

PUBLICATIONS

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

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- Williams, D. J., Lui, A. T. Y., McEntire, R. W., Angelopoulos, V., and Jacquey, C. (APL), Christon, S. P. (Univ. Maryland), Frank, L. A., Ackerson, K. L., and Paterson, W. R. (Univ. Iowa), Kokubun, S. (Solar Terrestrial Environmental Lab., Nagoya Univ., Toyokawa, Japan), Yamamoto, T. (Inst. Space and Astronautical Sci., Kanagawa, Japan), and Fairfield, D. H. (NASA/GSFC), "Magnetopause Encounters in the Magnetotail at Distances of $\sim 80 R_E$," *Geophys. Res. Lett.* **21**(25), 3007-3010 (1994).
- Wozniak, J. J., Ecker, J. A., Hildebrand, R. J. (APL), and Brill, W. B. (Chesapeake Automotive Enterprises), "Compact Automobile—Advanced Natural Gas Vehicle (ANGV) Development," in *Proc. 4th Biennial Int. Conf. and Exhibition on Natural Gas Vehicles*, Toronto, Ontario, Canada, Vol. 3, pp. 871-878 (Oct 1994).
- Yamamoto, T., Ozaki, M., Inoue, S., Makita, K., and Meng, C.-I., "Convective Generation of 'Giant' Undulations on the Evening Diffuse Auroral Boundary," *J. Geophys. Res.* **99**, 19,499-19,512 (1994).
- Zanetti, L. J., Potemra, T. A., Anderson, B. J., Erlandson, R. E., Holland, D. B., Kappenman, J., Lesh, R., and Feero, B., "Ionospheric Currents Correlated with Geomagnetic Induced Currents: Freja Magnetic Field Measurements and the Sunburst Monitor System," *Geophys. Res. Lett.* **21**, 1867-1870 (1994).
- Zank, G. P. (Bartol Research Inst.), Cairns, I. H. (Univ. Iowa), Donohue, D. J. (APL), and Matthaeus, W. H. (Bartol Res. Inst.), "Radio Emissions and the Heliospheric Termination Shock," *J. Geophys. Res.* **99**(A8), 14,729-14,735 (1994).
- PRESENTATIONS**
- APL staff members were among those who gave the following unclassified presentations:
- Alexander, B. J., "The Value of Meeting Minutes to a Technical Program," 18th Ann. Practical Conf. on Communication, Society for Technical Communication, Oak Ridge, TN (3-4 Nov 1994).
- Angelopoulos, V., "Results from the Energetic Particles Instrument Onboard the Geotail Spacecraft," Geospace Environmental Modeling (GEM) Workshop, Snowmass, CO (27 Jun-1 Jul 1994).
- Antonsen, T. M., Fan, Z., Ott, E. (Univ. Maryland), Garcia-Lopez, E. (Ecole Polytechnique), Naimenson, A. (NRL), and Sommerer, J. C. (APL), "Chaotic Orbits, Finite-Time Lyapunov Exponents, and the Power Spectra of Passive Scalars," Dynamics Days USA, Houston, TX (4-7 Jan 1995).
- Bevan, M. G., and Charles, H. K., Jr., "Solder Joint Fatigue: Comparison of Hand Soldering to Vapor Phase Soldering on Surface Mounted Components for Aerospace Applications," IEEE Int. Electronics Manufacturing Technology Symp., La Jolla, CA (12-14 Sep 1994).
- Bohandy, J., Kim, B. F., Moorjani, K., and Adrian, F. J. (APL), and Kaiser, D. (NIST), "Magnetically Modulated Microwave Absorption in the a-b Plane of Single Crystal $YBa_2Cu_3O_{7-y}$," 4th Int. Conf. on Materials and Mechanisms of Superconductivity, Grenoble, France (5-9 Jul 1994).
- Boies, M. T., Kinnison, J. D., and Schwartz, J. A., "The Effect of Electron Radiation on Glass Used for Space-Based Optical Systems," SPIE, Int. Symp. on Optics, Imaging, and Instrumentation, Properties and Characteristics of Optical Glass III, San Diego, CA (25-29 Jul 1994).
- Bowen, M. W. (Lockheed), and Osiander, R., Spicer, J. W. M., and Murphy, J. C. (APL), "Thermographic Detection of Conducting Contaminants in Composite Materials Using Microwave Excitation," Review of Progress in Quantitative NDE, Snowmass Village, CO (31 Jul-5 Aug 1994).
- Cameron, G. E., and Reynolds, E. L., "Integration of the Topaz 2 Space Nuclear Reactor with the NEPSTP Spacecraft," 29th Intersociety Energy Conversion Engineering Conf., Energy Conversion Investment in America, Monterey, CA (7-12 Aug 1994).
