitor (CEEM) flight experiment, *Proc. 34th Aerospace Sciences Mtg. and Exhibit*, Reno, NV, AIAA 96-0224 (1996).
- Strikwerda TE, and Fisher HL**
Analysis of the NEAR Star Tracker flight data, *Proc. SPIE Int. Conf.: Optical Science, Engineering, and Instrumentation* (1996).
- Strohbehn K, Darlington EH, Le BQ, Schwartz PD, Hersman CB, and Peacock K**
Miniature scientific CCD camera, *Proc. 2nd IAA Int. Conf. on Low-Cost Planetary Missions*, JHU/APL, Laurel, MD, Paper IAA-L-0903 (1996).
- Swaminathan PK, Taylor JC, Rault DFG, Erlandson RE, and Meng CI**
Transition regime aerodynamic heating of missiles, *J. Spacecr. Rockets* **33**(5), 607-613 (1996).
- Takahashi K, Anderson BJ, and Ohtani S**
Multisatellite study of nightside transient toidal waves, *J. Geophys. Res.* **101**, 24,815-24,825 (1996).
- Theriault ML**
Database administrator—The definitive job description, *Int. Oracle User Week Proc.* (CD-ROM), Oracle Corporation, Redwood Shores, CA, pp. 1-3 (3-8 Nov 1996).
- Uy OM, Ginther MJ, Folkerts JT, and Street KW Jr (NASA Lewis)**
Use of a NASA-developed ion exchange material for removal of zinc from electroplating baths, *Johns Hopkins APL Tech. Dig.* **17**(4), 371-376 (1996).
- van der Ha JC, Marshall MH, and Landshof JA**
Cost-effective mission operations, *Proc. 2nd IAA Int. Conf. on Low-Cost Planetary Missions*, JHU/APL, Laurel, MD, Paper IAA-L-0301 (1996).
- Venkataramani SC (Univ. of MD), Antonsen TM Jr (Univ. of MD), Ott E (Univ. of MD), and Sommerer JC**
On-off intermittency: Power spectrum and fractal properties of time series, *Physica D* **96**, 66-69 (1996).
- White ME, and Ault DA**
Expansion corner effects on hypersonic shock wave turbulent boundary-layer interactions, *J. Propulsion and Power* **12**(6) (1996).
- Williams DJ**
Jupiter-at last! *Johns Hopkins APL Tech. Dig.* **17**(4), 338-356 (1996).
- Williams DJ, Mauk BH, McEntire RW, Roelof EC, Armstrong TP, Wilken B, Roederer JG, Krimigis SM, Fritz TA, and Lanzerotti LJ**
Electron beams and ion composition measured at Io and in its torus, *Science* **274**, 401-403 (1996).
- Wood BE (Arnold Eng. Dev. Center), Hall DF (Aerospace Corp.), Lesho JC, Dyer JD (Utah State Univ.), Uy OM, and Bertrand WT (Arnold Eng. Dev. Center)**
Quartz crystal microbalance (QCM) flight measurement of contamination on the MSX satellite, *Proc. SPIE Int. Conf.*:

