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The following papers appeared at the *MEMS IEEE Instrument and Measurement Technol. Conf.*, Vail, CO (May 2003):

Firebaugh SL, Charles HK Jr, Edwards RL, Keeney AC, and Wilderson SF
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Fowler KR
Automatic gain control for image-intensified camera, Paper IMTC-7195.

Fowler KR, Frank LJ, and Williams RL
Space environment testbed (SET): Adaptable system for piggybacked satellite experiments, Paper IMTC-7194.

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Low-cost interstellar probe, pp. 267–280.

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Hutchison DW, and Spall JC
Stopping stochastic approximation using idealized processes.

Lucarelli DG
Quantum control algorithms with local operations and the conditional phase shift.

Spall JC
Monte Carlo-based computation of the Fisher information matrix in nonstandard problems.

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Pace DK
V&V insights from foundations '02 for distributed simulation.

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Pace DK
The roles of metrics in simulation verification and validation.

The following papers appeared in *Proc. IEEE Aerospace Conf.*, Big Sky, MT, CD-ROM (8–15 Mar 2003):

Jensen JR, Fielhauer KB, Reinhart MJ, and Srinivasan RK
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The following papers appeared in *Proc. Embedded Systems Conf.*, San Francisco, CA, CD-ROM (18–26 Apr 2003):

Fowler KR
Fantastic failures and a success story, Paper No. 344.

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Martin MN, and Strohbehn K
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Martin MN, and Strohbehn K
A 12-bit DAC for space applications.

Meitzler RC, and Millard WP
A direct digital frequency synthesizer prototype for space applications.

PRESENTATIONS

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

Ballard BB, Conte JE, Friedman MA, Jackson JW, Martinaitis RE, Rzemien R, Schlegel MO, Tom E, Khoury E, Powell C, Casolara M, Hagy R, and Rulf D
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Mechanisms of neuropathic pain, *Neurosurgery Grand Rounds, Johns Hopkins University Seminar,* Baltimore, MD (13 Mar 2003).

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Monte Carlo-based computation of the Fisher information matrix in non-standard settings, *Am. Control Conf.,* Denver, CO (4–6 Jun 2003).

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Analyze, predict, take action: Data analysis for solar and planetary science, *Machine Learning Systems Group, Jet Propulsion Laboratory,* Pasadena, CA (18 Apr 2003).

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Clustering with domain knowledge: Soft constraints for data analysis, *Ann. Mtg. of the Classification Soc. of North Am.,* Tallahassee, FL (12–15 Jun 2003).

The following papers were presented at the *13th Am. Astronaut. Soc. (AAS) and Am. Inst. of Aeronaut. and Astronaut. (AIAA) Space Flight Mechanics Mtg.,* Ponce, Puerto Rico (9–13 Feb 2003):

Dunham DW, Muhonen DP, Farquhar RW, Holdridge M, and Reynolds E
Design and implementation of CONTOUR's phasing orbits.

Pittelkau ME
An analysis of the quaternion attitude determination filter.

Pittelkau ME
Attitude sensor alignment and calibration for the TIMED spacecraft.

The following papers were presented at the *Joint Assembly of the European Geophys. Soc., Am. Geophys. Union, and European Union of Geosci.,* Nice, France (7–11 Apr 2003):

Baker JB, Greenwald RA, Förster M, Paschmann G, Tsyganenko NA, Quinn JM, and Donovan EF
Conjugate comparison of cluster EDI and SuperDARN measurements of E×B plasma drift.

Bedini PD, Potocki KA, and McNutt RL Jr
Solar probe: An engineering solution.

Brinckerhoff WB, Managadze GG, and Chumikov AE
Molecular synthesis in hypervelocity impact plasmas on the primitive Earth and in interstellar clouds.

C:son Brandt P
Storm pressure distributions from IMAGE/HENA.

C:son Brandt P, and Ohtani S-I
How much do substorms contribute to the pressure of the inner magnetosphere? The storm-substorm relationship from a global perspective.

Decker RB, Krimigis SM, Roelof EC, and Hill ME
Angular distributions and energy spectra of low-energy ions observed by Voyager 1 at 85–88 AU.

Haine TW, Eyink G, and Lea D
Linear response formalism and ensemble adjoint methods for climate sensitivity.

