PUBLICATIONS

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

Abita JL
Consideration for effective flexible manufacturing/development, *Proc. Government Microcircuit Applications Conf.*, Defense Technical Information Center, pp. 32–35 (1997).

Angelopoulos V, Coroniti FV, Kennel CF, Kivelson MG, Walker RJ, Russell CT, McPherron RL, Sanchez E, Meng CI, Baumjohann W, Reeves GD, Belian RD, Sato N, Friis-Christensen E, Sutcliffe PR, Yumoto K, and Harris T
Correction to multipoint analysis of a bursty bulk flow event on April 11, 1985, *J. Geophys. Res.* **102**, 211–217 (1997).

Babin SM, Young GS, and Carton JA
A new model of the oceanic evaporation duct, *J. Appl. Meteor.* **36**(3), 193–204 (1997).

Benson RC, and Wagner JW (JHU Dept. of Biomedical Eng.)
The Johns Hopkins University/Army Research Laboratory Microelectronics Research Collaborative Program, *Johns Hopkins APL Tech. Dig.* **18**(2), 309–314 (1997).

Bevan MG, and Wuttig M (Univ. of MD)
Behavior of solder joints under complex, displacement-controlled loading, *Design and Reliability of Solders and Solder Interconnections*, RK Mahidhara (ed.), The Minerals, Metals, and Materials Society, pp. 197–202 (1997).

Bryden WA, Benson RC, Ko HW, and Donlon M (DARPA)
Universal agent sensor for counterproliferation applications, *Johns Hopkins APL Tech. Dig.* **18**(2), 302–308 (1997).

Bythrow PB
Aerobatics: Sport, science, and survival, *Johns Hopkins APL Tech. Dig.* **18**(1), 141–151 (1997).

Casasnovas A, and White JW
Commercial plastic encapsulated microcircuits for naval aviation applications, *Johns Hopkins APL Tech. Dig.* **18**(1), 50–58 (1997).

Christens-Barry WA, and Partin AW (Brady Urological Inst. at JHMI)
Quantitative grading of tissue and nuclei in prostate cancer for prognosis prediction, *Johns Hopkins APL Tech. Dig.* **18**(2), 226–233 (1997).

Cole TD
Mathematica upgrade simplifies design tasks, *Laser Focus World*, **33**(1), 145–149 (1997).

Cole TD, Cheng AF, Zuber MT, and Smith D
The Laser Rangefinder on the Near Earth Asteroid Rendezvous spacecraft, *Acta Astronaut.* **39**(1-4), 303–313 (Jul–Aug 1996).

Coon AC
Spatial correlation of detections for impulsive echo ranging sonar, *Johns Hopkins APL Tech. Dig.* **18**(1), 105–112 (1997).

Coon AC, Ross CA, Chalmers RW, and Gallati PC
The extended echo ranging aural and visual support trainer, *Johns Hopkins APL Tech. Dig.* **18**(1), 113–124 (1997).

Donohue DJ, Ku HC, Thompson DR, and Sadowsky J
Direct numerical simulation of electromagnetic rough surface and sea scattering by an improved banded matrix iterative method, *Johns Hopkins APL Tech. Dig.* **18**(2), 204–216 (1997).

Donohue DJ, and Kuttler JR
Modeling radar propagation over terrain, *Johns Hopkins APL Tech. Dig.* **18**(2), 279–287 (1997).

Dunham DW
Lunar occultation highlights for 1997, *Sky and Telesc.* **93**(1), 89–92 (1997).

Planetary occultations for 1997, *Sky and Telesc.* **93**(2), 72–75 (1997).

Dunham DW, and Frishkorn G
A successful DGPS experiment, *Occultation Newsletter* **6**(13), 281–283 (1997).

Foard TR
Changes in naval aviation: Guest Editor's introduction, *Johns Hopkins APL Tech. Dig.* **18**(1), 2–6 (1997).

Franson JD, and Jacobs BC
Quantum computing, *Johns Hopkins APL Tech. Dig.* **18**(2), 188–192 (1997).

Guier WH (APL retiree), and Weiffenbach GC (APL retiree)
Genesis of satellite navigation, *Johns Hopkins APL Tech. Dig.* **18**(2), 178–181 (1997).

