

## PUBLICATIONS

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

- Adrian, F. J., Bohandy, J., and Kim, B. F., "Reactions of Thermal Hydrogen Atoms in Ethane and Propane at 10 K: Secondary Site Selectivity in Hydrogen Abstraction from Propane," *J. Chem. Phys.* **100**(11), 8010-8013 (Jun 1994).
- Apel, J., "An Improved Model of the Ocean Surface Wave Vector Spectrum and Its Effects on Radar Backscatter," *J. Geophys. Res.* **99**(C8), 16,269-16,291 (Aug 1994).
- Armstrong, T. P., and Haggerty, D. (Univ. Kansas), Lanzerotti, L. J., and MacLennan, C. G. (Bell Labs.), Roelof, E. C. (APL), Pick, M. (Observatory of Paris at Meudon), Simnett, G. M. (Univ. Birmingham, UK), Gold, R. E., and Krimigis, S. M. (APL), Anderson, K. A., and Lin, R. P. (Univ. Calif., Berkeley), Sarris, E. T. (Demokritos Univ. Thrace, Xanthi, Greece), and Forsyth, R., and Balogh, A. (The Blackett Lab., Imperial College, London), "Observation by Ulysses of Hot (-270 keV) Coronal Particles at 32° South Heliolatitude and 4.6 AU," *Geophys. Res. Lett.* **21**, 1747-1750 (1994).
- Ash, W. M., III, and Hoffman, E. J., "Reliable Application of Plastic Encapsulated Microcircuits for Small Satellites," in *Proc. 8th Ann. AIAA/USU Conf. on Small Satellites*, Logan, UT, Vol. 6, pp. 1-12 (1994).
- Barger, C. B., Phillips, T. E., and Benson, R. C., "Surface Conductance Measurements of Adsorbed Gases," in *Proc. 44th Electronic Components & Technology Conf.*, Washington, DC, pp. 728-732 (May 1994).
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- Boiarsky, C. R. (Effective Comm. Assoc.), Northrop, B. A. (APL), Grove, L. K. (Battelle Labs.), Phillips, M. T. (Air Products), and Myers, F. N. (Morrison Knudsen Corp., Boise, ID), "Men and Women Teaming Up in the Profession: How They Communicate with Each Other in the Workplace," in *Proc. IEEE Int. Professional Commun. Conf., IPCC '94*, Banff, Alberta, Canada, pp. 210-215 (Sep 1994).
- Bryden, W. A., Ecelberger, S. A., and Kistenmacher, T. J., "He/N<sub>2</sub> Reactive Gas Composition and the Structural and Electrical Properties of InN Thin Films Grown by AlN-Nucleated (00.1) Sapphire by Planar Magnetron Sputtering," *Thin Solid Films* **247**, 258-263 (1994).
- Bythrow, P. F., Anderson, B. J., Potemra, T. A., and Zanetti, L. J. (APL), Winningham, J. D. (Southwest Res. Inst.), and Chenette, D. L. (Lockheed), "Filamentary Current Structures in the Post-noon Sector: Observations for UARS," *J. Geophys. Res.* **99**(A8), 14,917-14,929 (1994).
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- Cameron, G. E., and Reynolds, E. L., "Integration of the Topaz 2 Space Nuclear Reactor with the NEPSTP Spacecraft," in *Proc. 29th Intersociety Energy Conversion Eng. Conf.*, AIAA 94-3817, Part 2, Washington, DC, p. 384 (1994).
