

## Writing and Research and Development Awards

The Applied Physics Laboratory annually honors members of its professional staff who have contributed to science, technology, and education through excellence in publication as well as independent research and development (IR&D). Through a selection of outstanding publications and projects from the preceding year, the Awards Recognizing Publications by APL Staff and The R. W. Hart Prizes Honoring Excellence in Independent Research and Development represent the Laboratory's best in writing and in advanced research and engineering.

The Editorial Board of the *Johns Hopkins APL Technical Digest* sponsors the writing awards competition and solicits nominations from each department in six categories of publication. Judges base their selections on significance and clarity, with considerably greater weight given to the former. Seven technical departments submitted 31 publications in this year's writing awards program. Thirteen publications won honors; of these, six papers and two books received awards and five papers received honorable mention.

The R. W. Hart Prize was established in 1989 both to signify the importance of the IR&D program to the long-term future of the Laboratory and to reward achievements in high-quality innovative projects. The prize was named for Robert W. Hart, former Assistant Director for Research and Exploratory Development, to recognize his many contributions to these activities. Two prizes are given, one for research and the other for development. Department Heads recommend candidates, and the IR&D Advisory Council judges the nominations on the quality and importance of the work to the Laboratory. Seven nominations were received, six for research and one for development. Three projects won honors in the 1998 program. Of these, two received prizes and one received honorable mention. The R. W. Hart Prize for Research was awarded to James C. Mayfield, Paul McNamee, and Christine D. Piatko for their work in creating new approaches to information retrieval. Honorable Mention was given to John R. Benedict, Jr., Joseph Gezelter, Fernando J. Pineda, and Christine D. Piatko for their contributions to advanced mine countermeasures in the development of a prototype pattern-recognition system for use in mine detection. The R. W. Hart Prize for Development was given to Martin E. Fraeman, Principal Investigator, and team members Robert E. Jenkins, Kim Strohhahn, Douglas S. Mehoke, Paul D. Wienhold, Deanna K. Temkin, Robert S. Bokulic, and George R. Seylar for their radical design of an integrated, modular approach to an advanced electronic architecture for spacecraft.

The recipients of the 1998 writing awards and Hart prizes are displayed on the following pages.

*Linda L. Maier-Tyler*

AWARDS RECOGNIZING PUBLICATIONS  
BY APL STAFF (1998)

**Outstanding Research Paper in the  
*Johns Hopkins APL Technical Digest***

**Walter G. Berl Award**



Carl O. Bostrom  
Principal Professional Staff (Ret.)  
Ph.D., Yale Univ., 1962  
Space systems



Donald J. Williams  
Principal Professional Staff (Ret.)  
Ph.D., Yale Univ., 1962  
Space plasma physics

for "The Space Environment," 19(1), 43-52 (1998)

**Outstanding Development Paper in the  
*Johns Hopkins APL Technical Digest***

**Walter G. Berl Award**



Thomas Thompson  
Principal Professional Staff  
M.S.E.E., JHU, 1968  
Systems engineering



Larry J. Levy  
Principal Professional Staff  
Ph.D., Iowa State Univ., 1971  
Kalman filtering/GPS navigation



Edwin E. Westerfield  
Principal Professional Staff  
M.S., Univ. of Maryland, 1963  
Satellite navigation

for "The SATRACK System: Development and Applications," 19(4), 436-447 (1998)

**Honorable Mention**



John O. Goldsten  
Principal Professional Staff  
M.S.E.E., JHU, 1986  
Space science instrumentation

for "The NEAR X-Ray/Gamma-Ray Spectrometer," 19(2), 126-135 (1998)

## Outstanding Research Paper in an Externally Refereed Publication

### Awards



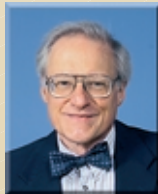
Barry H. Mauk  
Principal Professional Staff  
Ph.D., UC San Diego, 1978  
Space plasma physics



Stamatios M. Krimigis  
Principal Professional Staff  
Ph.D., Univ. of Iowa, 1965  
Solar/interplanetary/magnetospheric physics



Donald G. Mitchell  
Principal Professional Staff  
Ph.D., Univ. of New Hampshire, 1975  
Magnetospheric physics



Edmond C. Roelof  
Principal Professional Staff  
Ph.D., UC Berkeley, 1966  
Magnetospheric and heliospheric physics



Edwin P. Keath  
Principal Professional Staff  
Ph.D., North Texas State Univ., 1972  
Space science and instrumentation

J. Dandouras (non-APL staff)

for "Imaging Saturn's Dust Rings Using Energetic Neutral Atoms,"  
*Planetary and Space Science* 46(9/10), 1349–1362, (1998)



Alan Brandt  
Principal Professional Staff  
Ph.D., Carnegie Mellon Univ., 1965  
Ocean physics and hydrodynamics



Jack Calman  
Principal Professional Staff  
Ph.D., Harvard Univ., 1975  
Applied math and physics



J. Ross Rottier  
Senior Professional Staff  
M.S., JHU, 1988  
Ocean-atmospheric science

for "A Quantitative Littoral Classification System," *Oceanography* 11(1), 51–57 (1998)

## Honorable Mention



James C. Spall  
Principal Professional Staff  
Ph.D., Univ. of Virginia, 1983  
Mathematical and statistical methods



