

PUBLICATIONS

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

Allen RJ, Heaton HI, and Kaufman MJ

The production of H I in photodissociation regions and a comparison with CO (1-0) emission, *Astrophys. J.* **608**, 314–322, <http://www.journals.uchicago.edu/Apj/home.html> (2004).

Antoine MD, Carlson MA, Drummond WR, Doss OW III, Hayek CS, Saksena A, and Lin JS

Mass spectral analysis of biological agents using the bio TOF mass spectrometer, *Johns Hopkins APL Tech. Dig.* **25**(1), 20–26 (2004).

Benmohamed L, Mokhtar A, and Bortz M

OXC port dimensioning strategies in optical networks, *IEEE Commun. Lett.* **8**(5), 283–285 (2004).

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Evaluation of software defect detection research studies, *Software Engineering Information Repository*, Software Engineering Inst., Carnegie Mellon Univ., Pittsburgh, PA, pp. 1–68, <http://seir.sei.cmu.edu/seir> (Apr 2004).

Bockelée DM, Domingue DL, Biver N, Colom P, Crovisier J, Henry F, Lecacheux A, Davies JK, Dent WRF, and Weaver HA

The outgassing and composition of Comet 19P/Borrelly from radio observations, *Icarus* **167**(1), 113–128 (2004).

Boyd JW, Cobb GP, Southard GE, and Murray GM

Development of molecularly imprinted polymer sensors for chemical warfare agents, *Johns Hopkins APL Tech. Dig.* **25**(1), 44–49 (2004).

Brandt PC, Roelof EC, Ohtani S-I, Mitchell DG, and Anderson BJ

IMAGE/HENA: Pressure and current distributions during the 1 October 2002 storm, *Adv. Space Res.* **33**(5), 719–722 (2004).

Chisham G, Freeman MP, and Sotirelis T

A statistical comparison of SuperDARN spectral width boundaries and DMSP particle precipitation boundaries in the nightside ionosphere, *Geophys. Res. Lett.* **31**(2), L02804 (2004).

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Retrievals of nighttime electron density from Thermosphere, Ionosphere, Mesosphere Energetics and Dynamics (TIMED) mission Global Ultraviolet Imager (GUVI) measurements, *J. Geophys. Res.* **109**(A1), A05305 (2004).

DeMajistre R, Roelof EC, Brandt PC, and Mitchell DG

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Demirev PA, Feldman AB, and Lin JS

Bioinformatics-based strategies for rapid microorganism identification by mass spectrometry, *Johns Hopkins APL Tech. Dig.* **25**(1), 27–37 (2004).

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Suitcase TOF: A man-portable time-of-flight mass spectrometer, *Johns Hopkins APL Tech. Dig.* **25**(1), 14–19 (2004).

Feldman PD, Strobel DF, Warren MH, and Weaver HA

The far-ultraviolet spectrum of the Io plasma torus, *Astrophys. J.* **601**(1), 583–591 (2004).

Franson JD, Donegan MM, and Jacobs BC

Generation of entangled ancilla states for use in linear optics quantum computing, *Phys. Rev. A* **69**, 052328 (2004).

Fuechsel PG, Ondercin DG, and Schumacher C

Test and evaluation of lidar standoff biological sensors, *Johns Hopkins APL Tech. Dig.* **25**(1), 56–61 (2004).

Georgoulis MK, LaBonte BJ, and Metcalf TR

On the resolution of the azimuthal ambiguity in vector magnetograms of solar active regions, *Astrophys. J.* **602**(1), 446–467 (2004).

Hosaka K, Crosby DN, Gaarde-Widdowson K, Smith CJ, Silver JD, Kinugawa T, Ohtani S-I, and Meyers EG

Laser spectroscopy of hydrogen-like nitrogen in an electron beam ion trap, *Phys. Rev.* **69**(1), 11802 (2004).

Jackman J, and Moss O

Mass spectrometry of breath for the diagnosis of infection and exposure, *Johns Hopkins APL Tech. Dig.* **25**(1), 6–13 (2004).

