

## PUBLICATIONS

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

**Achilleos N, Bertucci C, Russell CT, Hospodarsky GB, Rymer AM, Arridge CS, Burton ME, Dougherty MK, Hendricks S, Smith EJ, and Tsurutani BT**

Orientation, location, and velocity of Saturn's bow shock: Initial results from the Cassini spacecraft, *J. Geophys. Res.* **111**(A3), A03201 (2006).

**Biermann PJ**

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**Brown RH, Baines KH, Bellucci G, Buratti BJ, Capaccioni F, Cerrotoni P, Clark RN, Coradini A, Cruikshank DP, Drossart P, Formisano V, Jaumann R, Langevin Y, Matson DL, McCord TB, Mennella V, Nelson RM, Nicholson PD, Sicardy B, Sotin C, Baugh N, Griffith CA, Hanson GB, Hibbitts CA, Momary TW, and Showalter MR**

Observations in the Saturn system during approach and orbital insertion, with Cassini's Visual and Infrared Mapping Spectrometer (VIMS), *Astron. Astrophys.* **446**(2), 707–716 (2006).

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Direct observations of injection events of subauroral plasma into the polar cap, *Geophys. Res. Lett.* **33**(5), L05103 (2006).

**Chabot NL, Campbell AJ, Jones JH, Humayun M, and Lauer HV**

The influence of carbon on trace element partitioning behavior, *Geochim. Cosmochim. Acta* **70**(5), 1322–1335 (2006).

**Cornish TJ, Antoine MD, Ecelberger SA, and Demirev PA**

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Realistic magnetospheric density model for 29 August 2000, *J. Atmosf. Sol-Terr. Phys.* **68**(6), 615–628 (2006).

**Dunham DW**

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Asteroid occultations during March, *Sky Telescope* **111**(3), 60–61 (2006).

**Dunham DW**

A spectacular Pleiades occultation, *Sky Telescope* **111**(4), 61–62 (2006).

**Dunham DW**

Upcoming asteroid occultations, *Sky Telescope* **111**(6), 63–64 (2006).

**Dunham DW, Farquhar RW, and McAdams JV**

Recent gravity-assist trajectories for interplanetary and solar exploration, *Ann. NY Acad. Sci.* **1065**, 254–270 (2006).

**Fink RA**

A statistical approach to remote physical device fingerprinting, Univ. of Maryland, Baltimore County; <http://userpages.umbc.edu/~rfink1/skew/papers/StatisticalFingerprinting03.pdf> (May 2006).

**Freund DE, Woods NE, Ku HC, and Awadallah RS**

Forward radar propagation over a rough sea surface: A numerical assessment of the Miller-Brown approximation using a horizontally polarized 3-GHz line source, *IEEE Trans. Antennas Propag.* **54**(4), 1292–1304 (2006).

**Georgoulis MK, and LaBonte BJ**

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**Guo Y, and Farquhar R**

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Vibration analysis of the second Saikai Bridge: A concrete filled tubular (CFT) arch bridge, *J. Sound Vib.* 290(1–2), 388–409 (2006).
- Zhu D, Billings SA, Balikhin M, Wing S, and Coca D  
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## PRESENTATIONS

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

Aranda-Espinoza H, Sengupta K, Smith L, Janmey P, and Hammer D  
Spreading of neutrophils: From activation to migration, *Am. Physiol. Soc. Mtg.*, Baltimore, MD (Mar 2006).

Bos N, Olson D, Nan JS, Ning S, Hoch NS, and Johnston SE  
"Collocation blindness" in partially distributed groups: Is there a downside to being collocated? *CHI2006*, Montreal, Canada (Apr 2006).

Broadwater JB, Meth R, and Chellappa R  
A hybrid detector for subpixel detection in hyperspectral imagery, *2004 IEEE Geoscience and Remote Sensing Symp.*, Anchorage, AK (Sep 2004).

Broadwater JB, Meth R, and Chellappa R  
Average relative radiance transform for subpixel detection, *2005 IEEE Geoscience and Remote Sensing Symp.*, Seoul, South Korea (Jul 2005).

Chabot NL  
Iron meteorites and insights into planetary cores, *Mtg. of the Geological Soc. of Washington*, Washington, DC (Feb 2006).

Chavis JS  
Web services and service oriented architectures: An overview, University Lecture, Columbia, MD (Dec 2005).

Chavis JS  
Agile software overview, University Lecture, Laurel, MD (Apr 2006).

Chen DK  
Bringing an enterprise content management solution to The Johns Hopkins University Applied Physics Laboratory: Leveraging strength and team building in a complex environment, *Delphi Group's i2006 Information Intelligence Summit*, Phoenix, AZ (Apr 2006).

