

## PUBLICATIONS

- Acuña, M. H., and Ousley, G. W. (NASA/Goddard), McEntire, R. W. (APL), Bryant, D. (Rutherford Appleton Lab., U.K.), and Paschmann, G. (Max Planck Inst.), "AMPTE Mission Overview," *IEEE Trans. Geosci. Remote Sensing GE-23*, 175-176 (1985).
- Armstrong, T. P. (Univ. Kansas), Pesses, M. E. (Applied Research Corp.), and Decker, R. B. (APL), "Shock Drift Acceleration," Chap. in *Collisionless Shocks in the Heliosphere: Reviews of Current Research*, Geophysical Monograph 35, American Geophysical Union, Washington, D.C. (1985).
- Batchelor, D. A. (APL), Crannell, C. J. (NASA/Goddard), and Wiehl, H. J., and Magun, A. (Univ. Bern), "Evidence for Collisionless Conduction Fronts in Impulsive Solar Flares," *Astrophys. J.* **295**, 258-274 (1985).
- Beal, R. C., "SIR-B Extreme Waves Experiment in the Southern Oceans," in *1985 International Geoscience and Remote Sensing Symp. Dig.*, IEEE, pp. 787-791 (1985).
- Blum, B. I., "Experience with an Automated Generator of Information Systems," in *Proc. IEEE International Symp. on New Directions in Computing*, pp. 138-147 (1985).
- Blum, B. I., "Language, Problem Solving, and System Development," Chap. in *The Role of Language in Problem Solving I*, R. Jernigan, et al., eds., Elsevier Science Pub. B. V., North Holland (1985).
- Blum, B. I., "Medical Informatics—Phase II," in *Proc. AAMSI Congress, 1985*, AAMSI, pp. 164-169 (1985).
- Blum, B. I., "TEQUILA: An Intoxicating Query System," in *Proc. 14th MUMPS Users' Group, 1985*, pp. 85-94 (1985).
- Bryant, D., Krimigis, S. M., and Haerendel, G., "AMPTE Science Objectives and Investigations," *IEEE Trans. Geosci. Remote Sensing GE-23*, 177 (1985).
- Clatterbaugh, G. V., and Charles, H. K., Jr., "Thermomechanical Behavior of Soldered Interconnects for Surface Mounting: A Comparison of Theory and Experiment," in *Proc. 35th Electronic Component Conf.*, pp. 60-72 (1985).
- Dubbel, D. C., and Brandt, A., "SARSEX Internal Wave Measurements and Surface Current Predictions," in *1985 International Geoscience and Remote Sensing Symp. Dig.*, IEEE, pp. 1135-1140 (1985).
- Flower, R. W. (APL) and McLeod, D. S., Luty, G. A., Goldberg, B., and Wajer, S. D. (Wilmer Ophthalmological Inst.), "Postnatal Retinal Vascular Development of the Puppy," *Invest. Ophthalmol. Vis. Sci.* **26**, 957-968 (1985).
- Follin, J. W., Jr., Paddison, F. C., and Maffett, A. L., "Statistics of Radar Cross Section Scintillations," *Electromagnetics* **4**, 139-162 (1984).
- Frain, W. E., Jones, S. C., Kilgus, C. C., and MacArthur, J. L., "The Navy Geosat Mission Radar Altimeter Satellite Program," in *Progress in Astronautics and Aeronautics: Monitoring Earth's Ocean, Land, and Atmosphere from Space 97*, A. Schnape, ed., AIAA, New York, pp. 440-463 (1985).
- Fremouw, E. J. (Physical Dynamics, Inc.), Carlson, H. C. (Air Force Geophysics Lab.), Potemra, T. A., and Bythrow, P. F. (APL), Rino, C. L., Vickrey, J. F., and Livingston, R. L. (SRI International), Huffman, R. E. (Air Force Geophysics Lab.), Meng, C.-I. (APL), Hardy, D. A., and Rich, F. J. (Air Force Geophysics Lab.), Heelis, R. A., and Hanson, W. B. (Univ. Texas), and Wittwer, L. A. (Defense Nuclear Agency), "The DNA HILAT Satellite Mission," in *Effect of the Ionosphere on C<sup>3</sup>I Systems*, J. M. Goodman, ed., Ionospheric Effects Symp., pp. 443-452 (1985).
- Friedman, M. H., and Wiggert, D. C. eds., *Forum on Unsteady Flows in Biological Systems*, American Soc. of Mechanical Engineers, New York (1985).
- Friedman, M. H., Deters, O. J., and Bargeon, C. B. (APL), Hutchins, G. M. (JHMI), and Mark, F. F. (APL), "Computing Shear-Dependent Processes in Intimal Thickening," in *Forum on Unsteady Flows in Biological Systems*, M. H. Friedman and D. C. Wiggert, eds., American Society of Mechanical Engineers, New York, pp. 75-78 (1985).