- Optical Science, Engineering, and Instrumentation*, Vol. 2864, pp. 187–194 (1996).
- Wood BE (Arnold Eng. Dev. Center), Seiber BL (Arnold Eng. Dev. Center), Bertrand WT (Arnold Eng. Dev. Center), and Uy OM**
Effects of thin cryo-contaminant films on Midcourse Space Experiment (MSX) satellite cryo-optics, *Proc. 34th Aerospace Sciences Mtg. and Exhibit*, Reno, NV, AIAA 96-0221 (1996).
- Yamamoto T, Inoue S, and Meng CI**
Formation of auroral omega bands in the paired region 1 and region 2 field-aligned current system, *J. Geophys. Res.* 101, 24,815–24,825 (1996).
- Yamamoto T, Inoue S, Nishitani N, Ozaki M, and Meng CI**
A theory for generation of the paired region 1 and region 2 field-aligned currents, *J. Geophys. Res.* 101, 27,199–27,222 (1996).
- Yamauchi M, and Lui ATY**
Magnetic neutral region as an MHD mode converter, *Proc. Third Int. Conf. on Substorms*, ESA SP-389, pp. 613–617 (1996).
- Yamauchi M, Nilsson H, Eliasson L, Norberg O, Boehm M, Clemons JH, Lepping RP, Blomberg L, Ohtani S, Yamamoto T, Mukai T, Terasawa T, and Kokubun S**
Dynamic response of the cusp morphology to the solar wind: A case study during passage of the solar wind plasma cloud on February 21, 1994, *J. Geophys. Res.* 101, 24,675–24,687 (1996).
- Yoon PH, Drake JF, and Lui ATY**
Theory and simulation of Kelvin-Helmholtz instability in the geomagnetic tail, *J. Geophys. Res.* 101, 27,327–27,339 (1996).
- Zanetti LJ, Gold RE, Bythrow PF, Chiu MC, and Rust DM**
Low-cost delivery of space weather products, *Proc. 2nd IAA Conf. on Low-Cost Planetary Missions*, JHU/APL, Laurel, MD (1996).
- PRESENTATIONS**
- APL staff members were among those who gave the following unclassified presentations:
- Anderson BJ**
Monitoring auroral oval configuration via auroral zone fluctuations: Encounter between global observations and models in the ISTP era, *Huntsville Workshop*, Huntsville, AL (15–20 Sep 1996).
- Baer GE, and Harvey RJ**
MSX mission operations center, *32nd Annual Telemetry Conf. and Technical Exhibition*, San Diego, CA (28–31 Oct 1996).
- Benson RC, Phillips TE, Boies MT, and Uy OM**
Neutral mass spectrometer results from MSX early operations phase, *SPIE Int. Conf.: Optical System Contamination* (1996).
- Biermann PJ, Cranmer JH, Lebowitz CA (Edison Welding Inst.), and Brown LM (NSWC, Carderock)**
End-of-cure sensing using ultrasonics for autoclave fabrication of composites, *Non-Destructive Evaluation Techniques for Aging Infrastructure and Manufacturing*, SPIE, Scottsdale, AZ (2–5 Dec 1996).
- Boies MT, Phillips TE, Silver DM, El-Dinary AS, Uy OM, Dyer JS (Utah State Univ.), and Mill JD (Environmental Research Inst. of Michigan)**
Total pressure sensor results from the early operations phase of the MSX mission, *SPIE Int. Conf.: Optical System Contamination* (1996).
- Bothmer V, Culhane L, Davila JM, Keil S, Liewer P, Mauk BH, Rust DM, Pizzo V, and Socker D**
Solar terrestrial relations observatory (stereo), *Symposium on Scientific Satellites, Achievements and Prospects in Europe*, Paris, France (20–22 Nov 1996).
- Bzhelyansky A (Univ. of MD Baltimore County), Zeng X (Univ. of MD Baltimore County), Murray G (Univ. of MD Baltimore County), and Uy OM**
A metal ion templated polymeric sensor for lead, *Scientific Conf. on Chemical and Biological Defense Research*, Paper No. 12, Aberdeen Proving Ground, MD (19–22 Nov 1996).
- Charles HK Jr, Mach KJ, and Edwards RL**
Multichip module (MCM) wirebonding, *Second Int. Symp. on Electronic Packaging Technology*, The Chinese Packaging Society, Shanghai, PR China (9–12 Dec 1996).
- Charles HK Jr, Mach KJ, Edwards RL, and Lehtonen SJ**
Wirebonding for multichip modules, *Int. Microelectronics Symp.*, ISHM—The Microelectronics Society, Minneapolis, MN (6–8 Oct 1996).
- Charles HK Jr, and Mechtel DM (US Naval Academy)**
Advanced packaging development and materials analysis using electro-optic probing techniques, *2nd Symp. on Advanced Packaging Materials*, ISHM—The Microelectronics Society, Atlanta, GA (8 Mar 1996).
- Charles HK Jr, Schneider W, Eaton HAC, Wagner GD, and Lesho JC**
Packaging of therapeutic electronic health aids, *ISHM ATW on MCM-D&L*, ISHM—The Microelectronics Society, Ogunquit, ME (19–21 Jun 1996).
- Cheng AF, and Paranicas CP**
Field-aligned potential drops near Io, *Galileo Project Science Group*, Pasadena, CA (20 Nov 1996).
- Chin DC**
Efficient identification procedures for current and conductivity tomography, *1996 Mid-Atlantic Probability and Statistics Day*, Univ. of Maryland Baltimore County, Baltimore, MD (26 Oct 1996).
- Corvelli AA (JHU-BME), Biermann PJ, and Roberts JC**
The design, analysis, and fabrication of a composite intramedullary implant, *American Soc. for Composites 11th Technical Conf.*, Atlanta, GA (7–9 Oct 1996).
- Coughlin TB**
Managing fast tracks, *NASA Program/Project Management Initiative*, Wallops Island, VA (20 Nov 1996).
- NEAR: Faster, better, cheaper, and thoroughly tested**, *19th Space Simulation Conf.*, Baltimore, MD (28–31 Oct 1996).
- NEAR spacecraft design-development**, *Massachusetts Inst. of Technology Dept. of Aeronautics, Master of Engineering Aerospace Product Design Course*, Cambridge, MA (14 Nov 1996).
- NEAR: The first launch in the Discovery program**, *Small Satellite Conf.*, NASA/GSFC, Greenbelt, MD (22 Oct 1996).
- Dunham DW, Farquhar RW, McAdams JA, Williams BG, Scheeres D, Wasserman L, Klemola A, Harris H, and Manek J**
Targeting (253) Mathilde, *28th Annual Mtg. of the Division for Planetary Sciences of the American Astronomical Soc.*, Tucson, AZ (23–26 Oct 1996).
- Erlandson RE, Boies MT, Uy OM, Grebowsky J (NASA Goddard), and Coulson JT (SAIC)**
MSX contamination experiment ion mass spectrometer observations during early operations, *SPIE Int. Conf.: Optical System Contamination* (1996).
- Fetter JE**
Building telecommunication projects for rural Maryland, *Technology Showcase*, Office of Rural Health, Baltimore, MD (10 Dec 1996).