Cornish TJ, Ecelberger SE, Antoine M, Demirev P, Feldman A, and Lin J  
Miniature time-of-flight mass spectrometry (TOF-MS) for field portable analysis of hazardous agents, *Pittsburgh Conf.*, Orlando, FL (Mar 2006).

Csutak A, Silver DM, Tózsér J, Steiber Z, Hassan Z, and Berta A  
Plasminogen activator for promoting wound healing after laser vision correction surgery, *German Ophthalmological Soc. Annual Mtg.*, Berlin, Germany (Sep 2005).

Csutak A, Silver DM, Tózsér J, Steiber Z, Hassan Z, and Berta A  
Haze prevention after laser vision correction surgery, *World Ophthalmology Congress*, Sao Paulo, Brazil (Feb 2006).

Desai MI, Mason GM, Mazur JE, and Dwyer JR  
A tutorial on solar energetic particle events, *Int. Living With a Star (ILWS) Workshop on the Solar Influence on the Heliosphere and Earth's Environment: Recent Progress and Prospects*, Goa, India (Feb 2006).

- Dombard AJ, Johnson CL, Richards MA, and Solomon SC**  
Coronae on Venus as products of magmatic loading of the crust over transient plume heads: Consequences for surface deformation and volcanism, *AGU Chapman Conf. on Exploring Venus as a Terrestrial Planet*, Key Largo, FL (Feb 2006).
- Frizzell-Makowski LJ, Heitsenrether RM, Mack SA, and Sarabun CC**  
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- Georgoulis MK**  
Energy transformation in the solar atmosphere and its consequences for the heliosphere, *Conf. on Earth-Sun System Exploration: Energy Transfer*, Kona, HI (Jan 2006).
- Georgoulis MK**  
Complexity and dynamics of solar active regions: Diagnostics and global energetics, *The Physics of the Sun: The Active Sun on Your Active Desktop*, Int. School of Space Sci., L'Aquila, Italy (Mar 2006).
- Gorman BM, and Boniface DE**  
Analytic assessment of maritime security inspection strategy, *MORS Workshop, Homeland Security-Homeland Defense Decision Support*, Laurel, MD (Nov 2005).
- Hibbitts CA**  
A new mission concept for sampling the shallow subsurface of Europa, *NASA Ames Res. Ctr., Moffett Field, CA* (Feb 2006).
- Huynh TB**  
Moving belt metal detector, *Defense & Security Symp.: A SPIE Event*, Orlando, FL (Apr 2006).
- Manning D, Payne R, and Tamer J**  
Obtaining the seal of approval: Automated requisition routing and approval, *Oracle Applications Users Group (OAUG)*, Nashville, TN (Apr 2006).
- Mason GM**  
Impulsive solar energetic particle event ion composition and spectra, *Int. Team Project Mtg. on Impulsive SEP Events*, Int. Space Sci. Inst. (ISSI), Bern, Switzerland (Jan 2006).
- Mason GM**  
Recent developments in <sup>3</sup>He-rich solar particle events, *Symp. in Honor of Edward Stone*, California Inst. of Technol., Pasadena, CA (Feb 2006).
- Maurer RH, Zeitlin CJ, Haggerty DK, Roth DR, and Goldsten JO**  
Combined ion and neutron spectrometer for space applications (CINS), *2006 NSBRI Investigators Retreat*, Houston, TX (Feb 2006).
- Murchie SL**  
ISIS: Imaging Spectrometer for Icy Satellites, *NASA Ames Res. Ctr., Moffett Field, CA* (Feb 2006).
- O'Shaughnessy DJ, Vaughan RM, Haley DR, and Shapiro HS**  
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- Paranicas C**  
Europa's charged and neutral environment, *Europa Focus Group Workshop 5*, NASA Ames Res. Ctr., Moffett Field, CA (Feb 2006).
- Rust DM**  
Investigating the sources of irradiance variation on the Sun, *Physics and Astronomy Dept.*, The Johns Hopkins University, Baltimore, MD (Feb 2006).
- Saksena A, and Lucarelli D**  
Combining expert judgments with data for probabilistic risk assessment, *SIAM Conf. on Mathematics for Industry: Challenges and Frontiers*, Detroit, MI (Oct 2005).
- Silver DM, and Quigley HA**  
Iris structure: Mathematical model and analysis, *Assoc. for Research in Vision and Ophthalmology (ARVO) Annual Mtg.*, Ft. Lauderdale, FL (May 2006).
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- Takahashi K, Ukhorskiy AY, and Yumoto K**  
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Atmospheric science with MRO/CRISM: Fun, fun, fun, *Second Workshop on Mars Atmosphere Modeling and Observations*, Granada, Spain (Feb 2006).
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Prometheus nuclear systems and technology: Program technical accomplishments, *3rd Annual Int. Energy Conversion Engineering Conf.*, San Francisco, CA (Aug 2005).