- Gasparovic, R. F., and Apel, J. R., "An Overview of the SAR Internal Wave Signature Experiment," in *1985 International Geoscience and Remote Sensing Symp. Dig.*, IEEE, pp. 1123-1128 (1985).
- Giannini, J. A., Hansen, J. S., and Hart, L. W. (APL) and Greifinger, C., and Greifinger, P. (R&D Assoc.), "Magnetic Anomalies from Conductivity Perturbations in a Conducting Fluid in an External Electromagnetic Field," *IEEE Trans. Geosci. Remote Sensing GE-23*, 574-580 (1985).
- Goodfellow, W. L., Jr. (EA Engineering, Science, and Tech.), Klauda, R. J. (APL), and Graves, W. C. (Biocontrol, Inc.), "Test Chamber for Experiments with Early Life Stages of Fishes," *Prog. Fish Cult.* **47**, 59-60 (1985).
- Gotwols, B. L., Sterner, R. E., and Thompson, D. R., "SARSEX Surface Wave Slope Modulations—Measurements and Predictions," in *1985 International Geoscience and Remote Sensing Symp. Dig.*, IEEE, pp. 1141-1145 (1985).
- Howey, P. W. (APL), Whitlock, D. R. (U.S. Dept. of Agriculture), Fuller, M. R. (U.S. Fish & Wildlife Service), Seegar, W. S. (Chemical R&D Command), Strikwerda, T. E. (APL), and Ward, F. P. (Chemical R&D Command), "A Computerized Biotelemetry Receiving and Datalogging System," in *Proc. 8th International Symp. on Biotelemetry*, International Society of Biotelemetry, pp. 375-378 (1985).
- Huffman, R. E., Larrabee, J. C., and LeBlanc, F. J. (Air Force Geophysics Lab.) and Meng, C.-I. (APL), "Ultraviolet Remote Sensing of the Aurora and Ionosphere for C<sup>3</sup>I System Use," in *Effect of the Ionosphere on C<sup>3</sup>I Systems*, J. M. Goodman, ed., Ionospheric Effects Symp., pp. 288-294 (1985).
- Irvine, D. E., "The Kinematics of Short Wave Modulation by Long Waves," in *The Ocean Surface*, Y. Toba and H. Mitsuyasu, eds., *Proc. Symp. on Wave Breaking, Turbulent Mixing, and Radio Probing of the Ocean Surface*, D. Reidel Pub. Co., Dordrecht, Holland, pp. 129-134 (1985).
- Jones, S. C., "Computer Simulation of TDRSS Autotracking," in *Proc. 1985 Summer Computer Simulation Conf.*, pp. 290-293 (1985).
- Kitchin, D. A., Fraser, A. B., Lee, R. P. H., and Meyer, L. A. (APL), Karner, L. E. (Old Dominion Systems), and Best, C. S. (Augmentation, Inc.), "Densely Instrumented Towed Sensor System," in *Proc. 1985 Marine Technology Soc., Ocean Data: Sensor-to-User Symp.*, pp. 241-244 (1985).
- Ko, H. W., "A Practical Guide to Anomalous Propagation," *Microwaves and RF* **24**, 71-72, 74-76 (1985).
- Ko, H. W., "Don't Let Ducting Clutter Systems Specs," *Microwaves and RF* **24**, 103-108 (1985).
- Krimigis, S. M., and Sarris, E. T., "Acceleration of Ions and Electrons near Cosmic Ray Energies in a Perpendicular Shock: The January 6, 1978 Event," in *Proc. 19th International Cosmic Ray Conf.* **4**, pp. 170-173 (1985).
- Kulp, R. L., "Detection Probabilities for Beta-Distributed Scattering Cross Sections," *Electromagnetics* **4**, 165-183 (1984).
- Lanzerotti, L. J., and MacLennan, C. G. (AT&T Bell Labs.) and Gold, R. E. (APL), "Interplanetary Conditions during 3 kHz Radio Wave Detections in the Outer Heliosphere," *Nature* **316**, 243-244 (1985).
- Lui, A. T. Y., "Observations of the Earth's Cross-Tail Current Sheet and Their Implications," in *Unstable Current Systems and Plasma Instabilities in Astrophysics*, H. R. Kundu and G. D. Holman, eds., D. Reidel Pub. Co., Dordrecht, Holland, pp. 303-307 (1985).
- MacArthur, J. L., and Posner, A. S., "Satellite-to-Satellite Range-Rate Measurement," in *IEEE Trans. Geosci. Remote Sensing GE-23*, pp. 517-523 (1985).
- Magruder, S. F., and Freier, D. G., "Iterative Calculation of Rough Surface Scat-