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- Electronic Show Symp., Int. Soc. for Hybrid Microelectronics, Greenbelt, MD (12–13 Oct 1994).
- Benson, R. C., and Phillips, T. E., "Moisture Getter Investigations," *Microelectronics Workshop*, AF Rome Laboratory, Blue Mountain Lake, NY (27–30 Sep 1994).
- Beser, N., "Image Data Compression," *SIGCAT-94*, Vienna, VA (Apr 1994).
- Blum, B. I., "AI in the Year 2000," *AIENG '94*, Pennsylvania State Univ., Great Valley, PA (19–21 Jul 1994).
- Blum, B. I., "Integrated Software Development in the Next Millennium," 3rd Int. Conf. on Systems Integration, São Paulo, Brazil (15–19 Aug 1994).
- Boiarsky, C. R. (Effective Comm. Assoc.), Grove, L. K. (Battelle Labs.), Northrop, B. A. (APL), Phillips, M. T. (Air Products), and Myers, F. N. (Morrison Knudsen Corp., Boise, ID), "Men and Women Teaming Up in the Profession: How They Perceive Themselves and Each Other in the Workplace," *IEEE Int. Professional Communication Conf.*, IPCC '94, Banff, Alberta, Canada (28–30 Sep 1994).
- Boies, M. T., Kinnison, J. D., Wilkinson, W., Phillips, T. E., Morgan, J. S., and Uy, O. M. (APL), and Filippelli, A. R., Tyson, S. A., and Tilford, C. R. (NIST), "Cooperative Sensor Calibration: MSX Neutral Mass Spectrometer and Total Pressure Sensor," *SPIE's Int. Symp. on Optics, Imaging and Instrumentation*, Int. Soc. Optical Eng., San Diego, CA (29 Jul 1994).
- Cameron, G. E., Landshof, J. A., and Whitworth, G. G., "Cost Efficient Operations for Discovery Class Missions," 3rd Int. Symp. on Space Mission Operations and Ground Data Systems, Goddard Space Flight Center, Greenbelt, MD (14–18 Nov 1994).
- Cameron, G. E., and Reynolds, E. L., "Integration of the Topaz 2 Space Nuclear Reactor with the NEPSTP Spacecraft," 29th Intersociety Energy Conversion Eng. Conf., Monterey, CA (7–12 Aug 1994).
- Christensen, A. B., Walterscheid, R. L., and Ross, M. N. (Aerospace Corp.), Meng, C.-I., Paxton, L. J., Anderson, D. E., and Crowley, G. (APL), Avery, S. (Univ. Colorado, Boulder), Craven, J. D. (Univ. Alaska, Fairbanks), Meier, R. R. (Naval Res. Lab.), and Strickland, D. J. (Computational Physics, Inc., Fairfax, VA), "The Global Ultraviolet Imager (GUVI) for the NASA TIMED Mission," *SPIE Meeting*, San Diego, CA (Jun 1994).
- Coughlin, T. B., "Senior Engineering Design Project," The Johns Hopkins University, Baltimore, MD (16 Sep 1994).
- Coughlin, T. B., "Mechanical Engineering in the Aerospace Industry," The Johns Hopkins University, Baltimore, MD (19 Sep 1994).
- Crowley, G. (APL), Schoendorf, J., and Roble, R. G. (National Center for Atmospheric Res., Boulder, CO), and Marcos, F. A. (Geophysics Directorate, Phillips