- Champion, J. C., and Spicer, J. B. (JHU), and Osiander, R., and Spicer, J. W. M. (APL), "Analysis of Thermal Stressing Techniques for Flaw Detection with Shearography," Review of Progress in Quantitative NDE, Snowmass Village, CO (31 Jul-5 Aug 1994).
- Charles, H. K., Jr., "Design Rules for Advanced Packaging," Int. Microelectronics Symp., Dallas, TX (9-11 Nov 1993).
- Charles, H. K., Jr., "Assembly Constraints in High-Speed Packaging Applications," Technical Program of NEPCON, Anaheim, CA (27 Feb-3 Mar 1994).
- Charles, H. K., Jr., "MCM Design and Cost Parameters," Int. Microelectronics Conf., Omiya Sonic City, Japan (20-22 Apr 1994).
- Charles, H. K., Jr., and Clatterbaugh, G. V., "Packaging Considerations for High-Temperature Operation," 2nd Int. High-Temperature Electronics Conf., Charlotte, NC (5-10 Jun 1994).
- Charles, H. K., Jr., and Uy, M. E., "Design Aid for Multichip Modules," Int. Microelectronics Symp., Boston, MA (15-17 Nov 1994).
- Christensen, A. B., Walterscheid, R. L., Ross, M. N., Meng, C.-I., Paxton, L. J., Anderson, D. E., Crowley, G., Avery, S., Craven, J. D., Meier, R. R., and Strickland, D. J., "The Global Ultraviolet Imager (GUVI) for the NASA TIMED Mission, SPIE Meeting, San Diego, CA (Jun 1994).
- Christon, S. P., Gloeckler, G., Williams, D. J., McEntire, R. W., Lui, A. T. Y., Jacquey, C., Angelopoulos, V., Fairfield, D. H., and Kokubun, S., "Composition of Distant Magnetotail Energetic Ion Flux," 19th General Assembly of the European Geophys. Soc., Univ. Grenoble, France (25-29 Apr 1994).
- Devereux, W. S., "GPS Telemetry Transmitter," Col. Gary Payton, Director of Advanced Technology, BMDO, JHU/APL, Laurel, MD (3 Feb 1994).
- Devereux, W. S., "GPS Precision Scoring," Dr. Dwight Duston and Dr. Len Caveny, Staff, Advanced Technology, BMDO, JHU/APL, Laurel, MD (15 Feb 1994).
- Devereux, W. S., "Extended Navy Test Bed (ENTB) Wideband Translator (WBT) Overview," 2nd Satellite Operations Squadron (GPS), JHU/APL, Laurel, MD (31 Aug 1994).
- Devereux, W. S., "Extended Navy Test Bed (ENTB) Wideband Translator (WBT) Overview," Robert Douglas, EKV Program, JHU/APL, Laurel, MD (14 Sep 1994).
- Devereux, W. S., "Spacecraft Telemetry, Tracking and Control (TT&C)," MGen John A. Corder (USAF Ret.), JHU/APL, Laurel, MD (16 Sep 1994).
- Erlandson, R. E., Potemra, T. A., Bosinger, T., Mursula, K., Engrebretson, M. J., and Arnoldy, R. L., "Multi-Point Ground Satellite Pc 1 Wave Observations," EOS Supplement, Western Pacific Geophys. Meeting, Hong Kong (25-29 Jul 1994).
- Gilreath, H. E., Ku, H.-C., and Sommerer, J. C., "Chaotic Scattering in a Fluid Wake: Preliminary Experimental Results," Colloquium, Institute for Energy Research, Univ. Maryland, College Park (10 Nov 1994).
- Goemmel, L., Doering, J. P., and Herrero, F. A., "Measuring Branching Ratios for the Ionization of N_2 and Examining AE-E Thermospheric Wind Measurements," NASA/GSFC Laboratory for Extraterrestrial Physics, Greenbelt, MD (4 Nov 1994).
- Harvey, R. J., "The Role of Mission Operations in Spacecraft Integration and Test," 3rd Int. Symp. on Space Mission Operations and Ground Data Systems, GSFC, Greenbelt, MD (14-18 Nov 1994).
- Hill, S. D. (APL), and Fu, M. C. (Univ. Maryland), "Simulation Optimization via Simultaneous Perturbations Stochastic Approximation," IEEE Winter Simulation Conf., Lake Buena Vista, FL (12-14 Dec 1994).
- Hill, S. D. (APL), and Fu, M. C. (Univ. Maryland), "Optimizing Discrete Event Systems with the Simultaneous Perturbation Stochastic Approximation Algorithm," IEEE 33rd Conf. on Decision and Control, Lake Buena Vista, FL (14-16 Dec 1994).
- Jacquey, C., Williams, D. J., McEntire, R. W., Lui, A. T. Y., Angelopoulos, V., Christon, S. P., Kokubun, S., Fairfield, D. H., Reeves, G. D., and Belian, R. D., "Signature of Substorms Observed by Geotail/