- tering Amplitudes," *Antennas Propag. Tech. Dig.* **II**, 557-560 (1985).
- Mauk, B. H., and Krimigis, S. M., "Particle and Field Stress Balance within a Planetary Magnetosphere," *J. Geophys. Res.* **90**, 8253-8264 (1985).
- Mauk, B. H., and Krimigis, S. M. (APL) and Lepping, R. P. (NASA/Goddard), "Particle and Field Stress Balance within a Planetary Magnetosphere," *J. Geophys. Res.* **90**, 8253-8254 (1985).
- Maurer, R. H., and Uy, D. M., "Radiation Effects on Selected Electronics Parts from the Solar Max Satellite," in *Proc. SMMR Degradation Study Workshop*, G. W. Dosley, Jr., ed., The Satellite Servicing Project, Goddard Space Flight Center, pp. 87-103 (1985).
- Meng, C.-I., "Dynamic Variations of the Auroral Precipitation and the Polar Cap," in *Results of the ARCADE Project and of the Recent Programmes in Magnetospheric and Ionospheric Physics*, M. Reme, ed., French National Center of Space Research Collection, Cepadues-Editions **111**, Toulouse, France, pp. 289-310 (1985).
- Moffett, J. B., Smith, S. G., and DeAmicis, S. J., "Technical Brochure Preparation," *IEEE Trans. Prof. Commun.* **PC-28**, 17-20 (1985).
- Monaldo, F. M., and Irvine, D. E. (APL) and Gonzalez, F. J. (NOAA), "The Spatial Evolution of SAR-Derived Wave Spectra in the Vicinity of Hurricane Iva," in *1985 International Geoscience and Remote Sensing Symp. Dig.*, IEEE, pp. 731-736 (1985).
- Moorjani, K., "Magnetic Order in Disordered Media," in *Physics of Disordered Materials*, D. Adler, H. Fritzsche, and S. R. Ovshinsky, eds., Plenum Pub. Corp., pp. 699-717 (1985).
- Norton, J. R., Cloeren, J. M., and Suter, J. J., "Results from Gamma Ray and Proton Beam Radiation Testing of Quartz Resonators," in *IEEE Trans. Nucl. Sci.* **NS-31**, pp. 1230-1233 (1984).
- Oppenheimer, E. P., Duven, D. J., and Westerfield, E. E. (APL) and McConnell, J. B. (U.S. Air Force), "Real Time GPS Tracking for Peacekeeper Test Flights," in *Proc. 1st International Symp. on Precise Positioning with the Global Positioning System II*, National Geodetic Information Center, NOAA, pp. 843-851 (1985).
- Pace, D. K., "Hands-On Experience in Teaching Computer Simulation Management," in *Proc. 6th Annual Meeting of the ASEM*, American Society for Engineering Management, pp. 55-60 (1985).
- Pisacane, V. L., Yionoulis, S. M., and Jenkins, R. E., "Nature and Reduction of Errors in Near-Earth Autonomous Satellite Navigation," *J. Spacecraft Rockets* **22**, 405-411 (1985).
- Potemra, T. A., and Zanetti, L. J. (APL) and Acuña, M. H. (NASA/Goddard), "The AMPTE CCE Magnetic Field Experiment," in *IEEE Trans. Geosci. Remote Sensing GE-23*, pp. 246-249 (1985).
- Potemra, T. A., Zanetti, L. J., and Bythrow, P. F., "Global Patterns of Ionospheric and Field-Aligned (Birkeland) Currents," in *Effect of the Ionosphere on C<sup>3</sup>I Systems*, J. M. Goodman, ed., in *Proc. of the Ionospheric Effects Symp.*, pp. 453-462 (1985).
- Pue, A. J., Strohhahn, K., and Hunt, J. W., "Configuration Trade-Offs for the Space Infrared Telescope Facility Pointing Control System," in *Proc. 1985 Guidance, Navigation, and Control Conf., AIAA*, pp. 73-82 (1985).
- Reilly, J. P., and Bauer, R. H. (APL) and Larkin, W. D. (Univ. Maryland), "Factors Affecting Sensitivity to Neuroelectric Stimulation, Comparison of Model and Experiment," in *Proc. 38th Conf. on Engineering in Medicine and Biology*, Alliance for Engineering in Medicine and Biology, p. 55 (1985).
- Sarris, E. T. (Univ. Thrace), and Krimigis, S. M. (APL), "Multispacecraft Observations of the East-West Asymmetry of Solar Energetic Storm Particle Events," *Solar Phys.* 413-421 (1985).
- Schetz, J. A. (VPI&SU) and Billig, F. S., and Favini, S. (APL), *Numerical Solutions of Ramjet Nozzle Flows*, AIAA publication AIAA-85-1270 (1985).
- Shuchman, R. A., Kasischke, E. S., and Lyzenga, D. R. (ERIM) and Thompson, D. R. (APL), "SAR Observed Internal Wave Signatures from SARSEX—Comparisons with SAR Imaging Models," in *1985 International Geoscience and Remote Sensing Symp. Dig.*, IEEE, pp. 1153-1159 (1985).
- Sibeck, D. G. (APL), Siscoe, G. L. (Univ. California, Los Angeles), Slavin, J. A., Smith, E. J., and Tsurutani, B. T. (JPL), and Lepping, R. P. (NASA/Goddard), "The Distant Magnetotail's Response to a Strong IMF B<sub>y</sub>: Twisting, Flattening, and Field Line Bending," *J. Geophys. Res.* **90**, 4011-4019 (1985).
- Sinex, C. H., "The Environmental Data Base at APL," in *Proc. 1985 Symp., Ocean Data: Sensor-to-User*, pp. 213-225 (1985).
- Smith, R. H., Jr., "Maximum Likelihood Mean and Covariance Matrix Estimation Constrained to General Positive Semi-Definiteness," *Commun. Stat. Theor. Meth.* **14**, 2163-2179 (1985).
- Strikwerda, T. E., Strohhahn, K., and Fowler, K. R. (APL) and Skillman, D. R. (NASA/Goddard), "Space Telescope Moving Target Tracking," in *Proc. AIAA Guidance, Navigation, and Control*, pp. 67-72 (1985).
- van Nes, P. (ESA), Roelof, E. C. (APL), and Reinhard, R., Sanderson, R. R., and Wenzel, K.-P. (ESA), "A Major Shock-Associated Energetic Storm Particle Event Wherein the Shock Plays a Minor Role," *J. Geophys. Res.* **90**, 3981-3994 (1985).
- Wiehl, H. J. (NASA/Goddard, Univ. Bern), Batchelor, D. A. (APL), Crannell, C. J., Dennis, B. R., and Price, P. N. (NASA/Goddard), and Magun, A. (Univ. Bern), "Great Microwave Bursts and Hard X-Rays from Solar Flares," in *Solar Physics* **96**, D. Reidel Pub. Co., Dordrecht, Holland, pp. 339-356 (1985).
- Yionoulis, S. M., and Pisacane, V. L., "Geopotential Research Mission: Status Report," *IEEE Trans. Geosci. Remote Sensing GE-23*, 511-516 (1985).