## PRESENTATIONS

APL staff members were among those who gave the following unclassified presentations:

- Anderson, B. J., "Cyclotron Wave Effects on Trapped Particles: Temperature Anisotropy Regulation, Heating and Pitch Angle Scattering," *TAOS Meeting*, Taos, NM (14–19 Aug 1994).
- Barger, C. B., Phillips, T. E., and Benson, R. C., "Surface Conductance Measurements of Adsorbed Gases," 44th Electronic Components and Technol. Conf., Washington, DC (1–4 May 1994).
- Barger, C. B., Phillips, T. E., and Benson, R. C., "Thermogravimetric Analysis of Selected Condensed Gases on a Quartz Crystal Microbalance," *SPIE's Int. Symp. on Optics, Imaging, and Instrumentation*, Int. Soc. for Opt. Eng., San Diego, CA (29 Jul 1994).
- Benson, R. C., "Mass Spectrometry, Gas Chromatography, and Thermogravimetric Analysis," *The Chesapeake*

- Labs., Hanscom AFB), "Neutral Density Cells in the Lower Thermosphere at High Latitudes," Am. Geophys. Union Spring Meeting, Baltimore, MD (23-27 May 1994).
- Davis, L. J., and Hagler, M. L., "Quality Service Through Employee-Defined Performance Management," 1994 Educational Conf. and 81st Annual Meeting of APPA, San Antonio, TX (10-12 Jul 1994).
- Ehrlich, L. W., and Silver, D. M., "On Some Experience Using Parallel Computation for a 3-D Complex Vector Helmholtz Equation," 1994 SIAM Annual Meeting, San Diego, CA (25 Jul 1994).
- Erlanson, R. E., and Zanetti, L. J., "Freja Observations of Electromagnetic Ion Cyclotron (ELF) Waves and Transverse O<sup>+</sup> Acceleration on Auroral Field Lines," Freja Int. Sci. Workshop, Banff, Alberta, Canada (28 Aug-2 Sep 1994).
- Flower, R. W., "Choroidal Blood Flow in the Diabetic Eye," A Comprehensive Review and Update, The Retina Institute of Maryland, Towson, MD (23 Sep 1994).
- Gilreath, H. E., "Mixing Enhancement in Confined Supersonic Flows," AFOSR Workshop, Lake Tahoe, NV (8 Jun 1994).
- Gilreath, H. E., "Ammonia—A Renewable Non-Polluting Fuel for the Future?" Mid-Atlantic Environmental Expo, Baltimore, MD (11 Oct 1993).
- Gilreath, H. E., Hopkins, J. E., and Clemons, D. E., "Development of an Ammonia-Fueled Engine," 2nd APL Symp. on Research and Development at APL, JHU/APL, Laurel, MD (3 Nov 1993).
- Gilreath, H. E., Sullins, G. A., and Raul, R., "Enhanced Fuel-Air Mixing in Hypersonic Engines," Int. Symp. on Air-Breathing Engines, Tokyo, Japan (24 Sep 1993).
- Ku, H.-C., Gilreath, H. E., Raul, R., and Sommerer, J. C., "Direct Numerical Simulation of Jet Flow via Multi-Grid Domain Decomposition Techniques," 7th Int. Conf. on Domain Decomposition Method, State College, PA (15 May 1994).
- Landshof, J. A., Marshall, M. H., and Cameron, G. E., "The NEAR Mission Operations System," Int. Academy of Astronautics (IAA) Int. Conf. on Low Cost Planetary Missions, The Johns Hopkins University/Applied Physics Laboratory, Laurel, MD (12-15 Apr 1994).
- Loesch, J. E., "Partnering with Local Code Enforcement Officials," IFMA Research Committee Summer Best Practices Forum, Danbury, CT (10 Aug 1994).
- Maryak, J. L., Spall, J. C., and Silberman, G. L., "Error Distribution and Confidence Bounds for Recursive-Estimators in Nonlinear State-Space Models," Mid-Atlantic Regional Probability and Statistics Day, Washington, DC (22 Oct 1994).
- McAdams, J. V., "Mission Opportunities to Phobos and Deimos," Small Bodies Science Working Group, Washington, DC (18-20 May 1994).
- Monchick, L., "Solution Methods for Realistic Boltzmann Equations," Soc. of Eng. Sci., Texas A&M, College Station, TX (10 Oct 1994).
- Murchie, S. L., "The Near Earth Asteroid Rendezvous Mission to EROS," Johnson Space Center Lunar Planetary Institute, Houston, TX (3 Aug 1994).
- Northrop, B. A. (APL), and Phillips, M. T. (Air Products), "Is Work Killing You?—Don't Let It," IEEE Int. Professional Communication Conf., IPCC '94, Banff, Alberta, Canada (28-30 Sep 1994).
- Norton, J. R., "Performance of Ultrastable Quartz Oscillators Using BVA Resonators," 8th European Frequency and Time Forum, Munich, Germany (10 Mar 1994).
- Ohtani, S.-I., "Substorm Signatures in the Near Earth Magnetotail," Seminar at Nagoya University, Nagoya, Japan (23 Jul 1994).