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An 11-bit, high resolution and adjustable range CMOS time to digital converter for space science instruments, *J. Solid State Circuits* **39**(1), 214–222 (2004).

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Conditions governing localized high-latitude dayside aurora, *Geophys. Res. Lett.* **31**(4), L04806 (2004).

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McNutt RL Jr, Andrews GB, Gold RE, Bokulic RS, Boone BG, Haley DR, McAdams JV, Williams BD, Boyle MP, Starstrom G, Riggins J, Lester D, Lyman R, Weing M, Krishnan R, Read D, Naes L, McPherson M, and Deters R

A realistic interstellar explorer, *Adv. Space Res.* **34**(1), 192–197 (2004).

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An international program for Mercury exploration: Synergy of MESSENGER and BepiColombo, *Adv. Space Res.* **33**(12), 2126–2132 (2004).

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A systematic comparison of QuickSCAT and SAR ocean surface wind speeds, *IEEE Trans. Geosci. Remote Sens.* **42**(2), 283–291 (2004).

Najmi AH, and Magruder SF

Estimation of hospital emergency room data using OTC pharmaceutical sales and least mean square filters, *BMC Med. Inform. Decis. Mak.* **4**(5), <http://www.biomedcentral.com/1472-6947/4/5> (2004).

Nelson CV

Metal detection and classification technologies, *Johns Hopkins APL Tech. Dig.* **25**(1), 62–67 (2004).

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The temporal structure of the fast plasma flow in the plasma sheet: Comparison between observations and two fluid simulations, *J. Geophys. Res.* **109**(A3), A03210 (2004).

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From space into the abyss, *Keynote Address, J. Scholarly Endeavor IV*, 45–51 (2004).

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Derivation of currents and diamagnetic effects from global plasma pressure distributions obtained by IMAGE/HENA, *Adv. Space Res.* 33(5), 747–751 (2004).

Saur J

A model of Io's local electric field for a combined Alfvénic and unipolar-inductor far-field coupling, *J. Geophys. Res.* 109(A1), A01210 (2004).

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Turbulent heating of Jupiter's middle magnetosphere, *Astrophys. J.* 602(2), L137–L140 (2004).

Sergeev V, Liou K, Newell PT, Ohtani S-I, Hairston M, and Rich F
Auroral streamers: Characteristics of associated precipitation, convection and field-aligned currents, *Ann. Geophys.* 22(2), 537–548 (2004).

Sharma AS, Ukhorskiy AY, Sitnov MI, and Valdivia J

Modeling the magnetosphere using time series data, in *Disturbances in Geospace: The Sub-Storm Relationship*, Geophys. Monogr. Ser. 142, pp. 231–241 (2004).

Smith DC, Ghosh S, Dmitruk P, and Matthaeus WH

Hall and turbulence effects on magnetic reconnection, *Geophys. Res. Lett.* 31, L02805 (2004).

Sniegowski CA

Automated syndromic classification of chief complaint records, *Johns Hopkins APL Tech. Dig.* 25(1), 68–75 (2004).

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Solar EUV irradiance variability derived from terrestrial far ultraviolet dayglow observations, *Geophys. Res. Lett.* 31(3), L03801 (2004).

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Vlahos L, and Georgoulis MK

On the self-similarity of unstable magnetic discontinuities in solar active regions, *Astrophys. J.* 603(1), L61–L64 (2004).

Walts SC, Mitchell CA, Thomas ME, and Duncan DD

Extinction cross-section measurements of *Bacillus globigii* aerosols, *Johns Hopkins APL Tech. Dig.* 25(1), 50–55 (2004).

Watters TR, Robinson MS, Bina CR, and Spudis PD

Thrust faults and the global contraction of Mercury, *Geophys. Res. Lett.* 31(4), L04701 (2004).

Wu C-C, Fry DC, Liu J-Y, Liou K, and Tseng C-L

Annual TEC variation in the equatorial anomaly region during the solar minimum: Sept. 1996–Aug. 1997, *J. Atmos. Solar Terres. Phys.* 66(3), 199–207 (2004).