- EPIC at 100 R_e in the Distant Tail," 19th General Assembly of the European Geophysical Society, Univ. Grenoble, France (25–29 Apr 1994).
- Korotova, G. I., Sibeck, D. G., and Takahashi, K., "A Case Study of Transient Event Propagation Through the Ionosphere and Magnetosphere," Space Science Meeting, Nagoya, Japan (18 Oct 1994).
- Krimigis, S. M., "Can There Be Low Cost Planetary Missions?" Academy Day and Joint Meeting, Int. Academy of Astronautics and Israel Academy of Sciences and Humanities, Jerusalem, Israel (9 Oct 1994).
- Krimigis, S. M., "Near Earth Asteroid Rendezvous," Public Night, Israel Academy of Arts and Sciences, Jerusalem, Israel (12 Oct 1994).
- Krimigis, S. M., "The New Solar System: The Sun, Planets, Comets and Asteroids," Moraitis School, Athens, Greece (13 Oct 1994).
- Krimigis, S. M., "Shoemaker–Levy Impacts on Jupiter and the NEAR Mission to the Asteroid Eros," National Observatory of Athens, Greece (14 Oct 1994).
- Landshof, J. A., Harvey, R. J., and Marshall, M. H., "Concurrent Engineering: Spacecraft and Mission Operations System Design," 3rd Int. Symp. on Space Mission Operations and Ground Data Systems, GSFC, Greenbelt, MD (14–18 Nov 1994).
- Lloyd, S. A., "Update on JHU/APL Photolysis Rate Calculations, Stratospheric Ozone Field Mission," Christchurch, New Zealand (4 Jun 1994).
- Lloyd, S. A., "NASA Antarctic Ozone Campaign," APL Space Department Colloquium, Laurel, MD (26 Aug 1994).
- Mauk, B. H., and Herbert, G. A., "Electric Propulsion for Planetary Exploration in the Era of Low Cost Missions," Int. Academy of Astronautics (IAA) Int. Conf. on Low Cost Planetary Missions, JHU/APL, Laurel, MD (12–15 Apr 1994).
- McEntire, R. W., "A Review of the AMPTE Charge Composition Explorer Spacecraft (CCE) Mission and Its Contribution to Studies of the Earth's Trapped Particle Environment," 10th Workshop on the Earth's Trapped Particle Environment, Taos, NM (14–19 Aug 1994).
- McNutt, R. L., Jr., "Uranus and Neptune: The Magnetospheric Story," Univ. Maryland, College Park (12 Oct 1994).
- Moore, R. C., "Satellite Communications, Tracking and Control," Applied Technol. Inst., College Park, MD (7–8 Dec 1994).
- Moorjani, K., "Weakly Linked Superconducting Networks," 4th Int. Conf. on Materials and Mechanisms of Superconductivity, Univ. Grenoble, France (5–9 Jul 1994).
- Murchie, S. L., "The Near Earth Asteroid Rendezvous Mission to Eros," Johnson Space Center Lunar Planetary Inst., Houston, TX (3 Aug 1994).
- Murchie, S. L., "NEAR Mission," The Johns Hopkins University, Baltimore, MD (1 Dec 1994).
- Nhan, E., Lafferty, P. M., Stilwell, R. K., and Chao, K., "Radio Frequency Connector and Interconnect Reliability in Spaceborne Application," Electronic Components and Technology Conf., Washington, DC (4 May 1994).
- Norton, J. R., "Advanced Technology Oscillator for Pluto Flyby Mission," AIAA/USU Conf. on Small Satellites, Utah State University, Logan (29 Aug–1 Sep 1994).
- Ohtani, S.-I., "Substorm Signatures in the Near Earth Magnetotail," Seminar at Nagoya Univ., Nagoya, Japan (23 Jul 1994).