- Peacock, K., "Spectral and Radiometric Calibration of the MSX-UVISI Spectrographs," Int. Workshop on UVU and X-Ray Radiometry for Space-Based Instruments, Berlin, Germany (22-23 Sep 1994).
- Potember, R. S., "Very High Density Optical Storage System," IEE/LEOS Seminar, Univ. Maryland, College Park (14 Sep 1993).
- Potember, R. S., "An Overview of The Johns Hopkins University Applied Physics Laboratory," Univ. Ljubljana, Jozef Stefan Inst., Ljubljana, Slovenia (17 Jan 1994).
- Potember, R. S., "Technology Transfer: Collaboration Between Universities and Corporations," The Technical Institute of Graz, Graz, Austria (19 Jan 1994).
- Potember, R. S., "Conducting Networks from Cultured Cells on Self-Assembled Monolayers," ICSM '94, Seoul, Korea (24 Jul 1994).
- Potember, R. S., "Development of an Erasable Optical Storage System," Tsukuba Research Center, Mitsubishi Petrochemical Co., Ltd., Tokyo, Japan (1 Aug 1994).
- Raul, R., and Geckle, W. J., "Blood Flow Simulation and Scientific Visualization," 2nd APL Symp. on Research and Development, JHU/APL, Laurel, MD (3 Nov 1993).
- Raul, R., and Silver, D. M., "Turbulent Unsteady Bluff Body Flow Simulation Using CRAY Y-MP," 4th Annual Navy R&D Information Exchange Conf., San Diego, CA (10 Apr 1993).
- Roelof, E. C., "Recent Scientific Results from Ulysses," Colloquium, Bartol Research Inst., Univ. Delaware, Newark (7 Apr 1994).
- Romick, G. J., Anderson, D. E., Carbary, J. F., Paxton, L. J., Morrison, D., and Meng, C.-I., "Ultraviolet and Visible Observations of the Earth's Atmosphere and Surface from the MSX Satellite," 21st Annual European Meeting on Atmospheric Studies by Optical Methods, London, UK (12-16 Sep 1994).
- Schoendorf, J. (National Center for Atmospheric Res., Boulder, CO), Crowley, G. (APL), and Roble, R. G. (National Center for Atmospheric Res., Boulder, CO), "Mechanisms Causing the Formation of High Latitude Neutral Density Cells," Am. Geophys. Union Spring Meeting, Baltimore, MD (23-27 May 1994).
- Schwartz, P. D., and Hersman, C. B., "A High Speed Real Time Space Qualified Time Division Multiplexed Data Formatter," Int. Telemetry Conf., San Diego, CA (Oct 1994).
- Shiokawa, K., Yumoto, K., Tanaka, Y., Oguti, T., and Kiyama, Y. (Solar Terrestrial Environmental Lab., Nagoya Univ., Toyokawa, Japan), Matsuoka, A., and Hayakawa, H. (Inst. Space and Astronomical Sci., Kanagawa, Japan), and Newell, P. T., and Meng, C.-I. (APL), "Ground-Based and Satellite Observations of Low-Latitude Auroras During 1992-1993," SGEPS Spring Meeting, Sendai, Japan (20-23 Mar 1994).
- Silver, D. M., and Benson, R. C. (APL), and Garrett, J. W., and Glassford, A. P. M. (Lockheed Missiles & Space Co.), "Outgassing Issues and Measurement Protocols for Spacecraft Coatings," SPIE Int. Symp. on Optics, Imaging and Instrumentation, Conf. 2261, Optical System Contamination: Effects, Measurements and Control IV, San Diego, CA (28 Jul 1994).
- Silver, D. M., and Farrell, R. A., "New Techniques for Calculating Average Net Pulsatile Ocular Blood Flow," ARVO 94, Sarasota, FL (1 May 1994).
- Silver, D. M., and Farrell, R. A., "Model for Calculating Blood Flow from Intraocular Pressure Measurements," 2nd Workshop on Quantification of Bloodflow in Glaucoma, The Netherlands (7 Oct 1994).
- Spall, J. C., "Failure of the Bootstrap and an Alternative Approach," Mid-Atlantic Regional Probability and Statistics Day, Washington, DC (22 Oct 1994).
- Spall, J. C., "Neural Networks and Control," Conn. Chapter Am. Stat. Assoc. Meeting, New Haven, CT (14 Nov 1994).
- Spall, J. C., "Small-Sample Data Analysis," Conn. State Univ. Departmental Seminar Series, New Haven, CT (14 Nov 1994).
- Srinivasan, R., and Gopalan, P., "Effect of Ionic Adsorption on the Corrosion of Steel Under Cathodic Polarization," 186th Meeting, The Electrochemical Society, Inc., Miami, FL (14-19 Oct 1994).
- Uy, O. M., Benson, R. C., Boies, M. T., Kinnison, J. D., and Morgan, J. S. (APL), and Tison, S. A., Filippelli, A. R., and Tilford, C. R. (NIST), "Use of the NIST-Developed Water Calibrator for the Midcourse Space Experiment (MSX) Mass Spectrometer," SPIE—Space Instrumentation and Dual-Use Technologies, Orlando, FL (4-6 Apr 1994).
- Uy, O. M., Benson, R. C., Boies, M. T., Kinnison, J. D., and Morgan, J. S. (APL),