**Yoon PH, and Lui AT**

Design of the CRISP tracking mirror assembly, *Optics and Photonics 2005*, San Diego, CA (Jul 2005).

**Zaharia S, Cheng CZ, and Wing S**

Design of the CRISM cryogenic system and the focal plane assembly isolation system, *Optics and Photonics 2005*, San Diego, CA (Jul 2005).

**Zaharia S, Cheng CZ, and Wing S**

3D magnetospheric structures (including near-Earth and mid-tail) under different magnetospheric conditions and their stability, *Int. Assoc. of Geomagnetism and Aeronomy Scientific Assembly*, Toulouse, France (Jul 2005).

**Zank GP, Li G, Florinski V, Hu Q, Smith CW, and Lario D**

Solar Probe: Humanity's first visit to a star, *Solar Wind 11/Solar Heliospheric Observatory (SOHO) 16 Conf.*, Whistler, British Columbia, Canada (Jun 2005).

The following papers were presented at the *AGU Fall Mtg.*, San Francisco, CA (Dec 2005):

**Anderson BJ, Korth H, Ruohoniemi M, Barnes RJ, Takahashi K, Waters CL, Rich FJ, and Hairston MR**

IMF control of high latitude electromagnetic energy flux.

**Armstrong T, Manweiler J, Krupp N, Lagg A, Krimigis SM, Livi S, Mitchell D, Roelof E, Paranicas C, and Hamilton D**

Observation of the spectrum and angular distribution of trapped protons in Saturn's inner magnetosphere: Implications for sources, transport, and loss.

**Arridge CS, Dougherty MK, Khurana KK, Russell CT, Andre N, Coates AJ, Cray F, Krimigis SM, Leisner JS, Mauk BH, Paranicas C, Rymer AM, Sittler EC, Thomsen MF, and Young DT**

Cassini's view of stress balance in Saturn's magnetosphere.

**Baker JB, Greenwald RA, Paxton LJ, Zhang Y, Ruohoniemi JM, and Oksavik K**

Measuring the dayside thermospheric response to extreme joule heating events using SuperDARN and TIMED GUVI.

**Balikhin MA, Billings SA, Zhu D, and Wing S**

NARMAX approach to the magnetospheric system.

**Brandt PC, Mitchell DG, Hill ME, Mauk BH, Paranicas CJ, Roelof EC, and Krimigis SM**

Magnetospheric storms at Saturn.

**Brandt PC, Zheng Y, Ukhorskiy A, and Mitchell DG**

How the ring current couples to the radiation belts and the ionosphere.

**Buczkowski DL, Prockter LM, and Barnouin-Jha OS**

A global database of 433 Eros lineaments.

**Carbary JF**

Re-examination of PMC scattering in the middle ultraviolet: Is the ice index of refraction wrong?

**Chi PJ, Ohtani S-I, Russell CT, and Singer HJ**

Locating substorm onsets by Pi2 travel time.

**Christensen AB, Kozyra J, Paxton LJ, Talaat E, and Yee J**

TIMED contributions to the NASA Sun-solar system connections great observatory.

**Christon SP, Hamilton DC, Mitchell DG, and Krimigis SM**

The occurrence of suprathreshold C+1 and N+1 in Saturn's magnetosphere in relation to Saturn's moons.

**Coakley H, Swenson CM, Moon T, Meier RR, Paxton LJ, and Christensen A**

Dayside observations of the equatorial anomaly.

**Comberiate J, Kamalabadi F, and Paxton LJ**

Coordinated observations of equatorial plasma bubbles using TIMED/GUVI and ground-based instruments.

**Cramer WD, Turner NE, Brandt PC, and Mitchell DG**

Ring current asymmetry as observed by ground magnetometers, *in situ*, and space-based remote sensing data.

**Craven JD, Christensen AB, Meier RR, Paxton LJ, and Strickland DJ**

The high-latitude knee of the O/N<sub>2</sub> ratio profile: Latitudinal variations with UT, local time, season, and magnetic activity.

**Cravens TE, Robertson IP, Keller CN, Waite JH, Kasprzak WT, Niemann HB, Yelle RV, Luhmann JG, Ledvina S, McNutt RL Jr, Ip W, de La Haye V, Miller-Wordag I, and Coates AJ**

Magnetospheric electrons as a source of Titan's ionosphere: Model comparisons with Cassini data.

**Criss A, Zhu X, Yee J, Talaat ER, Mlynczak M, Gordley L, Mertens C, and Russell JM**

Seasonal and interannual variations of migrating diurnal tide in the mesosphere as seen from the TIMED/SABER temperature measurements.

**Curtis N, Crowley G, Meier R, Strickland DJ, Paxton LJ, Christensen A, and Morrison D**

Thermosphere, Ionosphere, Mesosphere Energetics and Dynamics mission: Significant findings, evolving research, and outstanding science questions.