## PRESENTATIONS

- Adrian, F. J., Bohandy, J., and Kim, B. F., "Magnetophotoselective Photolysis of Randomly Oriented Radicals in Solids," Chemical Institute of Canada, Kingston, Ontario (Jun 4, 1985).
- Barger, C. B., and Benson, R. C., "Arc Test Specimen Microstructural Evaluation," Program Review on Development of Oxidation-Resistant Materials for Tactical Missile Applications, White Oak, Md. (May 22, 1985).
- Batchelor, D. A., "X-Ray Images of Solar Flares from the Solar Maximum Mission," Solar Maximum Analysis Workshop, Irkutsk, USSR (Jun 17-21, 1985).
- Benson, R. C., deHaas, N., and Charles, H. K., Jr., "Surface/Materials Investigations in Microelectronics," Minnowbrook Hybrid Workshop, Blue Mountain Lake, N.Y. (Sep 10-13, 1985).
- Black, H. D., "Tracking Birds with Satellites," Mountain Lake Dynamics and Control Institute, Mountain Lake, Va. (Jun 9-11, 1985).
- Black, H. D., "Tracking Birds with Satellites," Graduate Seminar, University of Virginia, Charlottesville (Sep 26, 1985).
- Bouyer, H., "On the Distribution of Separation between Positional Errors of Two Independent Radars Tracking the Same Target," 1985 Joint Statistical Meeting of the American Statistical Assoc., Las Vegas (Aug 5-8, 1985).
- Campbell, J. N. (JHMI) and Meyer, R. A. (APL), "Peripheral Neural Mechanisms of Pain," Neuroscience Council Meeting, The Johns Hopkins University, Baltimore (Jun 19, 1985).
- Cheng, A. F., "Early Time Coupling of AMPTE Magnetotail Releases to Ambient Plasma," AMPTE Science Working Group Meeting, Derbyshire, U.K. (Jun 18-20, 1985).
- Cheng, A. F., "Interstellar Grains and Current Flow in Pulsar Magnetospheres," 166th Meeting, American Astronomical Society, Charlottesville (Jun 5-7, 1985).
- Cheng, A. F., "Interchange Instabilities," Tutorial Lecture at Mediterranean School on Plasma Astrophysics, Colymbari, Crete (Sep 23-Oct 4, 1985).
- Cheng, A. F., "Ions and Neutrals," NASA Jupiter Polar Workshop, University of California, Los Angeles (Jul 18-19, 1985).
- Cheng, A. F., "Neutral Particle Imaging at Jupiter and Saturn," Magnetospheric Imaging Workshop, Major Directions Study, Woods Hole, Mass. (Jul 30-31, 1985).
- Danchik, R. J. (APL), Hoskins, G. W. (Strategic Systems Program Office, USN), and Engel, J. R. (RCA), "Navy Navigation Satellite System (Transit) Status and Future Plans," Royal Institute of Naviga-