- and Tison, S. A., Filippelli, A. R., and Tilford, C. R. (NIST), "Ground Calibration of the Mass Spectrometer and Total Pressure Sensor in the Midcourse Space Experiment (MSX)," 24th Int. Conf. on Environmental Systems and 5th European Symp. on Space Environmental Control Systems, Friedrichshafen, Germany (20-23 Jun 1994).
- Wickenden, D. K., "Important Issues in the MOCVD Growth of Nitrides," Workshop on Wide Bandgap Nitrides, ONR, AFOSR, St. Louis, MO (17-18 Oct 1994).
- Wickenden, D. K., Barger, C. B., Bryden, W. A., Miragliotta, J., and Kistenmacher, T. J., "High Quality Undoped and Si-Doped Self-Nucleated AlGaN Layers on (00.1) Sapphire by Low Pressure MOCVD," Workshop on Wide Bandgap Nitrides, ONR, AFOSR, St. Louis, MO (17-18 Oct 1994).
- The following papers were presented at the 28th ESLAB Symposium, The High Latitude Heliosphere, Friedrichshafen, Germany (19-21 Apr 1994):
- Gloeckler, G. (Univ. Maryland), and Roelof, E. C. (APL), "Acceleration of Pick-Up Protons and He<sup>+</sup>."
- Ogilvie, K. W. (NASA/GSFC), Roelof, E. C. (APL), Gloeckler, G. (Univ. Maryland), and Berdichevsky, D. B. (Hughes STX, Lanham, MD), "Proton Phase Space Densities ( $0.5 \text{ eV} < E_p < 5 \text{ MeV}$ ) at Mid-Latitudes from Ulysses SWICS/HI-SCALE Measurements."
- Pick, M., Buttighoffer, A., and Kerdraon, A. (The Observatory of Paris at Meudon), Armstrong, T. P. (Univ. Kansas), Roelof, E. C. (APL), Hoang, S. (The Observatory of Paris at Meudon), Lanzerotti, L. J. (Bell Labs.), Simnett, G. M. (Univ. Birmingham, UK), and Lemen, J. (Lockheed, Palo Alto Res. Center), "Ulysses Observations of a Coronal Origin Particle Event at 32° South Heliographic Latitude."
- Reiner, M. J. (Hughes STX, Lanham, MD), Anderson, K. A. (Univ. Calif., Berkeley), Roelof, E. C. (APL), Armstrong, T. P. (Univ. Kansas), Hospodarsky, G. B. (Univ. Iowa), Fainberg, J., and Stone, R. G. (NASA/GSFC), Lanzerotti, L. J. (Bell Labs.), Gurnett, D. A. (Univ. Iowa), Pick, M. (The Observatory of Paris at Meudon), Phillips, J. L. (Los Alamos National Lab.), and Forsyth, R. (The Blackett Lab., Imperial College, London), "Ulysses/Galileo Observations of Type III Radio Bursts and Associated *in-situ* Electrons and Langmuir Waves."
- Roelof, E. C. (APL), Simnett, G. M. (Univ. Birmingham, UK), and Armstrong, T. P. (Univ. Kansas), "IMF Connection for Solar Energetic Protons Observed at Ulysses via Recurrent Mid-Latitude Solar Wind Rarefaction Regions."
- Simnett, G. M. (Univ. Birmingham, UK), and Roelof, E. C. (APL), "Reverse Shock Acceleration of Electrons and Protons at Mid-Heliolatitudes from 5.3-3.8 AU."
- Simnett, G. M., and Sayle, K. (Univ. Birmingham, UK), Roelof, E. C. (APL), and Tappin, S. J. (Univ. Birmingham, UK), "Corotating Particle Enhancements Out of the Ecliptic Plane."
- The following papers were presented at the 2nd Pioneer-Voyager Symposium, Energetic Particles and Fields in the Outer Heliosphere, Durham, NH (31 May-3 Jun 1994):
- Gloeckler, G. (Univ. Maryland), Roelof, E. C. (APL), and Ogilvie, K. W. (NASA/GSFC), "Proton Phase Space Densities ( $0.5 \text{ eV} < E_p < 5 \text{ MeV}$ ) at Mid-Latitudes from Ulysses SWICS/HI-SCALE Measurements."
- Roelof, E. C., "Determination of a Parallel Mean-Free-Path  $>20 \text{ AU}$  at 5.4 AU for 0.5-1.0 MeV Protons Observed by Ulysses."
- Simnett, G. M. (Univ. Birmingham, UK), and Roelof, E. C. (APL), "Acceleration of Electrons and Protons by Recurrent Reverse Shocks at Mid-Latitudes: Ulysses 5.3 AU to 3.8 AU."
- The following papers were presented at the Committee on Space Research (COSPAR), Hamburg, Germany (11-21 Jul 1994):
