

APL Achievement Awards and Prizes

For premier R&D organizations, professional staff achievement in writing, research, and development serves several basic functions. Good technical publications inform peers of technological discoveries, document the results of R&D, and educate the next generation of scientists and engineers. Likewise, advances in the sciences and in engineering and technology not only benefit society, but also give stature to the institution that provides the support.

Each year, APL honors members of its Professional Staff with awards and prizes to recognize outstanding people who advance science, technology, and education through excellence in technical publications, achievement in independent R&D (IR&D) efforts, and out-of-the-box innovative thinking leading to the invention of new technologies for the benefit of business and society.

The annual writing awards competition was established in 1985 to encourage and reward outstanding publications by the APL Professional Staff. The Editorial Board of the *Johns Hopkins APL Technical Digest* solicits from each department nominations of publications from the preceding year to compete for awards in six categories. Judges base their decisions on the significance of the work and its clarity, with greater weight given to the former. Outstanding publications are recommended either for award or honorable mention. In the 2003 competition, eight departments submitted 30 publications; of these, six won awards and one paper received honorable mention.

The R. W. Hart Prizes for Excellence in IR&D were established in 1989 to recognize significant contributions to the advancement of general science and technology. Named for Robert W. Hart, who led the Laboratory's IR&D activities for many years until his retirement in 1989, the Hart Prizes signify the importance of the IR&D program to the long-term future of APL. Similar to the process for the writing awards, the IR&D Advisory Council solicits from each department nominations of science and engineering projects considered to be outstanding during the previous year and evaluates them on the quality and importance of the work to the Laboratory. Prizes are awarded in two categories: best research project and best development project. Three departments nominated seven projects—three for research and four for development. Of these, one research and one development project won prizes for 2003.

The Invention of the Year Awards program was established in 2000 to encourage new technology and innovation at the Laboratory and to identify the top technology from the

preceding year. For 2003, APL researchers disclosed 139 inventions. The disclosures were divided into three categories—Life Science, Information Science, and Physical Science—and judged by a panel of technical and business consultants, technology transfer professionals, and intellectual property attorneys. Judges based their selection of the winning invention in each category on creativity, novelty, improvement over existing technology, and potential benefit to society. One invention in each category won honors for 2003.

The Lifetime Achievement Award is APL's most prestigious publishing honor. It is presented only when someone has produced an unusual assemblage of distinguished publications in science and engineering during a long, productive professional career at APL. Since the award's inception in 1986, only 12 have been conferred, the last being given in 1996. In 2004, the Lifetime Achievement Award was presented to Stamatios S. Krimigis. Dr. Krimigis's accomplishments are many and varied, spanning 37 years of exceptional achievement at APL. He served as Head of the Space Department for 13 years and Chief Scientist for 10 years, published 370 scientific articles, participated in more than 1000 scientific presentations, and led large scientific teams as Principal Investigator. His leadership,

scientific accomplishments, and prolific publications have contributed significantly to our understanding of particle dynamics in interplanetary space and have helped shape the field of space physics. Dr. Krimigis has received numerous awards, including the NASA Medal for Exceptional Scientific Achievement, conferred in both 1980 and 1986.

The top three inventions were formally announced at the fifth annual Invention of the Year ceremony on 20 April 2004. The Lifetime Achievement Award, awards for meritorious writing, and prizes for outstanding IR&D projects were announced at the Principal Professional Staff reception on 16 November 2004.

The recipients of these honors each conducted their work with the patient effort and dedication that led to achievement. Each met the exacting standards of a highly intensive adjudication process. And all represent the finest qualities of their professions and the Laboratory. We honor these exceptional scientists and engineers for the accomplishments, contributions, and innovations that sustain APL's leadership in scientific and technological knowledge. Their names and photographs are displayed on the following pages, along with the titles of their publications, projects, and inventions.

Linda L. Maier-Tyler



LIFETIME ACHIEVEMENT AWARD

Stamatios M. Krimigis

In recognition of his outstanding scientific and programmatic leadership, and his seminal contributions to our understanding of the energetic particle environment in interplanetary space, from the Sun to the edge of the heliosphere, and in the magnetospheres of every major planet.



Stamatios M. Krimigis
Principal Professional Staff
Ph.D., Univ. of Iowa, 1965
Space Plasma Physics

PUBLICATION AWARDS FOR 2003

Author's First Paper in a Peer-Reviewed Journal



Marc A. Camacho
Senior Professional Staff
M.S., JHU, 1998
Signal Processing and Software Development

For "SATRACK Tests Missile Accuracy," *IEEE Instrumentation & Measurement Magazine* 6(2), 37-45 (2003).

Outstanding Paper in the Johns Hopkins APL Technical Digest

Walter G. Berl Award



Isaac N. Bankman
Principal Professional Staff
Ph.D., Technion Univ., Israel, 1985
Electro-optical Systems, Modeling,
and Algorithms

For "Living with Sensors at APL," *Johns Hopkins APL Technical Digest* 24(1), 87-101 (2003).



Joseph J. Suter
Principal Professional Staff
Ph.D., JHU, 1988
Sensor and Communication Systems

Honorable Mention



Harvey W. Ko
Principal Professional Staff
Ph.D., Drexel Univ., 1967
Electromagnetics, Biomedical Engineering

For "Countermeasures Against Chemical/
Biological Attacks in the Built Environment,"
Johns Hopkins APL Technical Digest 24(4),
360-367 (2003).