Johnson J, Wing S, and Tuzla-Johnson I
A cumulant-based method for analyzing nonlinear magnetospheric dynamics.

Krimigis SM, Decker RB, and Roelof EC
Energetic ion intensity increases at Voyagers 1 and 2 during 2002–03.

Lea DJ, Haine TW, Porter DL, and Gasparovic RF
Monitoring the Irminger Sea meridional overturning circulation.

Lui ATY, Lai WW, Liou K, and Meng C-I
A new technique for short-term forecast of auroral activity.

Mahaffy PR, Atreya SK, Brinckerhoff WB, Cabane M, Coll P, Harpold DN, Niemann HB, Owen T, Raulin F, and Israel G
Analysis of organic molecules and isotopes from a Mars Lander.

McNutt RL Jr, Solomon SC, and Gold RE
MESSENGER: Science payload status.

Meng C-I, Liou K, Newell PT, and Wilkinson DL
Observations of auroral substorms with meridian scanning photometer: Interpretations and implications.

Ohtani S-I
Substorm processes in the near-Earth magnetotail.

Ohtani S-I, Brandt PC, and Mitchell DG
Tail current contribution to the Dst (Sym-H) index.

Saur J
A model for Io's local electric field for a combined unipolar inductor and Alfvénic far-field coupling.

Solomon SC, McNutt RL Jr, Gold RE, and the MESSENGER Science Team
The MESSENGER mission to Mercury: An update.

Wagstaff K, Ho CG, Vegriff J, and Plauger J
Forecasting space weather: Using ACE data to provide real-time predictions of hi-intensity energetic storm particle events.

Wing S, and Newell PT
Magnetotail assimilation model.

Yucht D, Brinckerhoff WB, Gorevan S, and Mukherjee S
Sample manipulation system for Mars instrument suite.

The following papers were presented at the *Embedded Systems Conf.*, San Francisco, CA (18–26 Apr 2003):

Fowler KR
Fantastic failures and a success story.

Fowler KR
Mission-critical and safety-critical development.

Fowler KR
Noise and shielding.

The following papers were presented at the *Instrumentation and Measurement Technol. Conf.*, Vail, CO (20–22 May 2003):

Fowler KR
Automatic gain control for image-intensified camera.

Fowler KR, Frank LJ, and Williams RL
Space environment testbed (SET): Adaptable system for piggy-backed satellite experiments.

Fowler KR
Developing real-time embedded products.

The following papers were presented at the *71st Military Operations Res. Symp.*, Quantico, VA (10–12 Jun 2003):

Gingras RE
Analytical wargaming.

Paulhamus BL
The effect of capability distributions on team performance.

Scheidt DH, Chalmers RW, and McCubbin CB
Agent-based control of cooperating unmanned vehicles.

Telford JK
Sensitivity analysis and optimization using design of experiments.

The following papers were presented at the *2003 IEEE APS Int. Symp. and USNC/CNC/URSI Nat. Radio Sci. Mtg.*, Columbus, OH (22–27 Jun 2003):

Awadallah RS, Gehman JZ, Kuttler JR, and Newkirk MH
Effects of out-of-plane terrain slopes on tropospheric radar propagation: Theory and modeling.

Gehman JZ, Awadallah RS, Kuttler JR, and Newkirk MH
Effects of out-of-plane terrain slopes on tropospheric radar propagation: Results and applications.

Newkirk MH, and Dockery GD
Refinement of helicopter-based evaporation duct height calculations.

COLLOQUIA

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

4 April 2003
The Best Defense: Counterproliferation and U.S. National Security, J Ellis, National Defense University

11 April 2003
Harvesting Biology for Defense Technology, A Rudolph, DARPA

25 April 2003
Running for Sheriff, V Utgoff, Institute for Defense Analysis

1 May 2003
Threat Anticipation Program: Agent-Based Simulation of Factors Motivating Terrorism, E MacKerrow, Los Alamos National Laboratory

2 May 2003
U.S.–Russian Relations After the Iraq War, A Stent, Georgetown University

9 May 2003
The Electro-Meteorology of Dust Devils, W Farrell, NASA/GSFC

16 May 2003
The Hidden Facts About First Responder Readiness, S Greenberg, JHU Div. of Public Safety Leadership