- tion Conf. on Land Navigation and Location for Mobile Applications (NAV 85), London, U.K. (Sep 1985).
- Freund, D. E., McCally, R. L., and Farrell, R. A., "Diffraction Effects on Calculations of Scattering by Fibrils," Association for Research in Vision and Ophthalmology, Sarasota (May 6-10, 1985).
- Frishkorn, G. E., and Gersh, J. R., "Response Depiction for Automated Combat Systems," 8th MIT/ONR Workshop on C<sup>3</sup> Systems, Cambridge (Jun 24-28, 1985).
- Fristrom, R. M., Linevsky, M. J., and Silver, D. M., "Chemical Scavenging of Smoke in Disturbed Atmospheres," Global Effects Program Meeting, Santa Barbara, Calif. (Feb 13, 1985).
- Gold, R. E. (APL) and Venkatesan, D. (Univ. Calgary), "Study of Interplanetary Spatial Structures during STIP Interval V (June-July 1978)," Symp. on the Study of Travelling Interplanetary Phenomena, Les Diablerets, Switzerland (Jun 10-12, 1985).
- Goldhirsh, J., and Musiani, B., "Cell Characteristics Derived from Radar Observations at Wallops Island, Virginia," Joint Meeting, IEEE Geoscience and Remote Sensing Society and USNC/URSI Commission F, Amherst, Mass. (Oct 7-9, 1985).
- Goldhirsh, J., and Musiani, B., "Radar Derived Two-Dimensional Rain Cell Statistics," North American Radio Science Meeting, International Union of Radio Science, Vancouver, B.C. (Jun 17-21, 1985).
- Greenspan, M. E., "Intense, Energetic Polar Rain—Accelerated between 23 R<sub>e</sub> and 840 km Altitude?" Seminar, Air Force Geophysics Laboratory, Bedford, Mass. (Aug 7, 1985).
- Greenwald, R. A., "Radar Studies of Plasma Turbulence in the Ionosphere," Gordon Research Conf. on Space Plasma Physics, Andover, N.H. (Jun 24-28, 1985).
- Greenwald, R. A., and Baker, K. B., "HF Radar Observations," AGARD Conf. on Propagation Effects on Military Systems in the High Latitude Region, Fairbanks (Jun 3-7, 1985).
- Iannuzzelli, R. J., and Snelling, W. E., "Generation of Sinusoidally Frequency-Modulated Sequences Using a Digital Frequency Synthesizer," IASTED International Symp. on Applied Signal Processing and Digital Filtering, Paris (Jun 19-21, 1985).
- Kistenmacher, T. J., "Crystallographic Family Tree for (BEDT-TTF)<sub>2</sub>X Salts," American Crystallographic Assoc., Palo Alto, Calif. (Aug 18-23, 1985).
- Kistenmacher, T. J., Bryden, W. A., and Moorjani, K., "Correlation of Magnetic and Atomic Structure for Rapidly-Quenched FeAlB Alloys," International Conf. on Magnetism, San Francisco (Aug 26-30, 1985).
- Klauda, R. J. (APL), Goodfellow, W. L., Jr. (EA Engineering, Science, and Tech.), and Jepson, M. A. (Univ. Maryland), "Influence of Delayed Initial Feeding on Mortality of Striped Bass Larvae Exposed to Arsenic and Selenium," Annual Meeting, American Fisheries Society, Sun Valley, Idaho (Sep 9-12, 1985).
- Ko, H. W., "Relationships between Signal Transmission, Systems Engineering, and People Communications," Howard University Communication and Signal Processing Seminar, Washington, D.C. (Mar 19, 1985).
- Lui, A. T. Y., McEntire, R. W., Krimigis, S. M., and Keath, E. P., "Acceleration of Energetic Oxygen (E > 137 keV) in the Storm-Time Ring Current," Chapman Conf. on Ion Acceleration in the Magnetosphere and Ionosphere, Wellesley, Mass. (Jun 3-7, 1985).
- Mauk, B. H., and Meng, C.-I., "Macroscopic Ion Acceleration Processes within the Earth's Magnetosphere," Chapman Conf. on Ion Acceleration in the Magnetosphere and Ionosphere," Wellesley, Mass. (Jun 3-7, 1985).
- McEntire, R. W., "AMPTE Artificial Comet Observations," AMPTE CCE Working Group Meeting, NASA/Goddard, Greenbelt, Md. (Jul 1985).
- McEntire, R. W., "The AMPTE Mission," National Research Council, Ottawa, Ontario (Jun 1985).
- McEntire, R. W., "The U.S. AMPTE Science Data Center," Seminar on Tele-science for the Space Station Era, NASA/Goddard, Greenbelt, Md. (Aug 12-14, 1985).