Wu C-C, Liou K, Lepping RP, and Meng C-I

Identification of substorms within storms, *J. Atmos. Solar Terres. Phys.* 66(2), 125–132 (2004).

Yamaguchi R, Kawano H, Ohtani S, Kokubun S, and Yumoto K

Total pressure variations in the magnetotail as a function of the position and the substorm magnitude, *J. Geophys. Res.* 109(A3), A03206 (2004).

Zhu X

Radiative transfer in the middle atmosphere and planetary atmospheres, in *Observation, Theory and Modeling of Atmospheric Variability*, X. Zhu et al. (eds.), World Scientific Pub. Co., Singapore, pp. 359–396 (2004).

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Reduction of edge effects in the continuous wavelet transform by the empirical mode decomposition method, in *Observation, Theory and Modeling of Atmospheric Variability*, X. Zhu et al. (eds.), World Scientific Pub. Co., Singapore, pp. 604–612 (2004).

The following papers appeared in conference proceedings:

Georgoulis MK

Properties of flaring and sub-flaring, in *Proc. 6th Hellenic Astronomical Conf.*, P. Lascarides (ed.), Athens, Greece (Mar 2004).

McCubbin CB, Piatko CD, and Marshall SJ

Minefield path planning: Architecture and algorithms obeying kinematic constraints, *SPIE Defense and Security Symp. 2004: Detection and Remediation Technologies for Mines and Minelike Targets IX*, Orlando, FL (Apr 2004).

Patrone DM, Patrone DS, Wenstrand DS, Smith DG, and Hawthorne RC

Applying a service-based architecture to autonomous, distributed sensor networks, *SPIE Defense and Security Symp. 2004: Detection and Remediation Technologies for Mines and Minelike Targets IX*, Orlando, FL, pp. 114–124 (Apr 2004).

Ramella-Roman JC

Influence of anisotropy in the depolarization ability of microsphere solutions, *OSA Biomedical Optics Topical Mtg., Tech. Dig. FH44*, Miami, FL (Apr 2004).

PRESENTATIONS

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

Castle MW

Analysis of candidate communication architectures for TAMDAR implementation in 2007-2015, *Integrated Communications, Navigation, and Surveillance Technologies Conf. & Workshop*, Fairfax, VA (Apr 2004).

Decker RB, Roelof EC, and Krimigis SM

Variations in anisotropies and energy spectra of low-energy ions at Voyagers 1 and 2 during 2002-2003, *European GeoSci. Union, 1st General Assembly*, Nice, France (Apr 2004).

Fleischer MA

Unifying form and function in multi-objective math programs, presented to the Department of Systems Engineering, University of Virginia, Charlottesville, VA (Apr 2004).

Franson JD

Quantum information processing with linear optics and the Zeno effect, *Workshop on Quantum Information Processing with Linear Optics*, Erlangen, Germany (Apr 2004).

Franson JD, Jacobs BC, and Pittman TB

Hybrid optical approach for optical quantum computing, *CLEO/IQEC Conf.*, San Francisco, CA (May 2004).

Frazer RK, Keane BT, Kouroupis JB, Barlett RF, Patterson MQ, Staton FN, and Stevens PF

Aerothermal analysis and testing of a deployable nosecone, *10th DoD Electromagnetic Windows Symp.*, Norfolk, VA (May 2004).

Kil H

Automated target detection processor for time-critical sensor systems, *Military Sensing Symp. (MMS) Mtg. on Camouflage, Concealment, and Deception (CC&D)*, Tucson, AZ (Mar 2004).

Kottaras G, and Paschalidis N

Signals from the termination shock: Recent Voyager observations, *European GeoSci. Union, 1st General Assembly*, Nice, France (Apr 2004).

Land HB III, and Eddins CL

Optical ignition status monitoring for hypersonic vehicles, *50th Int. Instrumentation Symp.*, San Antonio, TX (May 2004).

