APL Achievement Awards and Prizes

Each year, APL recognizes and celebrates a small group of staff members with awards and prizes for exceptional accomplishments. These high honors are given to individuals who deserve special recognition by reason of their outstanding contributions through professional publication of scientific and engineering results, innovations in independent research and development (IR&D) projects, and pioneering work leading to new inventions.

Since 1985, the Editorial Board of the *Johns Hopkins APL Technical Digest* has granted awards for meritorious writing. Nominations of publications considered to be outstanding are solicited from each department and evaluated according to a rigorous selection process. Publications must conform to professional standards and are judged on significance and clarity, with considerably greater weight given to the significance of the work in advancing science, engineering, or the mission of the Laboratory. Winners are recommended for either an award or honorable mention in six categories. In the 2006 competition, five technical departments nominated 26 publications. Of these, six won awards.

In 1989, the first R. W. Hart Prizes for Excellence in Independent Research and Development were awarded for excellence in research and development. The prizes recognize high-quality, innovative work at APL and honor those who make signal contributions to science and technology through projects in basic and applied research and exploratory and advanced engineering. The IR&D Advisory Council solicits nominations of projects from each APL department and selects winning projects on the basis of the work's originality and its importance to the Laboratory. Prizes are awarded in two categories: best research project and best development project. For 2006, four departments nominated eight projects—three for research and five for development. Of these, one research project and two development projects each won a prize.

The first awards for inventions were bestowed in 2000 for pioneering work leading to new technologies and innovations. The Invention of the Year Awards were established to identify the top technology from the hundreds of inventions disclosed during the previous calendar year and to honor innovators whose work keeps APL on the cutting edge with discoveries that change the way we live. The APL Office of Technology Transfer and the Office of Patent Counsel form an independent review panel by inviting technology transfer professionals, intellectual property attorneys, and individuals from the technical and business communities to judge the inventions. Judges base their selections on creativity, novelty, improvement over existing technology, and potential benefit to society. For 2006, 190 inventors reported 125 inventions to APL's Office of Technology Transfer. Of these, an independent panel of 25 representatives from industry and patent law selected three inventions based on their benefit to society, improvement over existing technology, and commercial potential.

New developments and discoveries in science, engineering, and technology are critical in meeting the demands of a contemporary society, and professional publications are the means by which these innovations are conveyed to the external world. Recipients of these prestigious awards are strong leaders who achieve results and consistently demonstrate integrity, industry, and a relentless commitment to excellence. Their names and photographs are displayed on the following pages along with the titles of their publications, projects, and inventions.

Linda L. Maier-Tyler

PUBLICATION AWARDS FOR 2006

Author's First Paper in a Peer Reviewed Journal

Stergios J. Papadakis

For "Dielectrophoretic Assembly of Reversible and Irreversible Metal Nanowire Networks and Vertically Aligned Arrays," *Applied Physics Letters* **88**(233118), 1–3 (2006).

Stergios J. Papadakis, Senior Professional Staff, Ph.D., Princeton Univ., 2000, Nanoscale Sensors and Devices

Outstanding Paper in the *Johns Hopkins APL Technical Digest*

Walter G. Berl Award

Robert J. Bamburger Jr.

For "Flight Demonstrations of Unmanned Aerial Vehicle Swarming Concepts," *Johns Hopkins APL Technical Digest* **27**(1), 41–55 (2006).

Robert J. Bamburger Jr., Senior Professional Staff, M.S., JHU, 1995, Agile Systems and Control; **David P. Watson,** Principal Professional Staff, B.A., California State Univ., 1987, Autonomous Systems; **David H. Scheidt,** Principal Professional Staff, B.S., Case Western Reserve Univ., 1985, Autonomous Systems; **Kevin L. Moore** (non-APL staff)

David P. Watson

David H. Scheidt

Outstanding Research Paper in an Externally Refereed Publication

David E. Freund

For "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 Transactions on Antennas and Propagation* **54**(4), 1292–1304 (2006).