John A. Cristion  
Senior Professional Staff  
M.S.E.E., JHU, 1991  
Signal processing engineering

for "Model-Free Control of Nonlinear Stochastic Systems with Discrete-Time Measurements,"  
*IEEE Transactions on Automatic Control* 43(9), 1198–1210 (Sep 1998)

## Outstanding Development Paper in an Externally Refereed Publication

### Award



J. Michael Ruohoniemi  
Senior Professional Staff  
Ph.D., Univ. of Western Ontario, 1986  
Space physics



Kile B. Baker  
Principal Professional Staff  
Ph.D., Stanford Univ., 1979  
Space physics and aeronomy

for "Large-Scale Imaging of High-Latitude Convection with Super Dual Auroral Radar Network HF Radar  
Observations," *Journal of Geophysical Research* 103(A9), 20,797–20,811 (1998)

## Honorable Mention



William A. Christens-Barry  
Senior Professional Staff  
Ph.D., Univ. of Alabama, Birmingham, 1987  
Optical physics

Inpakala Simon, Charles R. Pound, Alan W. Partin, James Q. Clemens  
(non-APL staff)

for "Automated Image Analysis System for Detecting Boundaries of Live Prostate Cancer Cells,"  
*Cytometry* 31, 287–294 (1998)

## Outstanding Professional Books

### Awards



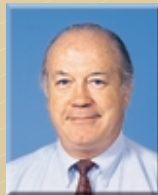
Bradley G. Boone  
Principal Professional Staff  
Ph.D., Univ. of Virginia, 1977  
Electro-optics, signal processing, and applied superconductivity  
for *Signal Processing Using Optics*, Oxford University Press, New York (1998)



Marty Hall  
Senior Professional Staff  
M.S., JHU, 1986  
Java and distributed computing  
for *CORE Web Programming*, Prentice-Hall, Inc., Upper Saddle River, New Jersey (1998).

## Special Publications Award

### Award



R. Keith Raney  
Principal Professional Staff  
Ph.D., Univ. of Michigan, 1968  
Radar remote sensing  
for "Radar Fundamentals: Technical Perspective," Chapter 2 in *Principles and Applications of Imaging Radar, Manual of Remote Sensing 2*, 3rd Ed., John Wiley & Sons, Toronto (1998)

## Honorable Mention



Robert Osiander  
Senior Professional Staff  
Ph.D., Technical Univ. Munich, 1991  
MEMS, sensors, nondestructive  
evaluation



Jane W. M. Spicer  
Principal Professional Staff  
Ph.D., JHU, 1987  
Sensors and materials science

for "Time-Resolved Infrared Radiometry with Step Heating: A Review," *Revue Générale de Thermique* 37, 680–692 (1998)



Robert L. Fry  
Principal Professional Staff  
M.S., JHU, 1982  
Information synthesis and fusion



Raymond M. Sova  
Senior Professional Staff  
M.S., JHU, 1990  
Electro-optics and photonics

for "A Logical Basis for Neural Network Design," Chapter in *Implementation Techniques: Neural Network System Techniques and Applications*, Vol. 3, Academic Press, San Diego, CA (1998)

R. W. HART PRIZE HONORING EXCELLENCE IN INDEPENDENT  
RESEARCH AND DEVELOPMENT (1998)

**Research**

**Prize Winners**



James C. Mayfield  
Senior Professional Staff  
Ph.D., UC Berkeley, 1989  
Information retrieval



Paul McNamee  
Associate Professional Staff  
M.S., JHU, 1996  
Informational retrieval



Christine D. Piatko  
Senior Professional Staff  
Ph.D., Cornell Univ., 1993  
Computational geometry and  
information retrieval

*for New Approaches to Information Retrieval*

**Honorable Mention**



John R. Benedict, Jr.  
Principal Professional Staff  
M.S., JHU, 1974  
Undersea warfare operations analysis



Joseph Gezelter  
Senior Professional Staff  
Ph.D., Princeton Univ., 1967  
Undersea warfare analysis



Fernando J. Pineda  
Principal Professional Staff  
Ph.D., Univ. of Maryland, 1986  
Physics, artificial intelligence, VLSI



Christine D. Piatko  
Senior Professional Staff  
Ph.D., Cornell Univ., 1993  
Computational geometry and information retrieval

*for Advanced Mine Countermeasures*

## Development

### Prize Winners



Martin E. Fraeman  
Principal Professional Staff  
S.M., MIT, 1981  
VLSI design for space applications



Robert E. Jenkins  
Principal Professional Staff (Ret.)  
M.S., Univ. of Maryland, 1965  
Advanced technology develop-  
ment for space systems



Kim Strohbahn  
Principal Professional Staff  
Ph.D., Iowa State Univ., 1979  
Mixed signal design  
of VLSI circuits



Douglas S. Mehoke  
Senior Professional Staff  
M.S., Stanford Univ., 1982  
Heat transfer



Paul D. Wienhold  
Senior Professional Staff  
M.S., JHU, 1990  
Design and fabrication of composite structures



Deanna K. Temkin  
Senior Professional Staff  
M.S., Univ. of Maryland, 1987  
Design of power electronics



Robert S. Bokulic  
Principal Professional Staff  
M.S.E.E., JHU, 1985  
Spacecraft RF communication  
systems



George R. Seylar  
Senior Professional Staff  
B.S.E.E., Drexel Inst. of Technol., 1963  
EMC engineering and RF design

*for Advanced Electronic Architecture for Spacecraft*