- Murphy, J. C., Satkiewicz, F. G., and Aamodt, L. C., "Ion Acoustic Imaging of Buried Flaws in Aluminum," Conf. on Quantitative Nondestructive Evaluation, Williamsburg, Va. (Jun 1985).
- Nylund, S. R., "AMPTE Operations," Seminar on Tele-science for the Space Station Era, NASA/Goddard, Greenbelt, Md. (Aug 12-14, 1985).
- Nylund, S. R., "AMPTE Science Data Center and Status of Data Production, AMPTE CCE Project Transfer," NASA/Goddard, Greenbelt, Md. (Aug 1, 1985).
- O'Brien, V., and Ehrlich, L. W., "Pulsatile Flows in the Vertebral Artery," Society of Women Engineers, Minneapolis (Jun 23-30, 1985).
- Powell, W. R., "SDI and Arms Control," Military Operations Research Society Meeting, Colorado Springs (Jun 26, 1985).
- Roelof, E. C., "Interplanetary Acceleration and Confinement of Low Energy Solar Particles by the Flare Plasma Disturbance," Symp. on the Study of Travelling Interplanetary Phenomena, Les Diablerets, Switzerland (Jun 10-12, 1985).
- Rust, D. M., "Doppler Analyzer Based on a Tunable Fabry-Perot Etalon," Conf. on Global Oscillations, Tucson (Jan 16, 1985).
- Rust, D. M., "Doppler Analyzer Based on a Solid Fabry-Perot Etalon," ESA Workshop on Future Missions in Solar Heliospheric and Space Plasma Physics, Garmisch-Partenkirchen, FRG (Apr 30-May 3, 1985).
- Rust, D. M., "Scientific Highlights of the Solar Maximum Mission—Flares," Institute of Space and Astronautical Science, Tokyo (Feb 6-8, 1985).
- Rust, D. M. (APL) and Burton, C., Abell, R., and Leistner, A. (CSIRO, Australia), "A Fabry-Perot Etalon for Differential Spectral Imaging," American Astronomical Society Meeting, Tucson (May 13-15, 1985).
- Seamone, W., "The APL/JHU Robot Arm/Worktable System," ASME Meeting, APL, Laurel, Md. (Sep 25, 1985).
- Seamone, W., "Evaluation Results of the APL/JHU Robotic Arm/Worktable System," Symp. on Robots for the Handicapped, Pittsburgh (May 23, 1985).
- Seamone, W., "Overview of APL/JHU Robotic Arm/Worktable System," Meeting, President's Committee on Employment of the Handicapped, Washington, D.C. (May 31, 1985).
- Seamone, W. (APL), Schmeisser, G. (JHMI), and Loveless, J. H. (APL), "Overview of the APL/JHU Robotic Arm/Worktable," VA Medical Center, Hines, Ill. (Aug 19, 1985).
- Sibeck, D. G., "MEPA Observations of the Subsolar Magnetopause," AMPTE Joint Working Group Meeting, Derbyshire, U.K. (Jun 18-20, 1985).
- Silver, D. M., "Missile Environmental Monitor System," Ballistic Missile Office, Norton Air Force Base, Calif. (Feb 15, 1985).
- Sinex, C. H., "The Environmental Data Base at APL," Marine Technology Society Sensor-to-User Symp., New Orleans (May 1-3, 1985).
- Smart, J. H., "Temporal and Spatial Coherence Scales in Finestructure Current Profiles in the Upper Ocean," IAMP/ IAPSO Joint Assembly, Honolulu (Aug 5-16, 1985).
- Stewart, R. L., "A Taxonomy of Distributed Knowledge Systems," Human Factors in Distributed Tactical Decision Making—National Research Council Workshop, APL, Laurel, Md. (Feb 7, 1985).
- Strikwerda, T. E., "Tracking Moving Targets with the Space Telescope," Mountain Lake Dynamics and Control Institute, Mountain Lake, Va. (Jun 9-11, 1985).
- Strikwerda, T. E., Howey, P. W., Black, H. D., Mantel, S., Blackburn, C. A., and Wall, J. G., "Tracking Wildlife (and Tamelife) with Satellites," Royal Institute of Navigation, York, U.K. (Sep 9-11, 1985).
- Strikwerda, T., Strohhahn, K., and Heyler, G., "Precise Pointing of Space Telescope Using a Quadrant Detector," SPIE Technical Symp. East '85, Arlington, Va. (Apr 11, 1985).
- Strohhahn, K., Strikwerda, T. E., and Fowler, K. R. (APL) and Skillman, D. R. (NASA/Goddard), "Space Telescope Moving Target Tracking," AIAA Guidance and Control Conf., Snowmass, Colo. (Aug 19-21, 1985).
- Thompson, D. R., "Perturbation to the Surface-Wave Height Spectrum due to