David E. Freund, Senior Professional Staff, Ph.D., Univ. of Delaware, 1982, Wave Propagation and Scattering; **Nancy E. Woods,** Senior Professional Staff, Ph.D., Univ. of California, Los Angeles, 1983, Radar Modeling and Simulation; **Hwar-Ching Ku,** Principal Professional Staff, Ph.D., Illinois Inst. of Tech., 1984, Electromagnetic Wave Propagation; **Ra'id S. Awadallah,** Principal Professional Staff, Ph.D., Virginia Polytechnic Inst., 1998, Theoretical Research in Analytical and Numerical Modeling

Nancy E. Woods

Hwar-Ching Ku

Ra'id S. Awadallah

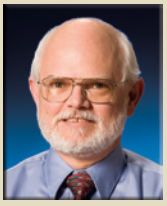
Outstanding Development Paper in an Externally Refereed Publication

For "Development of a Physical Human Surrogate Torso Model for Ballistic Impact and Blast," *Journal of Advanced Materials* **38**(1), 3–12 (2006).

Paul J. Biermann

Emily E. Ward

Russell P. Cain



Bliss G. Carkhuff

Andrew C. Merkle

Jack C. Roberts

Paul J. Biermann, Principal Professional Staff, B.S., Rensselaer Polytechnic Inst., 1980, Materials, Process Engineering, and Prototype Fabrication; **Emily E. Ward,** Senior Professional Staff, M.S., JHU, 2003, Finite Element Modeling and Analysis; **Russell P. Cain,** Principal Professional Staff, M.S., JHU, 1995, Sensors, Data Acquisition, and Sensor Integration; **Bliss G. Carkhuff,** Senior Professional Staff, M.S., JHU, 1997, Design and Develop Short Range Wireless Measurement Systems; **Andrew C. Merkle,** Senior Professional Staff, M.S., Virginia Polytechnic Inst., 2000, Impact and Injury Biomechanics; **Jack C. Roberts,** Principal Professional Staff, Ph.D., Rensselaer Polytechnic Inst., 1980, Impact Biomechanics

Outstanding Professional Book

Michael E. Thomas

For *Optical Propagation in Linear Media: Atmospheric Gases and Particles, Solid-State Components, and Water*, Oxford University Press, New York (2006).

Michael E. Thomas, Principal Professional Staff, Ph.D., The Ohio State Univ., 1979, Applied Spectroscopy and Light Propagation

Outstanding Special Publication

Jeffrey S. Lin

Howard S. Burkom

Sean P. Murphy

Steven M. Babin

Andrew B. Feldman

For "Bayesian Fusion of Syndromic Surveillance with Sensor Data for Disease Outbreak Classification," Chap. 6, in *Science, Engineering, and Biology Informatics, Vol. 2: Life Science Data Mining*, S. Wong and C.-S. Li (eds.), World Scientific Publishing, Singapore, pp. 119-140 (2006).

Jeffrey S. Lin, Principal Professional Staff, M.S., JHU, 1989, Biological Analysis and Informatics; **Howard S. Burkom,** Principal Professional Staff, Ph.D., Univ. of Illinois at Urbana–Champaign, 1978, Analytic Methods for Biosurveillance; **Sean P. Murphy,** Senior Professional Staff, M.S., Univ. of Oxford, 2008, Epidemiological Modeling and Simulation; **Steven M. Babin,** Senior Professional Staff, Ph.D., Univ. of Maryland, 1996, Atmospheric Science, Medicine, and Engineering; **Andrew B. Feldman,** Senior Professional Staff, Ph.D., Harvard Univ., 1997, Biological Systems Informatics and Modeling; **Yevgeniy Elbert** (non-APL staff); **Shilpa Hakre** (non-APL staff)

R. W. HART PRIZE FOR 2006

Excellence in Research


James C. Mayfield


Paul McNamee


Christine D. Piatko


Richard S. Cost


Wayne L. Bethea


Clayton R. Fink


Markus E. Dale


Eric C. King


Robert T. Hider Jr.

For "Distributed Information Systems"