- Fetter JE, Schinski V (USUHS), Allman R (UMAB), and Gitlin J (JHMI)**
 Baseline study at Sacred Heart Hospital, *Third Annual Rural Health Conf.*, Office of Rural Health, Solomon's Island, MD (24 Oct 1996).
- Fraeman ME, Hoffman EJ, and Kinnison J**
 High-performance computing for space, *DARPA Workshop*, Alexandria, VA (9 Jul 1996).
- Fraeman ME, Martin M, Pouliquen P, and Andreau A**
 Subthreshold current mode differential logic circuits for low power digital systems, *IEEE Circuits and Systems Management Mtg.*, Iowa State University, Ames, IA (19 Aug 1996).
- Galica GE (Physical Sciences, Inc.), Atkinson JJ (Visidyne), Aurilio G (Visidyne), Shepherd O (Visidyne), Lesho JC, and Uy OM**
 Optical measurement of the MSX local H₂O density, *SPIE Int. Conf.* (1996).
- Galica GE (Physical Sciences, Inc.), Green BD (Physical Sciences, Inc.), Atkinson JJ (Visidyne), Aurilio G (Visidyne), Shepherd O (Visidyne), Lesho JC, and Uy OM**
 Flashlamp measurement of the MSX particulate environments, *SPIE Int. Conf.* (1996).
- Ginther MJ, Folkerts JT, Uy OM, Street K Jr (NASA Lewis), and Naumann J Jr (NASA Lewis)**
 Use of a NASA-developed ion exchange material for removal of zinc from electroplating, *AESF SUR-FIN Conf.*, Cleveland, OH (Jun 1996).
- Green BD (Physical Sciences, Inc.), Galica GE (Physical Sciences, Inc.), Mulhall PA (Physical Sciences, Inc.), Dyer J (Utah State Univ.), and Uy OM**
 Particle trajectories and clearing times after mechanical door openings on the MSX satellite, *SPIE Int. Conf.* (1996).
- Haley DR, Londerville G, and Ciolino R**
 In-flight experience of the space inertial reference unit using the solid state HRG, *Third ESA Int. Conf. on Spacecraft Guidance, Navigation and Control Systems*, Noordwijk, Holland (26–29 Nov 1996).
- Hoffman EJ**
 Advanced space technology, *Advanced Technology Seminar Lecture*, The Johns Hopkins University School of Engineering, JHU/APL, Laurel, MD (7 Oct 1996).
- Jenkins AL (Univ. of MD Baltimore County), Murray G (Univ. of MD Baltimore County), and Uy OM**
 A polymer-based optical sensor for the chemical agents sarin and soman, *Scientific Conf. on Chemical and Biological Defense Research*, Aberdeen Proving Ground, MD (19–22 Nov 1996).
- Jensen JR, and Raney RK**
 The advanced satellite radar altimeter, *47th Int. Astronautical Congress*, Beijing, China (7–11 Oct 1996).
- Jerardi TW, Beaulieu MR, and Alfriend KT**
 Launch detection satellite system engineering error analysis, *AIAA Missile Sciences Conf.*, Monterey, CA (3–5 Dec 1996).
- Kleinman N, Hill S, and Ilenda V**
 SPSA/SIMMOD optimization of air traffic delay cost, *1996 Mid-Atlantic Probability and Statistics Day*, University of Maryland Baltimore County, Baltimore, MD (26 Oct 1996).
- Konstanzer GC, Rowland JR, Dockery GD, and Sylvester JJ**
 SEAWASP: A prototype system for shipboard assessment based on in situ environmental measurements, *Battlespace Atmospherics Conf.* '96, San Diego, CA (3–5 Dec 1996).
- Kwok FT, Van Wie DM, Walsh RF, and Numbers KE (WL/FIMA)**