Lario D

CME associated energetic particles, *Coronal Mass Ejections Workshop, Int. Space Sci. Inst. (ISSI)*, Bern, Switzerland (Mar 2004).

- Mazzafro JM**
Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) intelligence lessons learned: How open sources can help, *Open Source Solutions 04*, Arlington, VA (Apr 2004).
- McCally RL**
Corneal damage from mid-infrared laser radiation, *US Army Peer Rev. Med. Res. Program's Military Health Res. Forum*, San Juan, Puerto Rico (May 2004).
- McCubbin CB, Piatko CD, and Marshall SJ**
Minefield path planning: Architecture and algorithms obeying kinematic constraints, *SPIE Defense and Security Symp.* 2004, Orlando, FL (Apr 2004).
- McGrath BE, Appelbaum GI, and Rackelshaus KA**
Grid generations using Gridgen for radar cross-section (RCS) predictions, *Gridgen Users Group Mtg.* 2004, Fort Worth, TX (Apr 2004).
- Michaelis CH**
Kill assessment observations and analysis, presented to the Air Force Space Command, Peterson AFB, Colorado Springs, CO (Mar 2004).
- Miragliotta J, and Sample JL**
Optical sensing of chemical and biological analytes using enhanced Raman scattering from periodic arrays of silver and gold, *SPIE Photonics West 2004*, San Jose, CA (Jan 2004).
- Moor AF, and Hardesty RE**
Test results from various Johns Hopkins University Applied Physics Laboratory Space Department programs, *8th Ann. Commercialization of Military and Space Electronics (CMSE) Conf.*, Los Angeles, CA (Feb 2004).
- Moss OR, Boggs NT, and Jackman J**
Exhaled breath sampling from unanesthetized pigs, *Soc. of Toxicology 43rd Ann. Mtg.*, Baltimore, MD (Mar 2004).
- Patrone DM, Patrone DS, Wenstrand DS, Smith DG, and Hawthorne RC**
Applying a service-based architecture to autonomous, distributed sensor networks, *SPIE Defense and Security Symp.*, Orlando, FL (Apr 2004).
- Pittman TB, Jacobs BC, and Franson JD**
Experimental quantum encoder for single-photon qubits, *CLEO/IQEC Conf.*, San Francisco, CA (May 2004).
- Prockter L, and Figueredo PH**
Geological features and resurfacing history of Europa, *Workshop on Europa's Icy Shell: Past, Present and Future*, Houston, TX (Feb 2004).
- Raney RK**
From space into the abyss, Keynote Address, presented at Slippery Rock University, PA (Mar 2004).
- Rebello K, Moran M, Wesolek D, Berhane B, and Darrin A**
Novel MEMS Stirling Cooler, *Spring 2004 MEMS Alliance Special Topics Symp.: MEMS in Homeland Security, Defense, and Aerospace Applications*, Laurel, MD (Mar 2004).
- Roelof EC, Decker RB, and Krimigis SM**
Voyager-1/LECP energetic ion angular distributions at 85-88 AU are inconsistent with diffusion-convection theory, *European GeoSci. Union, 1st General Assembly*, Nice, France (Apr 2004).
- Shin C, McGown D Jr, Wolf F, Shaw J, and Jackman J**
Rapid detection of agricultural bioterrorism agents, *2nd Joint Conf. on Point Detection for Chemical and Biological Defense*, Williamsburg, VA (Mar 2004).
- Smart JH**
How accurately can we predict near-bottom optical clarity in the littorals, *NDIA USW*, Monterey, CA (Mar 2004).
- Smith DC, Ghosh S, Dmitruk P, and Matthaeus WH**
Hall and turbulence effects on magnetic reconnection, *Am. Geophys. Union Fall Mtg.*, San Francisco, CA (Dec 2003).
- Southard GE, and Murray GM**
Synthetic and spectroscopic characterization of molecularly imprinted polymer phosphonate sensors, *227th Am. Chemical Soc. Mtg.*, Anaheim, CA (Mar 2004).
- Spisz TS**
Determination of bone structural parameters from multiple projection DXA images, *SPIE Int. Symp. on Medical Imaging*, San Diego, CA (Feb 2004).
- Taylor JC, and Bierbaum MM**
Risk modeling of the FM-6 intercept, *Ballistic Missile Defense (BMD) Discrimination Symp.*, JHU/APL, Laurel, MD (Mar 2004).
- Taylor JC, and Michaelis CH**
Risk modeling of the FM-6 intercept, presented to the Air Force Space Command, Peterson AFB, Colorado Springs, CO (Mar 2004).
- Tejada F, Wesolek DM, Lehtonen J, Mirragliotta JA, Andreou AG, and Osiander R**
An SOS MEMS interferometer, *SPIE Photonics West*, San Jose, CA (Jan 2004).
- Tennyson PD**
Operation small space, presented to Air Force Res. Laboratory Responsive Workshop, Arlington, VA (Mar 2004).
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Role of small space in transforming milspace capabilities, *Joint Forces Command Space Application Experiment Cell Space Concept Workshop*, Suffolk, VA (Mar 2004).
- Ukhorskiy AY, Brandt PC, and Ohtani S-I**
The relation between ring current and relativistic electron dynamics in the Earth's outer radiation belt, *30th Anniversary Yosemite Workshop, Inner Magnetosphere Interactions*, Yosemite National Park, CA (Feb 2004).
- Voo LM, Merkle A, Wright J, and Kleinberger M**
Effect of head-restraint rigidity on whiplash injury risk, *2004 SAE World Congress Mtg.*, Detroit, MI (Mar 2004).
- Weiskopf F, Cain R, Murray G, and Carkhuff B**
Smart aggregate for concrete monitoring, *Electrochemical Testing and Rehabilitation Session of the 83rd Ann. Mtg. of the Transportation Res. Board of the Nat. Academies*, Washington, DC (Jan 2004).
- Wing SP, Newell PT, and Meng C-I**
Imaging the magnetotail, *Space and Cosmic Ray Phys. Seminar*, University of Maryland, College Park, MD (Feb 2004).
- Wing SP, Newell PT, and Meng C-I**
Magnetotail dynamics under northward IMF, *Isradynamics Conf.*, Ein Bokek, Israel (Mar 2004).
- Wing SP, Jen J, Johnson JR, Meng C-I, Carr SS, Sibeck DG, Bechtold K, Freeman J, Costello K, Balikhin M, and Vandegriff J**
Kp forecast models, *Space Weather Week*, Boulder, CO (Apr 2004).