- Anagnostopoulos, G. C., Sarris, E. T., Kaliabetsos, G. D., Raptis, S., Trochoutsos, P. C., and Marhavilas, P. K. (Demokritos Univ. Thrace, Xanthi, Greece), and Krimigis, S. M. (APL), "On the Origin of the Forward Velocity Dispersion Effect of Ion Events Upstream from the Earth's and Jupiter's Bow Shock."
- Anagnostopoulos, G. C., Sarris, E. T., Marhavilas, P. K., and Trochoutsos, P. C. (Demokritos Univ. Thrace, Xanthi, Greece), and Krimigis, S. M. (APL), "The Inverse Velocity Dispersion of the Upstream Ions as a Result of Magnetospheric Activity."
- Anderson, B. J., "Characteristics of Hot Proton Distributions Associated with Magnetospheric Ion Cyclotron Waves."
- Anderson, B. J., "Recent Observations of Ion Cyclotron Waves in Space."
- Crowley, G. (APL), Schoendorf, J., and Roble, R. G. (National Center for Atmospheric Res., Boulder, CO), and Marcos, F. A. (Geophysics Directorate, Phillips Labs., Hanscom AFB), "Neutral Density Cells in the Lower Thermosphere at High Latitudes."
- Erlanson, R. E. (APL), and Aggson, T. L., Slavin, J. A., and Hoffman, R. A. (NASA/GSFC), "Thermal Electron Heating by Ion Cyclotron Waves: DE-2 Observations."
- Farquhar, R. W., "A Rendezvous with 433 Eros."
- Hawkins, S. E., and Cheng, A. F. (APL), and Lanzerotti, L. J., and MacLennan, C. G. (Bell Labs.), "Corotation of Jupiter's Three-Dimensional Magnetosphere."
- McNutt, R. L., Jr., Krimigis, S. M., Cheng, A. F., Gold, R. E., Farquhar, R. W., Roelof, E. C., Coughlin, T. B., Santo, A., Bokulich, R. S., Reynolds, E. L., Williams, B. D., and Willey, C. E., "Mission to the Sun: The Solar Pioneer."
- McNutt, R. L., Jr., (APL), and Lazarus, A. J., and Belcher, J. W. (MIT Center for Space Res. and Dept. Physics), "The Distance to the Heliospheric VLF Emission Region."
- McNutt, R. L., Jr. (APL), Rider, R. J., Keneshea, T. J., LePage, A. J., and Rappaport, S. A. (Visidyne, Inc., Burlington, MA), and Paulsen, D. E. (Geophysics Directorate, Phillips Labs., Hanscom AFB), "Energy Deposition in the Upper Atmosphere in the EXCEDE III Experiment."
- Paxton, L. J., Crowley, G., Meng, C.-I., and Kupperman, D. G. (APL), and Strickland, D. J., Cox, R. J., Evans, J. S., and Wright, K. (Computational Physics, Inc.), "Coupling Between the High and Low Latitude Thermosphere as Determined from FUV Remote Sensing."
- Paxton, L. J., Crowley, G., Meng, C.-I., Ogorzalek, B. S., and Spisz, T., "Visualization of Data from an Ultraviolet Spectrographic Imager."
- Veverka, J. (Cornell Univ.), and Cheng, A. F., Coughlin, T. B., Farquhar, R. W., and Krimigis, S. M. (APL), "NEAR: The Near Earth Asteroid Rendezvous Mission."
- The following papers were presented at the Western Pacific Geophysics Meeting, Hong Kong (25-29 Jul 1994):
- Cheng, C. Z., and Qian, Q. (Princeton Univ.), Takahashi, K. (Solar Terrestrial Environmental Lab., Nagoya Univ., Toyokawa, Japan), and Lui, A. T. Y. (APL), "Ballooning-Mirror Instability and Internally Driven Pc 4-5 Wave Events."
- Lui, A. T. Y., Williams, D. J., McEntire, R. W., Angelopoulos, V., and Jacquey, C. (APL), Christon, S. P. (Univ. Maryland), Fairfield, D. H. (GSFC), Kokubun, S. (Univ. Tokyo, Japan), and Yamamoto, T. (National Inst. Polar Res.), "Energetic Ion Species in Flux Ropes/Plasmoids in the Distant Tail."
- Potemra, T. A., Zanetti, L. J., Anderson, B. J., Bythrow, P. F., and Ohtani, S.-I., "Freja's Contribution to the ISTEP Event of October 27, 1992: A Distorted Magnetosphere."
- Takahashi, K., and Yumoto, K. (Solar Terrestrial Environmental Lab., Nagoya Univ., Toyokawa, Japan), and Anderson, B. J. (APL), "A Statistical Study of Pi 2 Pulsations Using Simultaneous Magnetic Field Observations from AMPTE CCE and Kakiola."
- Williams, D. J., Lui, A. T. Y., McEntire, R. W., Angelopoulos, V., and Jacquey, C.