 Restart of overcontracted, supersonic inlets using upstream mass injection, *JANNAF Propulsion and Subcommittee Joint Mtg.*, Albuquerque, NM (9–13 Dec 1996).
- Landshof JA**
 Near Earth Asteroid Rendezvous (NEAR), *Autonomous "Lights Out" Operations Workshop, Operational Challenges and Promising Technologies*, Goddard Space Flight Center, Greenbelt, MD (17–18 Oct 1996).
- Le BQ**
 Chip-on-board technology, *Electronics Packaging Workshop for Space Applications*, Jet Propulsion Laboratory, Pasadena, CA (5–6 Nov 1996).
- Le BQ, Nhan E, Maurer RH, Lew AL, Schwartz PD, and Lander J**
 Chip-on-board technology for space electronics design, *2nd Sun-Earth Connection Roadmap Workshop*, Jet Propulsion Laboratory, Pasadena, CA (28–30 Oct 1996).
- Maryak JL, Spall JC, and Heydon BD**
 Use of the Kalman filter for inference in state-space models with unknown noise distribution, *1996 Mid-Atlantic Probability and Statistics Day*, University of Maryland Baltimore County, Baltimore, MD (26 Oct 1996).
- McAdams J**
 NEAR—First launch of the Discovery program, *Purdue University School of Aeronautics and Astronautics*, West Lafayette, IN (4 Oct 1996).
- McNutt RL Jr, Gold RE, Keath EP, Rust DM, Krimigis SM, Zanetti LJ, Willey CE, Williams BD, Kurth WS, Gurnett DA, Acuna MH, Burlaga LF, Gloeckler G, Ipavich FM, Lazarus AJ, Steinberg JT, Brueckner G, Socker D, Holzer TE, Bochsler PA, Kallenbach R, and Roux A**
 An advanced solar probe experiment module (AD SOLEM), *SPIE Int. Conf.: Optical Science, Engineering, and Instrumentation*, Denver, CO (4–9 Aug 1996).
- Meng CI, Lui ATY, Sibeck DG, Newell PT, Elphinstone RD, Murphree JS, and Korotova GI**
 Breakups, pseudo-breakups, and interplanetary conditions, *Chapman Conf. on the Earth's Magnetotail: New Perspectives*, Kanazawa, Japan (5–9 Nov 1996).
- Parthasarathy KN, McGrath BE, Frostbutter DA, and Woźniak JJ**
 Development of a towed underwater launch platform, *Missile Sciences Conf.*, American Institute of Aeronautics and Astronautics, Monterey, CA (3–5 Dec 1996).
- Payne RR**
 Crawling the World Wide Web to access financials information, *Oracle Applications Users Group Fall 1996 Conf.*, Oracle Corporation, San Diego, CA (16–19 Oct 1996).
- Phillips TE, and Benson RC**
 Outgassing and moisture sorption investigations of two moisture gettering materials, *6th Int. Workshop on Moisture in Microelectronics*, National Institutes of Standards & Technology (NIST), Gaithersburg, MD (15–17 Oct 1996).
- Raney RK**
 An advanced radar altimeter for NPOESS: Summary status report, *Integrated Program Office*, Silver Spring, MD (17 Dec 1996).
- Applications and special systems: Current challenges, Office of the Space Architect, The Pentagon, Alexandria, VA (19 Dec 1996).
- Configuration trade-offs for NPOESS atmospheric sounders, Office of the Space Architect, Crystal City, VA (19 Dec 1996).
- POES companion: Objectives and science methodology, *Int. Symp. of the Int. Academy of Astronautics, Symp. on Small Satellites for Earth Observation*, Berlin, Germany (4–8 Nov 1996).