Haley DR, Strikwerda TE, Ray JC, Fisher HL, Heyler GA, and Pham RT
Performance of the MSX guidance and control system, *Proc. 20th Annual AAS Guidance and Control Conf.*, AAS 97-072 (1997).

Hall MR, and McNamee PJ
Improving software performance with automatic memoization, *Johns Hopkins APL Tech. Dig.* **18**(2), 254–260 (1997).

Halpin JP, Pandolfini PP, Biermann PJ, Kistenmacher TJ, Hunter LW, O'Connor JS, and Jablonski DG
F/A-18 E/F program independent analysis, *Johns Hopkins APL Tech. Dig.* **18**(1), 33–49 (1997).

Heaton HI, Dubbel DC, Fueschel PG, Gasparovic RF, Kwon KH, Lu NQ, Moe GW, Ousborne JJ, Sinex CH, Taylor RJ, Wagner JL, and Williams CV
Nonacoustic technology options for enhancing littoral antisubmarine warfare performance, *US Navy J. Underwater Acoust.* **46**, 1313–1364 (1996).

Kennedy LD, Patterson CR, and Munshower DC
F/A-18 electronic warfare suite cost and operational effectiveness analysis methodology: Phase 1—Radio-frequency countermeasures, *Johns Hopkins APL Tech. Dig.* **18**(1), 59–68 (1997).

Krill JA, and O'Driscoll MJ (US Navy)
Cooperative Engagement Capability, *Naval Engineers Journal* **109**(2), 43–57 (1997).

Kues HA, Mazik PE (Stamford Health Dept.), and Monahan JC (Food & Drug Admin.)
Microwave exposure: Safeguarding public health in the absence of national standards, *Johns Hopkins APL Tech. Dig.* **18**(2), 288–294 (1997).

Kusnierkiewicz DY
A description of the TIMED spacecraft, *Proc. American Institute of Physics (AIP) Conf.*, Vol. 387, Part I, pp. 115–121 (1997).

Lombardo JS
Practical considerations in implementing mobile computing, *Proc. Mobile Computing for Healthcare Conf.*, San Francisco, CA (1997).

Maier-Tyler LL
Awards for publications and research and development, *Johns Hopkins APL Tech. Dig.* **18**(1), 152–155 (1997).

Maurer DE, Chamlou R, and Genovese KO
Signal processing algorithms for electronic combat receiver applications, *Johns Hopkins APL Tech. Dig.* **18**(1), 69–78 (1997).

McNamee PJ
Signature modeling in ISSIPS, *ISSIPS Quarterly Program Review*, JHU/APL, Laurel, MD (6 Feb 1997).

Menner WA
The Navy's tactical aircraft strike planning process, *Johns Hopkins APL Tech. Dig.* **18**(1), 90–104 (1997).

Murphy JC, Dubbel DC, and Benson RC
The Securities Technology Institute for counterfeit deterrence, *Johns Hopkins APL Tech. Dig.* **18**(2), 295–301 (1997).

Najmi AH, and Sadowsky J
The continuous wavelet transform and variable resolution time–frequency analysis, *Johns Hopkins APL Tech. Dig.* **18**(1), 134–140 (1997).

Newell PT, Zu D, Meng CI, and Kivelson MG
Dynamical polar cap: A unifying approach, *J. Geophys. Res.* **102**, 127–139 (1997).

Ousborne JJ, Griffith D, and Yuan RW
A periscope detection radar, *Johns Hopkins APL Tech. Dig.* **18**(1), 125–133 (1997).

Pace DK
An aspect of simulation cost, *Phalanx* **30**(1), 12–15 (Mar 1997).

Preliminary guidelines for distributed simulation analysis and engineering applications, *Proc. 1997 Spring Simulation Interoperability Workshop*, CD-ROM Proc., Paper 004, Simulation Interoperability Standards Organization, Orlando, FL (1997).

Pineda FJ, Cauwenberghs G (JHU), Edwards RT (JHU), Ryals KT, and Steigerwald DG
Bang, click, thud, or whack? *Johns Hopkins APL Tech. Dig.* **18**(2), 244–253 (1997).

Pollack AF, Ferguson RC, and Chrysostomou AK
Tomahawk deconfliction: An exercise in system engineering, *Johns Hopkins APL Tech. Dig.* **18**(1), 79–89 (1997).