the Presence of Surface Current Features," North American Radio Science Meeting and International IEEE/AP-S Symp., Vancouver, B.C. (Jun 17-21, 1985).

- Tilley, D. G., "The Use of Speckle for Determining the Response Characteristics of Doppler Imaging Radars," 27th Symp. Society of Photo-Optical Instrumentation Engineers, San Diego (Aug 21, 1985).
- Wetsel, G. C. (Southern Methodist Univ.) and Maclachlan, J. W., and Murphy, J. C. (APL), "Nondestructive Evaluation and Materials Characterization Using Photothermal-Optical-Beam Deflection Imaging," Conf. on Quantitative Non-destructive Evaluation, Williamsburg, Va. (Jun 1985).

The following papers were presented at the HILAT Science Meeting, Hanscom Air Force Base, Mass. (Jan 7-10, 1985):

- Bythrow, P. F., "Field-Aligned Currents and Auroral Arcs Associated with the Boundary Plasma Sheet/Central Plasma Sheet Interface";
- Meng, C.-I., "AIM VUV Imager and Precipitation Comparison";
- Meng, C.-I., "AIM Photometer Results."

The following papers were presented at the 1985 Spring Meeting of the American Geophysical Union, Baltimore (May 27-31, 1985):

- Anagnostopoulos, G. (Univ. Thrace) and Krimigis, S. M., and Sarris, E. T. (APL), "Multispacecraft Observations of Ion Events Upstream of the Earth's Bow Shock";
- Bythrow, P. F. (APL), Doyle, M. A. (Regis College), Meng, C.-I. (APL), Huffman, R. E., Hardy, D. A., and Rich, F. J. (Air Force Geophysics Lab.), and Potemra T. A., and Zanetti, L. J. (APL), "The Kelvin Helmholtz Instability at the BPS/CPS Interface: A Source of Small-Scale Birkeland Currents and Auroral Arcs";
- Cheng, A. F., "Magnetospheric Interchange Instability";
- Decker, R. B. (APL) and Vlahos, L. (Univ. Maryland), "Simulation of Energetic Ion Acceleration at Interplanetary Shocks";
- Gold, R. E. (APL) and Lanzerotti, L. J., and Maclennan, C. G. (AT&T Bell Labs.), "Enhanced Low Energy (~1 MeV) Ion Fluxes in the Outer Heliosphere";
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- Zanetti, L. J., Potemra, T. A., Bythrow, P. F., and Meng, C.-I. (APL), Huffman, R. E., Hardy, D. A., and Rich, F. J. (Air Force Geophysics Lab.), and Hanson, W. B., and Heelis, R. A. (Univ. Texas), "Polar Current Systems, Aurora, Particle, and Electric Field Signatures."