- Small satellites and operational atmospheric sounding, *Plenary Panel Presentation, 47th Int. Astronautical Congress*, Beijing, China (7–11 Oct 1996).
- The companion concept: Objectives and science methodology, National Academy of Sciences, Space Studies Board, Committee on Earth Studies, National Research Council, Washington, DC (5 Dec 1996).
- Roberts JC**
A comparison of analytic, finite element, and experimental results for unstiffened and hat-stiffened rectangular orthotropic plates under in-plane and out-of-plane loads, *11th Aeronautical Systems Technical Conf.*, American Society for Composites, Atlanta, GA (7–9 Oct 1996).
- Rowland JR, Konstanzer GC, Neves MR, Miller RE, Meyer JH, and Rottier JR**
Refractivity characterization using shipboard sensors, *Battlespace Atmospherics Conf.* 1996, San Diego, CA (3–5 Dec 1996).
- Rust DM**
New technology developments for spacecraft-borne imagers, *Second Sun-Earth Connections Workshop*, Pasadena, CA (28 Oct 1996).
Solar research in Antarctica: A view from the stratosphere, *Washington Area Astronomers Mtg.*, Greenbelt, MD (31 Oct 1996).
- Rust DM, Davila JM, Pizzo V, and Liewer PC**
The Solar Terrestrial Relations Observatory, *Second Sun-Earth Connections Workshop*, Pasadena, CA (28 Oct 1996).
- Santo AG, Krimigis SM, Jenkins RE, Reynolds EL, and Coughlin TB**
Lessons for the future: The NEAR mission in NASA's Discovery program, *47th Int. Astronautical Congress*, Beijing, China (7–11 Oct 1996).
- Schaefer ED**
Response of honeycomb panels to acoustic excitation, *Spacecraft and Launch Vehicle Dynamics Environment Technical Interchange Mtg.*, Huntsville, AL (10 Sep 1996).
- Schaefer ED, Le BQ, Cole TD, Rodriguez CE, Reiter RA, Moore RC, Boies MT, Stillman L, and Krein SJ**
The NEAR Laser Rangefinder lightweight packaging design, *SPIE Int. Conf.: Optical Science, Engineering, and Instrumentation*, Denver, CO (4–9 Aug 1996).
- Schwartz PD, DeBoy CC, and Huebschman RK**
Midcourse Space Experiment spacecraft and ground segment telemetry design and implementation, *Int. Telemetry Conf.* (28–31 Oct 1996).
- Sears RD, Romick G, Morrison D, and Murphy P**
Stratospheric and lower mesospheric structure sounding using UV-visible band spectral imagery, *SPIE Int. Conf.: Optical Science, Engineering, and Instrumentation*, Denver, CO (4–9 Aug 1996).
- Silver DM, Benson RC, Boies MT, Dyer JS (Utah State Univ.), Erlandson RE, Galica GE (Physical Sciences, Inc.), Green BD (Physical Sciences, Inc.), Hall DF, Lesho JC, Phillips TE, Uy OM, and Wood BE (Arnold Eng. Dev. Center)**
Midcourse Space Experiment molecular contamination modeling predictions for early orbital operations, *19th Space Simulations Conf.*, Baltimore, MD (28–31 Oct 1996).
- Spall JC, Maryak JL, and Asher MS**
A neural network approach to signal inversion, *1996 Mid-Atlantic Probability and Statistics Day*, University of Maryland Baltimore County, Baltimore, MD (26 Oct 1996).
- Straka SA (NASA Goddard), Chen PT (NASA Goddard), McIntosh R (NASA Goddard), Banks B (NASA Lewis), Uy OM, Bugby DC (Swales), Triolo JJ (Swales), and Bettini R (Swales)**
The coatings and environmental effects monitor (CEEM) flight experiment, *34th Aerospace Sciences Mtg. and Exhibit*, Reno, NV (15–18 Jan 1996).
- Strikwerda TA**
Near Earth Asteroid Rendezvous guidance and control system, *SAE Aerospace Control and Guidance Systems Committee Mtg.* No. 78, Nashville, TN (9–11 Oct 1996).
- Theriault ML**
Database administrator—The definitive job description, *Oracle Developer Conf.*, Oracle Corp., San Francisco, CA (6 Nov 1996).
- Thompson MW, Waltrip PJ, Rice T, Adamazak D (WL/FIMA), Gord PR (WL/FIMA), and Numbers KE (WL/FIMA)**
Preliminary design of a dual combustion ramjet-powered, air-launched, hypersonic, long-range strike missile, *JANNAF Propulsion and Subcommittee Joint Mtg.*, Albuquerque, NM (9–13 Dec 1996).
- Vetter JR, London ML, and Spangler RW**
A fiber optics buoyant cable antenna for wide bandwidth communications applicable to SSBNs and SSNs, *AIAA Missile Sciences Conf.*, Naval Postgraduate School, Monterey, CA (2–5 Dec 1996).
- White ME**
Expansion corner effects on hypersonic shock wave/turbulent boundary layer interactions, *AIAA Seventh Int. Aerospace Planes and Hypersonics Technologies Conf.*, Norfolk, VA (18–22 Nov 1996).
Quick-reaction, deep-strike weapons system concept, *JANNAF Propulsion and Joint Subcommittee Mtgs.*, Albuquerque, NM (9–13 Dec 1996).
- Wilkinson WO**
Five years experience using mini-environment contamination control, *AIAA Working Group on Space Simulation*, Munich, Germany (19 Sep 1996).
- Williams KE**
Prediction of solar cycle 23, *Panel on Solar Cycle 23 Project*, Boulder, CO (13 Sep 1996).
- Wing S, and Newell PT**
Modeling the entry of the magnetosheath particles into the dayside ionosphere, *NASA/GSFC Seminar Series*, Greenbelt, MD (25 Oct 1996).
- Wing S, Newell PT, and Onsager TG**
Modeling the entry of the magnetosheath particles into the dayside ionosphere, *1st Alfvén Conf. on Low-Altitude Investigation of Dayside Magnetospheric Boundary Processes*, Kiruna, Sweden (9–13 Sep 1996).
- Wood BE (Arnold Eng. Dev. Center), Hall DF (Aerospace Corp.), Lesho JC, Dyer JD (Utah State Univ.), Uy OM, and Bertrand WT (Arnold Eng. Dev. Center)**
Quartz crystal microbalance (QCM) flight measurement of contamination on the MSX satellite, *SPIE Int. Conf.: Optical Science, Engineering, and Instrumentation* (1996).
- Wood BE (Arnold Eng. Dev. Center), Seiber BL (Arnold Eng. Dev. Center), Bertrand WT (Arnold Eng. Dev. Center), and Uy OM**
Effects of thin cryo-contaminant films on Midcourse Space Experiment (MSX) satellite cryo-optics, *34th Aerospace Sciences Mtg. and Exhibit*, Reno, NV (15–18 Jan 1996).