Sadowsky J, Abita JL, Aylor RP, Barney GA, Bohandy J, Carkhuff BG, Josephson KL, Klem BA, Mobley SJ, Morris EB, Rider JF, Schneider W, Stanford RL, and Wilderson SF
Safer transit travel for the blind using an infrared warning system, *Johns Hopkins APL Tech. Dig.* **18**(2), 315–323 (1997).

Semmel RD, Immer EA, Silberberg DP, and Winkler RP (U.S. Army Research Laboratory)
Knowledge-based query formulation for integrated information systems, *Johns Hopkins APL Tech. Dig.* **18**(2), 261–270 (1997).

Semmel RD, and Westgate CR (JHU Whiting School of Eng.)
Responding to critical educational needs: Information systems and technology, *Johns Hopkins APL Tech. Dig.* **18**(2), 329–332 (1997).

Sitnov MI, Malova HV, and Lui ATY
Quasi-neutral sheet tearing instability induced by electron preferential acceleration from stochasticity, *J. Geophys. Res.* **102**, 163–173 (1997).

Sommerer JC
Milton S. Eisenhower Research and Technology Development Center 50th Anniversary Issue: Guest Editor's Introduction, *Johns Hopkins APL Tech. Dig.* **18**(2), 165–172 (1997).

Sommerer JC, Ku HC, and Gilreath HE
Experimental evidence for chaotic scattering in a fluid wake, *Phys. Rev. Lett.* **77**(25), 5055–5058 (1996).

Sommerer JC, Ott E (Univ. of MD College Park), and Tél T (Eötvös Univ., Budapest, Hungary)
Modeling two-dimensional fluid flows with chaos theory, *Johns Hopkins APL Tech. Dig.* **18**(2), 193–203 (1997).

Strikwerda TE, Ray JC, Haley DR, Heyler GA, Fisher HL, and Pham RT
NEAR guidance and control system, *Proc. 20th Annual AAS Guidance and Control Conf.*, AAS 97–077 (1997).

Sullins GA, Waltrup PJ, and Garritson GR
The APL alliances for high-speed aerothermal and propulsion testing, *Johns Hopkins APL Tech. Dig.* **18**(2), 324–328 (1997).

Uy OM, Benson RC, Erlandson RE, Boies MT, Lesho JC, Galica GE (Physical Sciences, Inc.), Green BD (Physical Sciences, Inc.), Wood BE (AEDC), and Hall DF (Aerospace Corp.)
Contamination experiment in the Midcourse Space Experiment, *J. Spacecr. & Rockets* **34**(2), 216–225 (1997).

Waltrup PJ, White ME, Zarlingo F (Naval Air Warfare Center), and Gravlin ES (Naval Air Warfare Center)
History of ramjet and scramjet propulsion development for U.S. navy missiles, *Johns Hopkins APL Tech. Dig.* **18**(2), 234–243 (1997).

White JW
Application of new management concepts to the development of F/A-18 aircraft, *Johns Hopkins APL Tech. Dig.* **18**(1), 21–32 (1997).

Wickenden DK, Huang Z (Hughes STX Corp.), Mott DB (NASA Goddard), and Shu PK (NASA Goddard)
Development of gallium nitride photoconductive detectors, *Johns Hopkins APL Tech. Dig.* **18**(2), 217–225 (1997).

Wickenden DK, Kistenmacher TJ, Osiander R, Ecelberger SA, Givens RB, and Murphy JC
Development of miniature magnetometers, *Johns Hopkins APL Tech. Dig.* **18**(2), 271–278 (1997).

Wickenden DK, Lambrecht WRL (Case Western Reserve Univ.), Rashkeev SN (Case Western Reserve Univ.), Segall B (Case Western Reserve Univ.), Lawniczak-Jablonska K (Lawrence Berkeley National Lab), Suski T (Lawrence Berkeley National Lab), Gullikson EM (Lawrence Berkeley National Lab), Underwood JH (Lawrence Berkeley National Lab), Perera RCC (Lawrence Berkeley National Lab), Rife JC (NRL), Grzegory I (Unipress), and Porowski S (Unipress)
X-ray absorption, glancing-angle reflectivity and theoretical study of the N K- and M2, 3-edge spectra in GaN, *Phys. Rev. B* **55**(4), 2612–2622 (1997).