(APL), Christon, S. P. (Univ. Maryland), Fairfield, D. H. (GSFC), Kokubun, S. (Univ. Tokyo, Japan), and Yamamoto, T. (National Inst. Polar Res.), "Magnetopause Encounters in the Magnetotail at Distances of  $\sim 80 R_e$ ." Zanetti, L. J., Potemra, T. A., and Anderson, B. J. (APL), Kappenman, J. (Minnesota Power, Duluth), Leshner, R., and Feero, W. (Elec. Res. and Management Inc., State College, Penn.), Porter, J. (EPRI), Anderson, G. (PEPCO), and Mulligan, P. (NOAA), "Correlations of Satellite Observed Auroral Currents and Currents Induced in a Power Generating System."

The following papers were presented at the Int. Symp. on the Magnetospheres of the Outer Planets, Graz, Austria (8-12 Aug 1994):

Bagenal, F. (Univ. Colorado), Cravens, T. (Univ. Kansas), Luhmann, J. (UCLA), and McNutt, R. L., and Cheng, A. F. (APL), "Pluto's Interaction with the Solar Wind." Kane, M. (JHU), and Mauk, B. H., Decker, R. B., and Krimigis, S. M. (APL), "Constraints on the Nature of Energization and Transport of Ions in the Jovian Magnetosphere Imposed by Analysis of Voyager-2 LECP Observations." Krimigis, S. M., Hawkins, S. E., III, and Cheng, A. F. (APL), and Lanzerotti, L. J., and MacLennan, C. G. (Bell Labs.), "Ulysses HI-SCALE Anisotropies." Mauk, B. H., Keath, E. P., and Krimigis, S. M., "Hot Plasma Parameters Near and Outside of Jupiter's Io Torus Regions." McNutt, R. L., Jr. (APL), Lyon, J. (Dartmouth), and Goodrich, C. C. (Univ. Maryland), "Uranus and Neptune: The Magnetospheric Story." Paranicas, C. P., and Cheng, A. F., "Satellite Microsignatures at Neptune."