The following papers were presented at the American Geophysical Union Fall Meeting, San Francisco, CA (15–19 Dec 1996):

Anderson BJ, Erlandson RE, and Klumpar DM

Auroral oval monitoring by point mosaic imaging.

Anderson DE, DeMajistre R, Romick GJ, Morrison D, Paxton LJ, Carberry JF, Kupperman DG, Yee YH, Morgan F, Meng CI, and Kumar CK

Retrieval of ozone density from MSX satellite stellar occultation observations.

Armstrong TP, Stone S, Williams DJ, McEntire RW, Krimigis SM, Roelof EC, Mauk BH, Wilken B, Roederer JG, Fritz TA, and Lanzerotti LJ

Observations of ion and electron phase space densities in the Io torus region.

Barabash S, and Roelof EC

Results from ENA imaging on the microsatellite astrid.

Brandt PC, Barabash S, Lundin R, Roelof EC, Chase CJ, and Mauk BH

ENA imaging of the high-energy ion precipitation at low altitudes.

Carberry JF, Yee JH, Morgan F, Romick GJ, Kupperman D, McEvaddy PJ, Morrison D, Anderson DE, Paxton LJ, Meng CI, and Kumar CK

Lower atmosphere temperature profiles from stellar refraction observed from space.

Chase CJ, and Roelof EC

Extracting the global dynamics of the plasmapause from EUV images using a nonparametric algorithm.

Cheng AF, and Paranicas CP

Implications of a magnetic signature at Io.

Chin DC, Chase CJ, Roelof EC, Williams DJ, and Brandt PC

Unfolding ring current dynamics from energetic neutral atom measurements by Geotail EPIC/ICS.

Craven JD, Immel TJ, Frank LA, Sigwarth JB, Meng CI, Parks GK, Killeen TL, Sharp WE, and Lepping RP

FUV observations of the active aurora and correlated perturbations to thermospheric composition as seen with the visible imaging system on the POLAR spacecraft.

