

WRITING AND RESEARCH AND DEVELOPMENT AWARDS

The Applied Physics Laboratory conducts awards programs to honor those who have contributed to science, technology, and education through excellence in publication and in independent research and development (IR&D). Through an annual selection of outstanding publications and projects from the preceding year, the Awards Recognizing Publications by APL Staff Members 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. Unlike the annual awards, the prestigious Lifetime Achievement Award is conferred only occasionally, when an individual's accomplishments in publication and achievement span a productive and distinguished career at APL.

The Awards Recognizing Publications by APL Staff Members are sponsored by the Editorial Board of the *Johns Hopkins APL Technical Digest*. Publications are solicited from each department and evaluated according to review criteria developed by the Editorial Board. Outstanding publications are recommended for either award or honorable mention. Judges base their selections on significance, professional content, and literary and visual quality. Publications are normally judged in six categories, including a separate category for professional books; however, because no books were nominated this year, the 1993 program consisted of only five categories.

Fifty publications covering diverse research and development topics were nominated for award by eight technical departments. Of those publications, six won awards and three were given honorable mention. Four of the six awards went to staff members in the Fleet Systems Department; the Submarine Technology Department won an honorable mention; and the Research Center and the Space Department each received one award and one honorable mention.

Since its establishment in 1989, The R. W. Hart Prizes for Excellence in Independent Research and Development have honored those who make signal contributions to science and technology through projects in basic and applied research and exploratory and advanced engineering. The competition was named for Robert W. Hart, former Assistant Director for Research and Exploratory Development, to recognize his many contributions in these areas. Nominations of projects are solicited from each APL Department and evaluated by the IR&D Advisory Council. Judges select winning projects on the basis of the work's quality and its importance to the Laboratory. Prizes are awarded in two categories—best research project and best development project.

Three projects won honors in the 1993 program: two received prizes and one, honorable mention. The R. W. Hart Prize for research was awarded to Richard A. Meyer for his work in determining nerve fiber sensitivity to norepinephrine after nerve injury. The prize for development was awarded to Robert C. Beal and Stephen F. Oden for their concept and development of the first real-time synthetic aperture radar (SAR) processor for ocean wave spectra. James D. Franson and Bryan C. Jacobs won honorable mention for the development of prototype systems for quantum cryptography, which involved scientific discoveries in two-photon interferometry, nonlocal cancellation of dispersion, and quantum-mechanical effects in high-intensity fields.

The recipients of the 1993 awards were recognized at the fall Principal Professional Staff dinner held on 2 November 1994. Their names are listed on the following pages, along with the titles of their publications and projects.

Linda L. Maier-Tyler

AWARDS RECOGNIZING PUBLICATIONS
BY APL STAFF MEMBERS (1993)

OUTSTANDING FIRST PAPER IN AN UNCLASSIFIED OR CLASSIFIED
PUBLICATION

Award

Samuel J. MacMullan, "At-Sea Measurements of EHF Background Noise to Characterize the Signal Detection Performance of an Airborne Radiometer (U)," *Classified Conference Record, IEEE Military Communications Conference* (1993).

Honorable Mention

David J. Scheerer, "Reasoning under Uncertainty for a Coastal Ocean Expert System," *Johns Hopkins APL Technical Digest* **14**(3), 267–280 (1993).

OUTSTANDING PAPER IN THE *JOHNS HOPKINS
APL TECHNICAL DIGEST* OR THE *APL TECHNICAL REVIEW*

Walter G. Berl Award

Gary P. Gafke, Sze-Ping Kuo, Philip H. Temkin, and Paul R. Bade, "Architecture of the Cooperative Engagement Processor," *APL Technical Review* **4**(1), 75–89 (1993).

OUTSTANDING RESEARCH PAPER IN A REFEREED PUBLICATION

Awards

John C. Sommerer (APL) and Edward Ott (The University of Maryland), "A Physical System with Qualitatively Uncertain Dynamics," *Nature* **365**, 138–140 (1993).

Donald R. Thompson and J. Robert Jensen, "Synthetic Aperture Radar Interferometry Applied to Ship-Generated Internal Waves in the 1989 Loch Linnhe Experiment," *Journal of Geophysical Research* **98**(C6), 10,259–10,269 (1993).

OUTSTANDING DEVELOPMENT PAPER IN A REFEREED PUBLICATION

Award

William A. Huting, Jeffery W. Warren, Paul N. Garner, Jr., and Jerry A. Krill, "Circular Overmoded Waveguide for Shipboard Use," *Naval Engineers Journal* **105**(2), 39–52 (1993).

SPECIAL PUBLICATIONS

Award

Michael E. Thomas and Donald D. Duncan, "Atmospheric Transmission," Chapter 1 in *The Infrared & Electro-Optical Systems Handbook, Vol. 2, Atmospheric Propagation of Radiation*, F. G. Smith (ed.), SPIE Optical Engineering Press, Bellingham, WA, pp. 1–156 (1993).

Honorable Mention

Fernando J. Pineda and John C. Sommerer, "A Fast Algorithm for Estimating Generalized Dimensions and Choosing Time Delays," in *Predicting the Future and Understanding the Past: A Comparison of Approaches*, A. Weigend and N. Gershenfeld (eds.), Santa Fe Institute Studies in the Sciences of Complexity, Addison-Wesley, Reading, MA, pp. 367–385 (1993).

Andrew F. Cheng, Edwin P. Keath, Stamatios M. Krimigis, Barry H. Mauk, Richard W. McEntire, Donald G. Mitchell, Edmond C. Roelof, and Donald J. Williams, "Imaging Neutral Particle Detector," *Remote Sensing Reviews* **8**, 101–145 (1993).

R. W. HART PRIZES HONORING EXCELLENCE IN INDEPENDENT RESEARCH AND DEVELOPMENT (1993)

RESEARCH

Prize Winner

Neurophysiology of Nerve Injury Pain
Richard A. Meyer

DEVELOPMENT

Prize Winner

Real-Time SAR Processor for Ocean Wave Spectra
Robert C. Beal
Stephen F. Oden

Honorable Mention

Atomic Interferometer Inertial Sensors
James D. Franson
Bryan C. Jacobs