Outstanding Research Paper in an Externally Refereed Publication



Stamatios M. Krimigis
Principal Professional Staff
Ph.D., Univ. of Iowa, 1965
Space Plasma Physics



Robert B. Becker
Principal Professional Staff
Ph.D., Univ. of Kansas, 1979
Heliospheric Physics

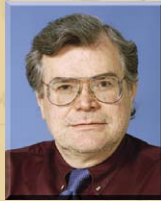


Edmond C. Roelof
Principal Professional Staff
Ph.D., Univ. of California, Berkeley, 1966
Space Plasma Physics

M. E. Hill, T. P. Armstrong, G. Gloeckler, D. C. Hamilton, L. J. Lanzerotti (non-APL staff)

For "Voyager 1 Exited the Solar Wind at a Distance of ~85 AU from the Sun," *Nature* 426, 45–48 (2003).

Outstanding Development Paper in an Externally Refereed Publication



Donald E. Maurer
Principal Professional Staff
Ph.D., California Inst. of Technology, 1969
Algorithm Development and Testing

For "Information Handover for Track-to-Track Correlation," *International Journal of Information Fusion* 4, 281–295 (2003).

Outstanding Professional Book



James C. Spall
Principal Professional Staff
Ph.D., Univ. of Virginia, 1983
Estimation, Simulation, and Optimization

For *Introduction to Stochastic Search and Optimization: Estimation, Simulation, and Control*, Wiley, Hoboken, NJ (2003).

Outstanding Special Publication



William J. Blackert
Senior Professional Staff
M.S., Univ. of Virginia, 1996
Information Operations Analysis



Donna M. Gregg
Principal Professional Staff
M.S., JHU, 1989
Information Assurance



Amy K. Castner
Associate Professional Staff
B.S., Univ. of Maryland, 2002
Information Operations Analysis
and Development



Elizabeth M. Kyle-Bowlsbey
Associate Professional Staff
M.S., Lehigh Univ., 2000
Information Operations Analysis



Rosalind L. Hom
Senior Professional Staff
M.S., JHU, 1986
Information Operations Modeling
and Analysis



Rodney M. Jokerst
Associate Professional Staff
M.S., JHU, 2004
Information Operations Analysis

For "Analyzing Interactions Between Distributed Denial of Service Attacks and Mitigation Technologies," in *Proceedings: DARPA Information Survivability Conference and Exposition* (2003).

R. W. HART PRIZE FOR 2003

Excellence in Research



John R. Gersh
Principal Professional Staff
E.E., MIT, 1979
Cognitive Engineering Research



Amy K. Karlson
Associate Professional Staff
M.S., JHU, 2000
Software Design and Development



Bessie Y. Lewis
Associate Professional Staff
M.S., Georgia Inst. of Technology, 2003
Information Security Engineering



Jaime Montemayor
Senior Professional Staff
Ph.D., Univ. of Maryland, 2003
Cognitive Engineering and Design Methodologies
For "Visualization of Complex Conceptual Structures"



Christine D. Piatko
Senior Professional Staff
Ph.D., Cornell Univ., 1993
Algorithms, Visualization, and Information Extraction

Excellence in Development



Bradley G. Boone
Principal Professional Staff
Ph.D., Univ. of Virginia, 1977
Optical Communications and Imaging



Bernard E. Kluga
Technical Support Staff
Optics and RF Systems



Jonathan R. Bruzzi
Associate Professional Staff
M.S.E., Univ. of Pennsylvania, 2000
RF and Optical Spacecraft Communications



Daniel V. Hahn
Associate Professional Staff
M.S., Cornell Univ., 2001
Optical Engineering
For "New Optical Sensor/Weapon Network"



Karl B. Fielhauer
Senior Professional Staff
M.S.E.E., JHU, 2002
Spacecraft Communications Engineering



Donald D. Duncan
Principal Professional Staff
Ph.D., The Ohio State Univ., 1977
Physical Optics

INVENTION OF THE YEAR AWARDS FOR 2003

Life Science



Richard S. Potember
Principal Professional Staff
Ph.D., JHU, 1979
Biotechnology Research



Wayne A. Bryden
Principal Professional Staff
Ph.D., JHU, 1983

Mass Spectrometers, Chemical and Biological Detection

For "Hydroxyl Free Radical Induced Decontamination of Spores, Viruses and Bacteria in a Dynamic System"

Information Science



James D. Franson
Principal Professional Staff
Ph.D., California Inst. of Technology, 1977
Quantum Optics, Information
Processing



Brian C. Jacobs
Senior Professional Staff
Ph.D., UMBC, 2003
Quantum Cryptography, Digital
Signal Processing



Todd B. Pittman
Senior Professional Staff
Ph.D., UMBC, 1996
Quantum Optics, Quantum
Computing

For "Method for Quantum Information Processing Using Single Photons and the Zeno Effect"

Physical Science



Jack C. Roberts
Principal Professional Staff
Ph.D., Rensselaer Polytechnic Inst., 1980
Structures, Composites, Biomechanics and Impact



Paul J. Biermann
Senior Professional Staff
B.S., Rensselaer Polytechnic Inst., 1980
Materials and Process Engineering

Richard Reidy (non-APL staff)

For "Strain-Rate Sensitive Flexible Armor with Laminated Composite Elements"