Decker RB, Krimigis SM, and Roelof EC

Multi-spacecraft views of energetic particle distributions throughout the heliosphere.

Decker RB, Roelof EC, Gold RE, Simnett GM, Lanzerotti LJ, MacLennan CG, and Armstrong TP

Recurrent low energy particle events in the northern heliosphere: Ulysses, Voyager 1/2, and IMP 8.

Erlandson RE, Zanetti LJ, Blomberg LG, Eriksson A, Eliasson L, and Clemons J

Freja observations of EMIC waves on auroral field lines in the pre-midnight sector.

Farquhar RW

NEAR mission overview and plans for an encounter with 253 Mathilde.

Goembel L, Paxton LJ, Morrison D, Romick GJ, Anderson DE, Meng CI, Strickland DJ, and Evans JS

Low Earth orbit satellite images of the aurora in the visible and far ultraviolet.

Hawkins SE III, Gold RE, Murchie SL, Malin M, Robinson MS, and Veverka J

The multi-spectral imager on board the NEAR spacecraft.

Krupp N, Lagg A, Wilken B, Woch J, Williams DJ, Roelof EC, Mauk BH, McEntire RW, Krimigis SM, Armstrong TP, Lanzerotti LJ, Fritz TA, and Roederer JG

New energetic particle observations of the Energetic Particles Detector (EPD): Ganymede 2 encounter.

Kupperman DG, Anderson DE, Demajistre R, Romick GJ, Morrison D, Paxton LJ, Carberry JF, Yee JH, Morgan F, Meng CI, and Kumar CK

Retrieval of ozone density from MSX satellite stellar occultation observations.

Kupperman DG, Paxton LJ, Yee JH, Morgan F, Romick GJ, Carberry JF, Swaminathan PK, Morrison D, Anderson DE, Meng CI, and Kumar CK

Lower thermospheric molecular oxygen densities retrieved using stellar occultation observations.

Lagg A, Krupp N, Wilken B, Williams DJ, Roelof EC, McEntire RW, Mauk BH, Krimigis SM, Armstrong TP, Lanzerotti LJ, Fritz TA, and Roederer JG

Energetic ions in the vicinity of Io obtained from the Energetic Particles Detector on board the Galileo spacecraft.

Lui ATY

Do we understand the NEAR-Earth plasma sheet dynamics during substorms?

Lui ATY, Williams DJ, McEntire RW, Christon SP, Eastman TE, Kokubun S, and Yamamoto T

Ion composition variations inside flux-ropes/plasmoids in the magnetotail.

MacLennan CG, Lanzerotti LJ, Roelof EC, and Goldstein BE

Ion abundances at high northern heliolatitudes.

Mauk BH, Williams DJ, McEntire RW, Roelof EC, Krimigis SM, Armstrong TP, Fritz TA, Lanzerotti LJ, Roederer JG, and Wilken B

Force balance in Jupiter's magnetodisk.

Hot ring current plasma parameters of the Io plasma torus regions as derived from Galileo EPD measurements.

McEntire RW, Williams DJ, Mauk BH, Roelof EC, Krimigis SM, Armstrong TP, Wilken B, Roederer JG, Fritz TA, and Lanzerotti LJ

Energetic ion composition measurements in the Io torus with the Galileo Energetic Particles Detector (EPD).

Mitchell DG, Mauk BH, Roelof EC, Funsten HO, McComas DJ, Gruntman M, Hesse M, Meier RR, and Scime EE

Multi-point magnetospheric reconnaissance imaging: A space physics new mission concept.

Morgan F, Yee JH, Romick GJ, Carberry JF, Swaminathan PK, Morrison D, Anderson DE, Paxton LJ, and Meng CI

The hydroxy nightglow in the mesosphere: Vibrational distribution and altitude profiles.

Morrison D, Romick GJ, Carberry JF, McEvaddy P, Anderson DE, Paxton LJ, Meng CI, Strickland D, Bishop J, and Cox R

Auroral tomographic imaging using MSX from the far UV to the near IR.

Nicholas AC, Meier RR, Picone JM, Melendez-Alvira DJ, Ganguli GI, and Roelof EC

Imaging the plasmasphere.