- Posner, A. S., "A Spacecraft Attitude Processor Model Developed for the MSX Operations Planning Center," NASA/GSFC Flight Dynamics Division, Flight Mechanics/Estimation Theory Symp., Greenbelt, MD (17–19 May 1994).
- Roelof, E. C., "Recent Scientific Results from Ulysses," Colloquium, Bartol Res. Inst., Univ. of Delaware, Newark (7 Apr 1994).
- Romick, G. J., "MSX Satellite Collaboration with Ground Based Programs in Workshops on the Arizona Imager/Spectrograph," Covener: A. L. Broadfoot and ISTP/GGS CEDAR Collaborative Campaign Workshop, Covener: G. Germany and D. Torr, CEDAR Annual Workshop, Boulder, CO (Jun 1994).
- Romick, G. J., "MSX Update," CEDAR Annual Workshop, Boulder, CO (Jun 1994).
- Rust, D. M., "The Cycle of Solar Activity," Washington Area Astronomers Meeting, U.S. Naval Observatory, Washington, DC (27 Oct 1994).
- Rust, D. M., "Magnetic Helicity in the Solar Atmosphere," Solar/Stellar Theory Group Meeting, GSFC, Greenbelt, MD (28 Nov 1994).
- Santo, A. G., Krimigis, S. M., and Cheng, A. F., "Near Earth Asteroid Rendezvous Project—A Small Satellite Approach," 45th Int. Astronautical Federation (IAF) Congress, Technical Sessions, Jerusalem, Israel (9–14 Oct 1994).
- Sears, R., Romick, G. J., and Neil, R. O., "Auroral Structure and Topography Workshop," CEDAR Annual Workshop, Boulder, CO (Jun 1994).
- Sibeck, D. G., and Takahashi, K., "Statistical Pattern of FTE Occurrence: An Interactive Poster," Domestic Space Science Meeting, Nagoya, Japan (18 Oct 1994).
- Sommerer, J. C., "Blowout Bifurcations," Dynamics Days USA, Durham, NC (5–8 Jan 1994).
- Sommerer, J. C., "Blowout Bifurcations: A Connection Between Riddled Basins and On–Off Intermittency," Colloquium, School of Physics, Georgia Inst. of Technology, Atlanta, GA (23 Feb 1994).
- Sommerer, J. C., "The State of Our Field," Critical Eye on Nonlinear Dynamics: ONR Review of Status and Trends in the Field of Chaos, Washington, DC (28 Oct 1994).
- Spall, J. C., "Developments in Stochastic Optimization," IEEE Winter Simulation Conf., Lake Buena Vista, FL (12–14 Dec 1994).
- Spall, J. C., "Second Order Stochastic Approximation," IEEE Conf. on Decision and Control, Lake Buena Vista, FL (14–16 Dec 1994).
- Spall, J. C., "Small-Sample Data Analysis," Washington Statistical Soc. Seminar, Bureau of Labor Statistics, Washington, DC (18 Jan 1995).
- Spall, J. C., and Chin, D. C., "Statistical Estimation and Uncertainty Bounds in the Presence of Nuisance Parameters," IEEE American Control Conf., Baltimore, MD (29 Jun–1 Jul 1994).
- Spall, J. C., and Chin, D. C., "Model-Free Signal Timing for Traffic Control," IEEE Conf. on Decision and Control, Lake Buena Vista, FL (14–16 Dec 1994).
- Swaminathan, P. K., Kumar, C. K., Yee, J.-H., Anderson, D. E., Gunson, M. R., Luo, M., Gordley, L., and Russell, J. M., III, "Thermospheric/Mesospheric Nitric Oxide Retrievals from ATMOS/ATLAS 1: Comparisons with Contemporaneous HALOE Observations," UARS Science Team Meeting, Longmont, CO (2–4 Nov 1994).
- Wozniak, J. J., Ecker, J. A., and Hildebrand, R. J. (APL), and Brill, W. B. (Chesapeake Automotive Enterprises), "Advanced Natural Gas Vehicle Project," Automotive Technology Development Contractors' Coordination Meeting, Dearborn, MI (24–27 Oct 1994).