The following papers were presented at the IEEE Aerospace Conf., Big Sky, MT (Mar 2004):

- Bokulic RS, Fielhauer KB, Wallis RE, Cheng S, Edwards ML, Stilwell RK, Penn JE, Bruzzi JR, and Malouf PM**
MESSENGER mission: First electronically steered antenna for deep space communications.
- DeBoy CC, Haskins CB, Brown TA, Schulze RC, Bernacik MA, Jensen JR, Millard WP, Duvan D, and Hill S**
The RF telecommunications systems for the New Horizons mission to Pluto.
- Haskins CB, and Millard WP**
X-band digital receiver for the New Horizons spacecraft.
- Karadamoglou K, Paschalidis N, Stamatopoulos N, Kottaras G, Paschalidis V, and Sarris E**
A 32 bit high resolution, asynchronous time to digital converter for space instruments.

Kottaras G, Paschalidis N, Sarris E, Stamatopoulos N, Karadamoglou K, and Paschalidis V

The TRIO smart sensor data acquisition system on a chip for space applications.

Meitzler RC

Spice macro models for annular MOSFETs.

Schulze RC, and Hill S

The New Horizons high gain antenna: Reflector design for a spin-stabilized bus at cryogenic temperatures.

Stadter PA, Asher MS, Kusterer TL, Moore GT, Watson DP, Pekala ME, Harris AJ, and Bristow JO

Half-duplex relative navigation and flight autonomy for distributed spacecraft systems.