The following papers were presented at the IGARSS, Pasadena, CA (9-12 Aug 1994):

Gasparovic, R. F. (APL), and Etkin, V. S. (Space Res. Inst., Moscow), "An Overview of the Joint US/Russia Internal Wave Remote Sensing Experiment." Gotwols, B. L., Jose, M. J., Sterner, R. E., and Thompson, D. R. (APL), and Zuikova, E. M., Titov, V. I., and Bakhanov, V. V. (Inst. Applied Physics, Russian Academy of Sciences, Nizhni Novgorod), "Observations of Internal Waves at X and Ka Bands, and Comparisons with Model Calculations." Monaldo, F. M., "The Influence of Altitude and Look Angle on SAR Ocean Wave Imaging: A Practical Compromise." Monaldo, F. M., Gasparovic, R. F., and Sterner, R. E., "ERS-1 SAR Observations of Internal Waves During the Joint US/Russia Internal Wave Remote Sensing Experiment." Porter, D. L., Chapman, R. D., Thompson, D. R., and Gasparovic, R. F. (APL), and Paka, V. T. (Shirshov Inst. Oceanology, Atlantic Branch, Kaliningrad, Russia) "Comparisons of Internal Waves as Observed by a Towed CTD and Radar." Trokhimovsky, Yu. G., and Yakovlev, V. (Space Res. Inst., Moscow), and Chapman, R. D., and Thompson, D. R. (APL), "The Coherence of Wind and Radar Data Obtained During the Joint US/Russia Internal Wave Experiment."

The following papers were presented at the 8th Annual AIAA/USU Conference on Small Satellites, Utah State University, Logan, UT (29 Aug-1 Sep 1994):

Ash, W. M., III, and Hoffman, E. J., "Reliable Application of Plastic Encapsulated Microcircuits for Small Satellites."

Vernon, S. R., and Cheng, A. F., "Near Earth Asteroid Returned Sample (NEARS) Mission."

Zanetti, L. J., Potemra, T. A., Anderson, B. J., and Henshaw, R. M. (APL), Acuna, M. H. (NASA/GSFC), Kappenman, J. (Minnesota Power, Duluth), and Leshner, R., and Feero, W. (Elec. Res. & Management, Inc., State College, Penn.), "The Freja Field Experiment."

## COLLOQUIA

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

7 Oct 1994: First Annual E. P. Gray Lecture, "Reminiscence of My Association with APL Colloquia," E. P. Gray (retired), APL.  
 14 Oct: "Magnetic Microscopy Using Superconducting Sensors," F. C. Wellstood, Univ. Maryland, College Park.  
 21 Oct: "Dynamics of Earthquakes and Fracture," J. S. Langer, Univ. Calif., Santa Barbara.  
 28 Oct: "Superconducting Gravity Gradiometers: Design and Applications," H. J. Paik, Univ. Maryland, College Park.  
 4 Nov: "Near Earth Asteroid Rendezvous: APL's First Planetary Mission," A. F. Cheng, APL.  
 18 Nov: "Muscle and Blood: A Computer Model of the Heart," C. S. Peskin, Courant Institute of Mathematical Sciences, New York University.  
 2 Dec: "Searching for Black Holes," H. C. Ford, Dept. Physics and Astronomy, JHU.  
 9 Dec: "Perspectives on Computer Vision," A. Rosenfeld, Center for Automation Research, Univ. Maryland, College Park.  
 16 Dec: "Measuring Dimensions with Light," J. W. Wagner, Dept. Materials Science and Engineering, JHU.