The following papers were presented at the Am. Geophys. Union Fall Meeting, San Francisco, CA (5–9 Dec 1994):

- Anagnostopoulos, G. C., Sarris, E. T., and Krimigis, S. M., "Observations of Magnetospheric Ions Upstream and Downstream of the Quasiperpendicular Regions of the Nose and the Flanks of the Bow Shock: Implications to the Leakage Process of Magnetospheric Ions Propagating Within the Magnetosheath."
- Anderson, B. J., Phan, T. D., and Fuselier, S. A., "Ram Pressure and Magnetic Shear Dependence of the Plasma Depletion Layer: Evidence for Maximum Reconnection Rate."
- Anderson, D. E., Jr., DeMajistre, R., and Lloyd, S. A., "The Effect of Mt. Pinatubo Aerosols on the Lower Stratospheric Radiation Field."
- Angelopoulos, V., "Transport Phenomena in the Earth's Magnetotail and Their Association with the Substorm and Steady Convection Paradigms."
- Angelopoulos, V., McEntire, R. W., Williams, D. J., Lui, A. T. Y., Roelof, E. C., Christon, S. P., Kokubun, S., and Yamamoto, T., "Characteristics of

- Energetic Particle Beams Observed by Geotail in the Distant Magnetotail.”
- Baker, K. B., Greenwald, R. A., and Ruohoniemi, J. M., “Goose Bay HF Radar Observations of Convection in the Cusp and LBL on March 29, 1992.”
- Bristow, W. A., and Greenwald, R. A., “Estimating Gravity Wave Parameters from Oblique HF Backscatter: Modeling and Analysis.”
- Budzien, S. A., McCoy, R. P., Dymond, K. F., Williams, J. Z., Caruthers, G. R., Cleary, D. D., and Romick, G. J., “Observations of a Proton Aurora by the HIRAAS Experiment on March 11, 1994.”
- Chase, C. J., Mauk, B. H., Roelof, E. C., Wolf, R. A., and Spiro, R. W., “Energetic Neutral Atom Images of H⁺ and O⁺ Magnetospheric Ion Distributions Simulated from Astrid 1000 km Polar Orbit.”
- Coroniti, F. V., Kennel, C. F., Kivelson, M. G., Walker, R. J., Russell, C. T., McPherron, R. L., Angelopoulos, V., Sánchez, E. R., Meng, C.-I., Baumjohann, W., Reeves, G. D., Belian, R. D., Sato, N., Friis-Christensen, E., and Sutcliffe, P. R., “CDAW-Type Analysis of a Bursty Bulk Flow Event During the Course of a Substorm.”
- Crowley, G., Paxton, L. J., Meng, C.-I., Morrison, M. D., Romick, G. J., Anderson, D. E., and Carbary, J. F., “Auroral Boundary Identification Using Ultraviolet Spectrographic Imagers.”
- Crowley, G., Schoendorf, J., and Roble, R. G., “Formation Mechanisms for Neutral Density Cells in the Lower Thermosphere at High Latitudes.”
- Decker, R. B., Krimigis, S. M., McNutt, R. L., Jr., and Burlaga, L. F., “Low-Energy Ions at Voyagers 1 and 2 During the Decline of Solar Cycle 22: Transient Events, Superthermal Ion Pressure, and CIR Events in 1989–1994.”
- DeMajistre, B., Yee, J. H., Nardell, C., Sharp, W. R., and Llewellyn, E. J., “The O₂(¹D) and O₂(¹S) Dayglow Emissions Measured by the Michigan Airglow Payload (MAP) Rocket Experiments.”
- Gary, J. B., “Statistical Poynting Flux Observations from DE-2.”
- Goebel, L., and Herrero, F. A., “Coupling Between the Sun and Terrestrial Thermospheric Neutral Winds.”
- Greenwald, R. A., Bristow, W. A., Sofko, G. J., Senior, C., Cerisier, J.-C., and Zabo, A., “SuperDARN Radar Imaging of Dayside High-Latitude Convection Under Northward IMF: Toward Resolving the Distorted Two-Cell Versus Multi-Cell Controversy.”
- Hopkins, M. M., Paxton, L. J., Crowley, G., and Meng, C.-I., “Auroral Boundary Identification Using Ultraviolet Spectrographic Imagers.”
- Kane, M., Decker, R. B., Mauk, B. H., Krimigis, S. M., and Burlaga, L. F., “Voyager 1 and 2 Low Energy Charged Particle Ion Anisotropies, Pitch Angle Structure, and Spectra at Shock Associated Events During the Decline of Solar Cycle 22.”