The following papers were presented at the *Int. Conf. on Substorms-7*, Levi, Finland (Mar 2004):

Gjerloev JW, Hoffman RA, Friel M, Sigwarth JB, and Frank LA

Electrodynamics of storm time auroral disturbances.

Gjerloev JW, Hoffman RA, Friel M, Sigwarth JB, and Frank LA

Refining and understanding the auroral electrojet index AL.

Gjerloev JW, Tanskanen E, Slaven JA, Fairfield DH, Sibeck DG, Mukai T, Ieda A, and Nagai T

Geotail observations of plasma sheet convection during loading, unloading, and continuous magnetospheric dissipation.

Ohtani S-I, and Raeder J

Connection between the near-Earth and mid-tail substorm processes: The role of near-Earth reconnection in the substorm initiation.

Ohtani S-I, Shay M, and Mukai T

The temporal structure of the fast plasma flow in the plasma sheet: Comparison between observations and two fluid simulations.

The following papers were presented at the *Joint Assembly of the Am. Geophys. Union Spring Mtg.*, Montreal, Canada (17-21 May 2004):

Akmaev RA, Fomichev VI, Zhu X, and Ogibalov VP

Effect of middle-atmosphere greenhouse cooling on global change in upper atmosphere.

Anderson BJ, and Korth H

Simultaneous global-scale observations of field aligned currents in the Northern and Southern hemispheres.

Brandt PC, Roelof EC, DeMajistre R, and Mitchell DG

Ring current pressure distributions in the inner magnetosphere during storm mainphases.

Brandt PC, Roelof EC, DeMajistre R, Mitchell DG, Anderson BJ, Ebihara Y, and Fok M

Electrical currents from global ENA images.

Brandt PC, Roelof EC, DeMajistre R, Mitchell DG, and Anderson PC

On the relation between the electric fields, ring current, ionosphere and plasmasphere.

Clarke JT, Gerard J, Grodent D, Ajello J, Ballester G, Ben JL, Bolton S, Bunce E, Connerney J, Cowley S, Crary F, Dougherty M, Gladstone R, Gombosi T, Gurnett D, Gustin J, Hill T, Kivelson M, Krimigis SM, Kurth B, Mauk BH, Prange R, Pryor W, Richardson J, Trauger J, Waite H, Young D, and Zarka P

HST STIS observations of Saturn's auroral variations concurrent with the Cassini solar wind campaign in January 2004.

Crary FJ, Young DT, Barraclough B, Bolton S, Coates A, Hill T, McComas D, Reisenfeld D, Rymer A, Sittler E, Vilppola J, Clarke J, Gerard J, Grodent D, Waite H, Gladstone R, Elsner R, Dougherty M, Krimigis SM, Mitchell DG, Gurnett D, and Kurth W

The solar wind upstream of Saturn: Cassini plasma measurements and Saturn's aurora.

Cravens TE, Waite JH, Lugaz N, Gombosi TI, Gladstone GR, Mauk BH, and MacDowall RJ

Implications of Jovian x-ray emission for magnetosphere-ionosphere coupling.

Decker RB, Krimigis SM, and Roelof EC

Voyager 1 in the vicinity of the termination shock: An update on energetic ion distributions observed during 2002.6-2004.3.

Donegan MM, Vegriff J, Ho CC, and Wagstaff KL

Real-time upstream monitoring system: Predicting interplanetary shock arrivals using energetic particle data from ACE.

Ebihara Y, Fok M, Brandt PC, Ejiri M, Evans DS, Hairston MR, Mitchell DG, Moore TE, Nagai T, Roelof EC, Sazykin S, Thomson M, and Wolf RA

Impact of fast CMEs on ring current during October-November 2003 superstorms.

Fieseler PD, Thomas AP, Wadley S, and McEntire RW

The detection of moonlets near Amalthea.

Fry CD, Dryer M, Sun W, Deehr CS, Akasofu S-I, McKenna-Lawlor S, and Lario D

Predicting solar wind conditions at Mars.