Nylund SR, McEntire RW, Williams DJ, Lui ATY, Roelof EC, Christon SP, Eastman TE, Frank LA, Paterson WR, Kokubun S, Matsumoto H, Kojima H, Mukai T, Yamamoto T, and Saito Y

A statistical study of energetic ion flux regimes in the magnetotail with the Geotail/EPIC/ICS instrument.

Ohtani S, Anderson BJ, Lui ATY, and Takahashi K

Electron flux variations observed in the tail current disruption region.

Orsini S, Cerulli-Irelli P, Maggi M, Baldetti P, Candidi M, Bellucci G, Milillo A, Chionchio G, Orfei R, Livi S, Wilken B, Guettler W, Daglis IA, Hsieh KC, Curtis CC, Sabbagh J, Roelof EC, Chase CC, and Grande M

Preliminary results from the SAC-B/ISENA experiment.

- Paranicas CP, and Cheng AF**
Generation of field aligned beams near Io.
- Paxton LJ, Morrison D, Romick GJ, Anderson DE, Fountain GH, Meng CI, and Strickland DJ**
Space weather: Measuring auroral inputs from space via spectrographic imaging.
- Potemra TA, and Koratova G**
Global compressional oscillations of the magnetosphere observed with Viking and ground-based observatories.
- Roelof EC, Williams DJ, McEntire RW, Mauk BH, Krimigis SM, Armstrong TP, Fritz TA, Lanzerotti LJ, Roederer JG, and Wilken B**
Energetic particle angular distributions near Io as measured by the Galileo/EPD: Complex signatures of moon/magnetosphere interactions.
- Romick GJ, Yee JH, Morgan F, Carbary JF, Demajistre R, Kupperman D, Kumar CK, Swaminathan PK, Morrison D, Anderson DE, Paxton LJ, and Meng CI**
Spectrographic and imaging night stellar occultation observations from a low Earth orbit satellite.
- Rust DM, Liewer PC, Davila JM, and Pizzo V**
The Solar Terrestrial Relations Observatory (STEREO).
- Sibeck DG, Takahashi K, Kokubun S, Mukai T, Yamamoto T, and Saito Y**
Geotail observations of correlated magnetic field and plasma flow variations in the post-noon magnetosheath.
- Sivjee GG, Shen D, Yee JH, and Romick GJ**
The vibrational distribution of O₂(b→X) atmospheric bands in low, medium, and high altitude auroras.
- Williams DJ, McEntire RW, Mauk BH, Roelof EC, Krimigis SM, Armstrong TP, Fritz TA, Lanzerotti LJ, Roederer JG, and Wilken B**
Energetic particle distributions and bidirectional electron beams observed in the plasma torus and at Io by the Galileo energetic particles detector.
- Williams DJ, McEntire RW, Mauk BH, Roelof EC, Krimigis SM, Armstrong TP, Fritz TA, Lanzerotti LJ, Roederer JG, Wilken B, and Murphy N**
Results from the Galileo energetic particles detector during the second Ganymede encounter.
- Yee JH, Skinner WR, Hays PB, Swaminathan PK, Zhu X, and Strobel DF**
Global distribution of atomic oxygen in the mesosphere and lower thermosphere (85–105 km).
- Zanetti LJ, and Gary JB**
Delivery and verification of space weather products.
- Zhu X, Shen Z, Eckermann SD, Bittner M, and Hirota I**
Gravity wave characteristics in the middle atmosphere derived from the empirical mode decomposition method.
- Zhu X, Swaminathan PK, Yee JH, Strobel DF, and Anderson D**
Dynamical studies of mesopause meridional circulation and stratosphere–mesosphere exchange.

COLLOQUIA

The following topics were recently presented at the weekly APL colloquium:

- 6 Dec 1996**
Galileo's Arrival at Jupiter: Early Results, DJ Williams, APL
- 13 Dec**
Counting and Storing Electrons, One by One, N Zimmerman, National Institute of Standards and Technology
- 10 Jan 1997**
Speech Related Research in the United States, F Jelinek, Dept. of Electrical and Computer Engineering, JHU
- 17 Jan**
Nondestructive Evaluation of Automotive Materials, GB Chapman II, Chrysler Corp.
- 24 Jan**
The Rotation of Earth's Inner Core, P Richards, Lamont-Doherty Earth Observatory, Columbia University
- 31 Jan**
Bose-Einstein Condensation, D Kleppner, MIT
- 7 Feb**
Quantum Computing and Error Correction, P Shor, AT&T Laboratories
- 14 Feb**
Multispin Galaxies, V Rubin, Carnegie Institution of Washington