- Kennel, C. F., Coroniti, F. V., Kivelson, M. G., Walker, R. J., Russell, C. T., McPherron, R. L., Angelopoulos, V., Sánchez, E. R., Meng, C.-I., Baumjohann, W., Reeves, G. D., Belian, R. D., Sato, N., Friis-Christensen, E., and Sutcliffe, P. R., “Multi-Point Analyses of Active Time Bursty Bulk Flow Events.”
- Krimigis, S. M., Anagnostopoulos, G. C., Sarris, E. T., Kudela, K., Silvka, M., Fisher, S., Vandas, M., and Paschalidis, N. P., “Simultaneous Observation of Ion Spectra Evolution Within the Magnetosphere, Magnetosheath and Upstream Region During Magnetospheric Substorms.”
- Lanzerotti, L. J., Gold, R. E., Anderson, K. A., Armstrong, T. P., Krimigis, S. M., Lin, R. P., Pick, M., Roelof, E. C., Sarris, E. T., Sinnott, G. M., and MacLennan, C. G., “Studies of Low Energy Particles in the High Latitude Heliosphere.”
- Lloyd, S. A., “The Effect of Mt. Pinatubo Aerosols on the Lower Stratospheric Radiation Field.”
- Lloyd, S. A., Anderson, D. E., Jr., and Im, E. S., “Modeling the Latitude-Dependent Increase in Non-Melanoma Skin Cancer Incidence as a Consequence of Stratospheric Ozone Depletion.”
- Lui, A. T. Y., Williams, D. J., McEntire, R. W., Angelopoulos, V., Nakamura, R., Kokubun, S., Kamide, Y., and Yamamoto, T., “Geotail Observation of Particle Streaming Reversal Regions in the Distant Plasma Sheet.”
- Lyons, K. M., Newell, P. T., and Meng, C.-I., “Cusp Low-Energy Ion Cutoffs: Implications for Bursty Merging.”
- Mauk, B. H., Keath, E. P., and Krimigis, S. M., “Unusual Satellite–Electron Signature Within the Uranian Magnetosphere and Its Implications Regarding Whistler Electron Loss Processes.”
- Mauk, B. H., and Meng, C.-I., “Charged Particle Mapping Evidence that Auroral Arcs Can Map Earthward of Central Plasmasheet Populations in the Geosynchronous Orbit.”
- McEntire, R. W., Williams, D. J., Lui, A. T. Y., Angelopoulos, V., and Christon, S. P., “Survey Observations of Energetic Ions in the Earth’s Magnetotail with the Geotail/EPIC Instrument.”
- McNutt, R. L., Jr., Lyon, J., and Goodrich, C. C., “The Global Heliosphere and Its Response to Large-Scale Transients.”
- Meng, C.-I., Newell, P. T., and Lyons, K. M., “The Statistics of Electron Acceleration Events.”
- Mitchell, D. G., Angelopoulos, V., McEntire, R. W., Williams, D. J., Lui, A. T. Y., Decker, R. B., Krimigis, S. M., Roelof, E. C., Christon, S. P., Kokubun, S., Yamamoto, T., Paterson, W. R., Frank, L. A., Lepping, R. P., Reeves, G. D., and Belian, R. D., “Two-Point Correlations of Energetic Particle Beams in the Magnetotail.”
- Newell, P. T., “Geophysically Significant Boundaries in Nightside Precipitation Data.”
- Ohtani, S.-I., “On the Spatial Development of Current Disruption and the Size of Substorms.”
- Paranicas, C. P., and Cheng, A. F., “Satellite Microsignatures at Jupiter.”
- Roelof, E. C., Ogilvie, K. W., and Gloeckler, G., “Phase Space Densities, Energetic Ions, Pickup Protons, Specific Entropy, and Stream Interfaces: Ulysses Beyond 25° South.”
- Sánchez, E. R., Newell, P. T., and Meng, C.-I., “What is the Source of the Nightside Ionospheric Ion Gaps? Results from Coordinated Observations of High and Low Altitude Instruments.”
- Sarris, E. T., Anagnostopoulos, G. C., Krimigis, S. M., and Marchavilas, P. K., “Ulysses Observations of Energetic Particles at Jupiter’s Bow Shock.”
- Sibeck, D. G., “Spotting FTEs: An Interactive Poster.”
- Sofko, G. J., Baker, K. B., and Greenwald, R. A., “High Time Resolution Observations of the Cusp.”
- Swaminathan, P. K., Kumar, C. K., Anderson, D. E., Acton, L., and Gunson, M. R., “No Concentrations in the Lower Thermosphere: Analyses of ATMOS Observations Using YOHKO Soft X-Ray Telescope Data.”
- Zanetti, L. J., and Gary, J. B., “Variability of Northern Auroral Zone Locations from a Statistical Pattern.”