Fujimori T, Nosé M, Keika K, McEntire RW, Takahashi K, and Ohtani S-I

Charge states of O and He ions injected at substorm onset: Geotail/EPIC observation.

Grant JA, Maxwell TA, Johnston AK, Leuschen CJ, Schutz AE, and Williams KK

Using ground penetrating radar to constrain the drainage evolution in southern Egypt and implications for future deployment on Mars.

Haggerty DK, and Roelof EC

Effective drift velocity and initiation times of interplanetary type-III radio bursts.

Hamilton DC, Krupp N, Mitchell DG, and Krimigis SM

Shock events at Cassini associated with the October-November 2003 solar flares.

Hill ME, Hamilton DC, and Krimigis SM

Ion energy spectra observed during the ongoing termination shock events at Voyager 1.

Ho GC, Roelof EC, and Mason GM

Upper limit on ³He fluences in solar energetic particle events.

Johnson JR, and Wing S

Cumulant-based characterization of nonlinear magnetospheric dynamics.

Lario D, Livi S, Krimigis SM, McKibben RB, MacLennan CG, Reisenfeld DB, de Koning C, Russell CT, and Dougherty MK

Heliospheric energetic particle observations during the October-November 2003 superstorm events.

Liemohn MW, Ridley AJ, Kozyra JU, Gallaher DL, Brandt PC, Henderson MG, Denton MH, Jahn J, Roelof EC, DeMajistre R, and Mitchell DG

Conductance effects on inner magnetospheric plasma morphology: Model comparisons with IMAGE EUV, MENA, and HENA data.

Lu G, Richmond A, Rich F, Evans D, Hairston M, Ruohoniemi M, Immel T, and Skoug R

Global ionospheric and magnetospheric response to the October-November 2003 geomagnetic storm.

Lui ATY, Hsieh S, Carr SS, and Meng C-I

Long-term prediction of MeV electrons in geostationary orbit.

Mauk BH, and Mitchell DG

Satellite-magnetosphere interactions at Jupiter as revealed with energetic charged particle measurements.