James C. Mayfield, Principal Professional Staff, Ph.D., Univ. of California, Berkeley, 1989, Information Retrieval, Natural Language Processing, and Intelligent Agent Systems; **Paul McNamee,** Senior Professional Staff, M.S., JHU, 1996, Human Language Technology; **Christine D. Piatko,** Senior Professional Staff, Ph.D., Cornell Univ., 1993, Information, Extraction, and Visualization; **Richard S. Cost,** Senior Professional Staff, Ph.D., Univ. of Maryland, Baltimore County, 1999, Autonomous Systems; **Wayne L. Bethea,** Senior Professional Staff, Ph.D., Lehigh Univ., 2001, Knowledge Representation, Ontology, and Semantics; **Paul A. Frank** (not pictured), Senior Professional Staff, B.S., California State Univ., 1989, Software Methodologies and Tools; **Clayton R. Fink,** Senior Professional Staff, M.S., JHU, 2003, Software Engineering; **Markus E. Dale,** Senior Professional Staff, M.S., Univ. of Texas, Austin, 1996, Distributed Artificial Intelligence; **Eric C. King,** Senior Professional Staff, M.S., Boston Univ., 1982, Software Engineering and Design; **Robert T. Hider Jr. ("Sandy"),** Senior Professional Staff, M.S., JHU, 2005, Graphical Visualization and Graphical User Interfaces

Excellence in Development


Andrew J. Newman


Jonathan T. DeSena


Cameron K. Peterson


Gregg A. Harrison

For "Tactically Responsive Intelligence, Surveillance, and Reconnaissance Management (TRIM)"

Andrew J. Newman, Principal Professional Staff, Ph.D., Univ. of Maryland, College Park, 1999, Sensor and Data Fusion; **Jonathan T. DeSena,** Senior Professional Staff, M.S., JHU, 2005, Tracking and Data Fusion; **Cameron K. Peterson,** Senior Professional Staff, M.S., JHU, 2005, Data Fusion Software Engineering; **Gregg A. Harrison,** Senior Professional Staff, M.S.E.E., JHU, 2002, Missile Guidance, Navigation, and Control and Resource Optimization

Excellence in Development


Keith J. Rebello

For "MEMS Hydrophones for Beamforming Applications"

Keith J. Rebello, Senior Professional Staff, M.S., Carnegie Mellon Univ., 1997, Coupling Microelectromechanical Systems (MEMS); **Robert Osiander,** Principal Professional Staff, Ph.D., Technical Univ., Munich, 1991, Design, Development, and Testing of Sensors and Systems; **David A. Kitchin,** Principal Professional Staff, M.S., Univ. of Rhode Island, 1975, Oceanographic Data Instrumentation; **Robert Henrick,** Principal Professional Staff, Ph.D., Rensselaer Polytechnic Inst., 1979, Antisubmarine Warfare Detection and Command, Control, and Communications Systems; **Charles B. Cooperman,** Senior Professional Staff, B.S., Univ. of Maryland, 1982, Electronic System Design; **S. John Lehtonen,** Senior Professional Staff, B.S.E.E., Florida Atlantic Univ., 1985, Microelectronics Design and Assembly; **Allen C. Keeney,** Senior Professional Staff, M.S., JHU, 2007, Process Engineering; **Francisco Tejada** (non-APL staff)


Robert Osiander


David A. Kitchin


Robert Henrick


Charles B. Cooperman


S. John Lehtonen


Allen C. Keeney

INVENTION OF THE YEAR AWARDS FOR 2006

H. Bruce Land III

For "Portable Arc Flash Protection System"

H. Bruce Land III, Principal Professional Staff, B.E.E., JHU, 1984, Sensors, Instrumentation, and Controls

Stergios J. Papadakis

For "Nanoporous Nucleic Acid Sensor"

Stergios J. Papadakis, Senior Professional Staff, Ph.D., Princeton Univ., 2000, Nanoscale Sensors and Devices

Harry K. Charles Jr.

Charles V. Banda

Arthur Shaun Francomacaro

Allen C. Keeney

S. John Lehtonen

For "Advanced Thin Flexible Microelectronic Assemblies"

Harry K. Charles Jr., Principal Professional Staff, Ph.D., JHU, 1972, Electronic Devices, Packaging, and Reliability; **Charles V. Banda,** Senior Electronic Engineer, National Security Agency, B.S.E.E., JHU, 1983, Microelectronics Design and Manufacturing [non-APL staff member working with APL under a Cooperative Research and Development Agreement (CRADA) to develop ultrathin microelectronics assemblies]; **Arthur Shaun Francomacaro,** Principal Professional Staff, M.S.E.E., JHU, 1999, Advanced Microelectronic Fabrication; **Allen C. Keeney,** Senior Professional Staff, M.S., JHU, 2007, Process Engineering; **S. John Lehtonen,** Senior Professional Staff, B.S.E.E., Florida Atlantic Univ., 1985, Microelectronics Design and Assembly