The following papers were presented at the Am. Geophys. Union Spring Meeting, Baltimore, MD (23–27 May 1994):

- Christon, S. P., Gloeckler, G., Williams, D. J., McEntire, R. W., Lui, A. T. Y., Jacquey, C., Angelopoulos, V., Mukai, T., Yamamoto, T., Fairfield, D. H., and Kokubun, S., “Enhanced Ion Flux in Distant Magnetotail Flow Reversals.”
- Fuselier, S. A., Anderson, B. J., and Onsager, T. G., “Electron Signatures of Field Line Topology at the Magnetopause: AMPTE/CCE Observations.”
- Kozyra, J. U., Miller, R. H., Fok, M. C., Anderson, B. J., Sánchez, E. R., Hamilton, D. C., Ho, G. C., and Evans, D. S., “A Search for the Scattering Mechanism Responsible for Intense Subauroral Ion Precipitation During the 7–10 February 1986 Great Magnetic Storm.”
- Lanzerotti, L. J., MacLennan, C. G., Gold, R. E., Roelof, E. C., Sinnott, G. M., Armstrong, T. P., Krimigis, S. M., Sarris, E. T., Anderson, K. A., Pick, M., and Lin, R. P., “Studies of the Anomalous Cosmic Ray Oxygen Component as a Function of Heliolatitude.”

The following papers were presented at the Int. Geoscience and Remote Sensing Symp. (IGARSS), Pasadena, CA (8–12 Aug 1994):

- Collins, M. J., Livingstone, C., and Raney, R. K., “Discrimination Between Young Sea Ice Types from Single Look SAR Image Texture.”