**Daniel RE, Burns AG, Strickland DJ, Meier RR, and Paxton LJ**

Vertical structure of the thermosphere and ionosphere during geomagnetic storms in May 2002.

**Decker RB, Krimigis SM, Roelof EC, and Hill ME**

Energetic particle measurements from Voyager 1 in the heliosheath.

**Demajistre R, Paxton LJ, and Bilitza D**

Comparisons of electron density profiles derived from TIMED/GUVI data with ionosonde measurements.

**Ellis AT, Lessard MR, Kintner P, Klatt E, Lynch K, Moen J, Yahnin A, Oksavik K, and Ogawa Y**

ULF waves in the cusp region as observed by the SERSIO sounding rocket and on the ground at Barentsburg, Svalbard.

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**Garnier P, Dandouras I, Toubanc D, Mitchell DG, Krimigis SM, Krupp N, Hamilton DC, Brandt PC, Roelof E, and Waite HJ**

The exosphere of Titan and its interaction with the Kronian magnetosphere: MIMI observations and modeling.

**Gjerloev JW, and Hoffman RA**

An observational basis for the dynamic substorm current system.

**Gold RE, Ensworth CB, McNutt RL, Ostdiek PH, and Prockter LM**

PARIS to Hektor, a mission to the Jovian Trojan asteroids.

- Greenwald RA, Oksavik K, Ruohoniemi JM, Baker JB, Gjerloev JW, and Kavoussi N**  
Initial observations of storm-time and disturbance electric fields in the subauroral and mid-latitude ionospheres using the SuperDARN-Storm radar at Wallops Island, VA.
- Haggerty DK, and Roelof EC**  
Injection timing of near-relativistic proton and electrons: Context for the 20 January 2005 solar energetic particle event.
- Hamilton DC, Garnier P, Dandouras I, Krimigis SM, and Mitchell DG**  
Suprathermal heavy ion observations during the Titan-5 close flyby.
- Hansen G, McCord T, Clark R, Cruikshank D, Brown R, Baines K, Bellucci G, Buratii B, Capaccioni F, Cerroni P, Combes M, Coradini A, Drossart P, Formisano V, Jaumann R, Langevin Y, Matson D, Mennella V, Nelson R, Nicholson P, Sicardy B, Sotin C, Soderblom L, and Hibbitts C**  
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- Hansen KC, Gombosi TI, Arridge CS, Coates AJ, Esposito LW, Kurth WS, Leisner JS, Mitchell DG, Richardson JD, Russell CT, Rymer AM, Sittler E, Thomsen MF, and Waite JH**  
Ion mass-loading and time variability in Saturn's magnetosphere.
- Hauck SA, Aurnou JM, and Dombard AJ**  
Sulfur's impact on core evolution and magnetic field generation on Ganymede.
- Hecht JH, Strickland DJ, Knight HK, Kochenash AJ, Zhang Y, Morrison MD, Paxton LJ, Mende SB, Frey HU, Burke WJ, and Rich FJ**  
Near simultaneous observations of the aurora from FUV, particle and photometric instruments on DMSF-F16, TIMED and IMAGE.
- Herrera F, Wing S, and Jaramillo C**  
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- Huang C, Foster J, Rideout W, Zhang Y, and Paxton LJ**  
Global ionospheric disturbances during super magnetic storms.
- Immer E, Daley R, Weiss M, Hashemian M, Morrison D, Fortner B, Jen J, and Holder R**  
Knowledge representation in support of data discovery, access, and retrieval.
- Izenberg NR, Murray GM, van Houten KA, and Hofstra AA**  
Astrobiological molecularly imprinted polymer sensors.
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- Bruzzi JR, Jensen JR, Fielhauer KB, Royster DW, and Srinivasan DK**  
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- Schone PJ, McNamee P, Morris G, Ciany G, and Lewis S**  
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## COLLOQUIA

The following topics were presented at the weekly APL Colloquia in 2006:

- 3 Nov**  
Transforming the Way DoD Shares Information, M Krieger, Office of the DoD, Chief Information Officer
- 16 Nov**  
Productive Deterrence: Preserving America at Modernity's End, M Vlahos, JHU/APL
- 1 Dec**  
The Next Steps in Human Space Exploration: What Are the Alternatives? R Farquhar, JHU/APL, and J Veverka, Cornell University
- 8 Dec**  
Taking a Long-Term Perspective on U.S. Navy ASW Objectives, Capabilities, and Trends (Historical Survey and Projections, 1940–2020), J Benedict Jr., JHU/APL
- 15 Dec**  
The Hart Prizes for Excellence in Independent Research and Development: Research: Data Fusion and Hypothesis Evaluation for Syndromic Surveillance. Development: High Temperature Structures and Thermal Management Systems, J Lin and D Drewry, JHU/APL