The following papers were presented at the 19th European Space Laboratory (ESLAB) Symp. on the Sun and the Heliosphere in Three Dimensions, Les Diablerets, Switzerland (Jun 4-6, 1985):

- Batchelor, D. A., "Hard and Soft X-Ray Emission from the 1981 May 21 Flare";

Gold, R. E. (APL), Lanzerotti, L. J., and Maclennan, C. G. (AT&T Bell Labs.), and Krimigis, S. M. (APL), "Latitude Dependence of Interplanetary Particle Enhancements Associated with Co-Rotating Shocks";

Roelof, E. C., "Three-Dimensional Gradients of Solar Particles Inside 5 AU."

The following papers were presented at the 5th General Assembly of the International Assoc. of Geomagnetism and Aeronomy Program, Prague (Aug 2-9, 1985):

- Bythrow, P. F. (APL), Burke, W. J. (Air Force Geophysics Lab.), Potemra, T. A., Zanetti, L. J., and Lui, A. T. Y. (APL), and Iijima, T. (Univ. Tokyo), "Irregular Reconnection and Turbulent Plasma Flows in the Magnetotail during Periods of Northward IMF: Observations from MAGSAT";
- Bythrow, P. F. (APL), Doyle, M. A. (Regis College), Potemra, T. A., Zanetti, L. J., and Meng, C.-I. (APL), Huffman, R. E., Rich, F. J., and Hardy, D. A. (Air Force Geophysics Lab.), and Hanson, W. B. (Univ. Texas), "Evidence for a Kelvin-Helmholtz Instability at the Low Latitude Boundary Layer: A HILAT Case Study";
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- Meng, C.-I. (APL) and Makita, K. (Univ. Tokyo), "Auroral Oval Configuration in the Magnetospheric Ground State";
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The following papers were presented at the 4th International Topical Meeting on Photoacoustics, Montreal (Aug 4-8, 1985):

- Aamodt, L. C., and Murphy, J. C., "Thermal Effects in Materials with Continuously Varying Optical and Thermal Properties in One-Dimension";
- Maclachlan, J. W., Givens, R. B., Murphy, J. C., and Aamodt, L. C., "Contrast Mechanisms in Scanning Electron Acoustic Imaging of Grain Boundaries";
- Satkiewicz, F. G., Murphy, J. C., and Aamodt, L. C., "Ton-Acoustic Imaging of Subsurface Flaws in Aluminum";
- Wetsel, G. C. (Southern Methodist Univ.) and Maclachlan, J. W., and Murphy, J. C. (APL), "Characterization of Metallic Interfaces Using Photothermal and Photoacoustic Imaging."

The following papers were presented at the 19th International Cosmic Ray Conference, San Diego (Aug 12-23, 1985):

- Fillius, R. W. (Univ. California, San Diego),



- Roelof, E. C. (APL), Smith, E. J. (JPL), Wood, D. (Univ. California, San Diego), and Ip, W.-H. (Max-Planck Institute/Lindau), "Gradients and Anisotropies of High Energy Cosmic Rays in the Outer Heliosphere";
- Decker, R. B. (APL) and Vlahos, L. (Univ. Maryland), "Energetic Ion Acceleration at Collisionless Shocks";
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- Oct 11—"Solar Seismology," J. Toomre, University of Colorado.
- Oct 18—"Fractals in Aggregation," V. F. Family, Emory University and M.I.T.
- Oct 25—"Magnetoelastic Bifurcations in Amorphous Ribbons," H. T. Savage, Naval Surface Weapons Center.
- Nov 1—"Maximum Matching without Tears," M. O. Rabin, Harvard University.
- Nov 8—"A New Era in Permanent Magnets," J. F. Herbst, General Motors Corporation.
- Nov 15—"Neutron Scattering and Its Applications," J. J. Rhyne, National Bureau of Standards.
- Nov 22—"The El Niño Southern Oscillation Phenomenon and Global Climate Variability," E. Rasmusson, National Oceanic and Atmospheric Administration.

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- Sep 27, 1985—"Wavefront Array Processing," Q. E. Dolecek, Applied Physics Laboratory.
- Oct 4—"Kakatau: The Giant Volcanic Eruption a Century Ago," R. S. Fiske, Smithsonian Institution.

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