- Donohue, D. J., "Application of a Stochastic Variational Principle to Random Rough Surface Scattering."
- Raney, R. K., "Beyond the Obvious: Some Reflections, Presentation in Honor of Kiyo Tomiyasu on his 75th Birthday, Final Program."
- Raney, R. K., and Bamler, R., "Comments on SAR Signal and Noise Equations."
- Raney, R. K., Freeman, A., Hawkins, R. W., and Bamler, R., "A Plea for Radar Brightness."
- Touzi, R., and Raney, R. K., "Effect of Doppler Centroid Mistracking on the Parameter Estimation of Point Targets."

COLLOQUIA

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

- 6 Jan 1995: "Time-Frequency-Scale Description of Signals," L. Cohen, Hunter College and City University of New York.
- 13 Jan: "Shape and Internal Structure of the Moon from the Clementine Mission," M. T. Zuber, JHU.
- 20 Jan: "Self-Organized Critical Phenomena: Nonequilibrium Growth," S. Das-Sarma, University of Maryland, College Park.
- 27 Jan: "Laser-Cooled Atoms: The Coldest Thing Around," S. L. Rolston, National Institute of Standards & Technology.
- 3 Feb: "Membrane-Based Hybrid Artificial Organs," B. A. Solomon, W. R. Grace & Co., Lexington, MA.
- 10 Feb: "Data Compression for Image and Video Signal," M. J. T. Smith, Georgia Inst. Technology.
- 17 Feb: "Quality Management: State of the Practice," V. D. Hunt, Technology Res. Corp., Fairfax Station, VA.

- 24 Feb: "Molecular Mechanisms for Friction," M. Robbins, Dept. Physics & Astronomy, JHU.
- 3 Mar: "Tensile Testing of Small Specimens," W. N. Sharpe, Jr., Dept. Mechanical Engineering, JHU.
- 10 Mar: "Importance of Space Exploration by Humans," Col. C. Bolden, U.S. Naval Academy, Annapolis, MD.
- 17 Mar: "The Beautiful Bottom Quark," A. Falk, Dept. Physics & Astronomy, JHU.
- 24 Mar: "Internet Security," J. Wack, National Institute of Standards & Technology.

U.S. PATENTS (1994)

APL staff members received the following patents during 1994:

- R. W. Flower, *Method and Apparatus to Identify and Treat Neovascular Membranes in the Eye*, No. 5,279,298, 18 Jan:

A method and apparatus that allow a neovascular membrane in the ocular vasculature of the fundus of the eye to be identified and treated while minimizing damage to the sensory retina.

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A process for making sharp tips in which a computer-controlled instrument and process characterize the tip while in formation and reliably produce tips having a radius of curvature of approximately 100 nm.

- J. L. Abita, *Method for Making a Non-magnetic Alloy*, No. 5,294,268, 15 Mar:

The invention is a method for making a non-magnetic alloy structure.

- D. E. Olsen, R. P. Lesser, J. C. Harris, W. R. S. Webber, and J. A. Cristion, *Automatic Detection of Seizures Using Electroencephalographic Signals*, No. 5,311,876, 17 May:

A patient monitoring system that utilizes a novel algorithm to analyze EEG signals to detect a seizure in a patient automatically.

- J. J. Suter and J. C. Poret, *Fiber Optic Ionizing Radiation Detector*, No. 5,323,011, 21 Jun:

An ionizing radiation detector employs optical fibers as the medium for sensing ionizing radiation emitted by a radioactive source.

- J. C. Harris and D. E. Olsen, *Polygraph Automated Scoring Systems*, No. 5,327,899, 12 Jul:

An automated polygraph scoring system in which digitized signals from the subject being tested are analyzed using a novel algorithm and a probability of deception is outputted.

- K. R. Fowler and R. B. North, *Computer-Controlled Neurological Stimulation System*, No. 5,370,672, 6 Dec:

A computer and interface, in cooperation with a unique graphics input device, deliver arbitrary and unique paradigms of neurological stimulation to alleviate chronic pain and other functional neurologic disorders.