- Mauk BH, Mitchell DG, McEntire RW, Paranicas CP, Roelof EC, Williams DJ, and Krimigis SM**
Europa's neutral gas torus.
- McComas DJ, Allegrini F, Bochsler P, Bzowski M, Collier MR, Fahr H, Fichtner H, Frisch P, Funsten H, Fuselier S, Gruntman M, Izmodenov V, Knappenberger P, Lee M, Livi S, Mitchell DG, Moebius E, Moore T, Reisenfeld D, Roelof EC, Schwadron N, Wieser M, Witte M, Wurz P, and Zank G**
The Interstellar Boundary Explorer (IBEX).
- Mitchell DG, Krimigis SM, Roelof EC, Paranicas CP, Mauk BH, Douras I, Dougherty MK, Cray FJ, and Clarke JT**
Energetic ions in the solar wind at 9 AU, approaching Saturn: Cassini-MIMI/INCA results.
- Nosé M, Taguchi S, Hosokawa K, Christon SP, McEntire RW, Moore TE, and Collier MR**
Dynamics of O⁺ ions during the October 2003 storm observed by Geotail/EPIC and IMAGE/LENA.
- Ohtani S-I, Ueno G, Higuchi T, and Kawano H**
Seasonal variations of large-scale field-aligned currents.
- Øieroset M, Fujimoto M, Phan TD, Wing S, Raeder J, Rème H, and Balogh A**
Long-duration cold dense plasma sheet during extended periods of strongly northward IMF.
- Paranicas C, Lagg A, Krupp N, Woch J, and Mauk BH**
Charged particle losses near the inner Galilean satellites.
- Paxton LJ, Crowley G, Zhang Y, DeMajistre R, Kil H, Morrison D, Wolven B, Straus P, and Christensen A**
Observations of ionospheric and thermospheric response during the October and November 2003 storms.
- Paxton LJ, Kil H, DeMajistre R, Morrison D, Straus P, Talaat E, Christensen A, Wolven B, Zhang Y, Crowley G, and Meng C-I**
Far ultraviolet imaging of the low-latitude nightside ionosphere with the GUVI instrument on TIMED.
- Posner A, Schwadron NA, McComas DJ, Galvin AB, and Roelof EC**
Essentials for *in situ* space weather monitoring in the future.
- Roelof EC, Decker RB, and Krimigis SM**
Voyager-1/LECP energetic ion angular distributions at 85-88 AU are inconsistent with diffusion-convection theory.
- Roelof EC, and Haggerty DK**
Implications for near-relativistic solar electron transport from the propagation characteristics of type-III solar radio bursts.
- Roelof EC, and Lario CD**
Transverse anisotropies of 40-90 MeV solar energetic protons: A reinterpretation.
- Saur J**
Jupiter's MI-coupling: A dynamic and a steady-state approach.
- Simnett GM, Roelof EC, and Haggerty DK**
The source of short (<1 hour) beams of near-relativistic electrons seen by ACE.
- Sotirelis T, Newell PT, and Meng C-I**
Hemispheric asymmetry in auroral boundaries.
- Sotirelis T, Newell PT, Ruohoniemi JM, Skura JP, Barnes RJ, and Meng C-I**
The OVATION aurora tracking tool.
- Szabo A, Davis A, Ho G, Ipavich F, Kasper JC, Larson D, Narock T, Roberts A, Schroeder P, Skoug R, Steinberg JT, and Vandegriff J**
Recent developments in the virtual heliospheric observatory (VHO).
- Takahashi K, Denton RE, Anderson RR, and Hughes WJ**
The frequencies of the harmonics of standing Alfvén waves and their implication to plasma mass distribution along geomagnetic field lines: Statistical analysis of CRRES data.
- Talaat ER, DeMajistre R, Yee J, Paxton LJ, Crowley G, Palo S, Christensen AB, Azeem I, Roble R, Kil H, and Hackert C**
Observational and modeling analysis of the coupling between neutral winds and the low-latitude ionosphere.
- Terasawa T, Oka M, Nakata K, Saito Y, Mukai T, Hayakawa H, Matsuoka A, Tsuruda K, Ishisaka K, Kasaba Y, Kojima H, Matsumoto H, Keika K, Nosé M, and McEntire RW**
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- Wing S, Fujimoto M, Newell PT, and Meng C-I**
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- Wing S, Jen J, Johnson JR, Meng C-I, Carr SS, Sibeck DG, Bechtold K, Costello K, Freeman J, Balikhin M, and Vandegriff J**
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- Zhu X, Talaat ER, Baker JB, and Yee J-H**
A self-consistent derivation of ion drag and joule heating for atmospheric dynamics in the thermosphere.
- Zhu X, Yee J-H, Talaat ER, Mlynczak M, Gordley L, Mertens C, and Russell JM III**
An algorithm for extracting zonal mean and migrating tidal fields in the middle atmosphere from satellite measurements: Applications to TIMED/SABER measured temperature and tidal modeling.

COLLOQUIA

The following topics were presented at the weekly APL Colloquium in 2004:

- 2 April**
Lessons Learned from the Iraq War, Major General RH Scales Jr., U.S. Army (ret.)
- 16 April**
Climate Change at the Edge of the Atmosphere: Evidence of Long-Term Thinning, J Emmert, George Mason Univ.
- 23 April**
China's Great Leap Upward—How Realistic Are Its Space Ambitions? J Oberg, author
- 30 April**
Galileo in the Applied Physics Laboratory, D Sobel, author
- 7 May**
Where Is The Navy Likely to Go? N Friedman, Defense Analyst
- 14 May**
Exploring the Cosmos by "Doing Something Different," D Dunham, APL
- 24 May**
The Shuttle Columbia Accident Investigation—A Member's Perspective, J Wolfe, Commander, U.S. Navy
- 25 June**
Capture of Saddam Hussein, J Hickey, Colonel, U.S. Army