Williams DJ
Early energetic particle results from Jupiter, *Johns Hopkins APL Tech. Dig.* **18**(2), 182–187 (1997).

PRESENTATIONS

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

Abita JL
Consideration for effective flexible manufacturing/development, *Government Microcircuits Applications Conf.*, Las Vegas, NV (10–13 Mar 1997).

Arcella FG, Whitney EJ (Penn State Univ.–ARL), Cohen PH, House MA, and Bomberger HB
Materials characterization of lasercast titanium, *1996 World Congress on Powder Metallurgy & Particulate Materials*, Washington, DC (19 Jun 1996).

Erlandson RE, Boies MT, Uy OM, Taylor JC, Grebowsky JM, and Coulson JT
MSX contamination experiment ion mass spectrometer observations during early operations, *35th AIAA/Aerospace Sciences Meeting and Exhibit*, Reno, NV (6–9 Jan 1997).

Haley DR, Londerville G, and Ciolino R
Recent experience of the space inertial reference unit (SIRU), AAS 97-084, *AAS Rocky Mountain Guidance and Control Conf.*, Breckenridge, CO (5–9 Feb 1997).

Haley DR, Strikwerda TE, Ray JC, Fisher HL, Heyler GA, and Pham RT
Performance of the MSX guidance and control system, AAS 97-072, *20th Annual AAS Guidance and Control Conf.*, Breckenridge, CO (5–9 Feb 1997).

Hayek CS, Schurman IW, and Sweeney JH
Measurements of acoustic time coherence in shallow, bottom-interacting environments, *Environmentally Adaptive Sonar Technology Symp.*, University of Washington, Seattle (27–31 Jan 1997).

Newhall BK, Hunter JD, Allensworth WS (Applied Hydroacoustics Research), Schurman IW, Worley PD, and Feuillet JP (SPAWAR)
A shape adaptive beamformer for a twinline towed array surveillance system, *1997 Adaptive Sensor Array Processing Workshop*, MIT Lincoln Labs (12 Mar 1997).

Newhall BK, and Owsley NL (NUWC)
Multiline towed array design, *Technical Workshop on Submarine Acoustic Superiority*, NUWC, Newport, RI (25 Mar 1997).

Schurman IW, and Newhall BK
Performance predictions for vertically stacked arrays with adaptive beamforming, *The Environmentally Adaptive Sonar Technology Symp.*, University of Washington, Seattle (27–31 Jan 1997).

Strikwerda TE, Ray JC, Haley DR, Heyler GA, Fisher HL, and Pham RT
NEAR Guidance and Control System, AAS 97-077, *20th Annual AAS Guidance and Control Conf.*, Breckenridge, CO (5–9 Feb 1997).

Taylor JC, Silver DM, Erlandson RE, Swaminathan PK, Boies MT, and Uy OM
Early-time water vapor outgassing from MSX: Assessment using the DSMC method, *35th AIAA/Aerospace Sciences Mtg. and Exhibit*, Reno, NV (6–9 Jan 1997).

Williams BG, Helfrich CE, Miller JK, Owen WM, Scheeres DJ, Yeomans DK, Dunham DW, Farquhar RW, Heyler GL, McAdams JV, Murchie SL, and Harch AP
Preliminary plans for a close encounter with 253 Mathilde, AAS 97-177, *AAS/AIAA Space Flight Mechanics Mtg.*, Huntsville, AL (10–12 Feb 1997).

COLLOQUIA

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

28 Feb
Interaction of Aircraft Wakes with the Ground and Atmosphere, FH Proctor, NASA Langley Research Center

7 Mar
Making Sense of Remote Sensing of Planetary Surfaces, LA McFadden, Univ. of MD College Park

14 Mar
Magnetism in Arrays of Superconducting Rings, DH Reich, JHU

21 Mar
Longitude, D Sobel

4 Apr
Protein Folding, GD Rose, JHU

11 Apr
Circular Reasoning: From Partially Ordered Sets to Special Relativity, ER Scheinerman, JHU

18 Apr
Recent Observations of Comets, PD Feldman, JHU

25 Apr
Why Things Bend, RB Selinger, Catholic University of America