

WRITING AND RESEARCH AND DEVELOPMENT AWARDS

The Laboratory presents annual awards for publications and Independent Research and Development (IR&D) projects to recognize outstanding performance by the APL professional staff. The Editorial Board of the *Johns Hopkins APL Technical Digest* is responsible for selecting publications for awards and honorable mention on the basis of technical content, significance of scientific and engineering contributions, and literary style. Established in 1985 to encourage professional publication, this competition is open to all technical staff. Departments may submit up to two nominations in each of eight categories. Fifty-nine publications were submitted by eight departments for the 1990 competition. Publications from six departments were selected for honors; eight papers and four books won awards, and six papers received honorable mention.

In addition to selecting winning publications, the Editorial Board can nominate candidates for the prestigious Lifetime Achievement Award. This award is presented only when an individual's publication record reflects a career-long demonstration of sustained and meritorious achievement in science and engineering. Frederick S. Billig was so recognized at the Fall Principal Professional Staff dinner held on 18 November 1991. Dr. Billig's contributions to aeronautical engineering span a long and productive career and include more than 120 publications on ramjet propulsion, external burning, and supersonic

combustion. Dr. Billig is also the 1991 recipient of the AIAA Dryden Lectureship in Research Medal and was awarded a Stuart S. Janney Fellowship to author the book *Propulsion for High-Speed Vehicles* to be published in late 1992.

The R. W. Hart Prizes for Excellence in Independent Research and Development were established in 1989 to recognize high-quality, innovative work at APL. Recommendations for prizes and honorable mention are made by the IR&D Committee on the basis of the quality and importance of the work to the Laboratory. Four projects were recognized in the 1990 program: two received prizes and two honorable mention. The R. W. Hart Prize for research was awarded to Principal Investigator James C. Spall and his associates for their work in statistical estimation. Honorable Mention was given to David E. Freund for contributions in the area of wave propagation and scattering. In the development category, Henry A. Kues received the prize for his work in biomedical effects of microwave radiation. Jay R. Dettmer and his team were awarded honorable mention for their development of the Adaptive Optics Processor.

The recipients of the 1990 awards are listed below together with the titles of their publications and projects.

Linda L. Maier

AWARDS RECOGNIZING PUBLICATIONS BY APL STAFF MEMBERS (1990)

LIFETIME ACHIEVEMENT AWARD

Frederick S. Billig, *"in recognition of his pioneering analytical and experimental contributions to the understanding and development of supersonic combustion ramjet engines, his leadership on behalf of national and international professional societies, and his decades of dedication to the education and mentoring of current and future aerospace engineers."*

**OUTSTANDING FIRST PAPER IN AN UNCLASSIFIED OR CLASSIFIED
PUBLICATION**

Award

Kim T. Constantikes and Gary D. Shiflett, "Increasing Correlation
Matcher Space-Bandwidth Product via a Mosaic Field-of-View,"
in *Proc. SPIE* **1349**, 526–536 (1990).

Honorable Mention

David A. Bement, J. Ronald Stevens, and Michael W. Thompson,
"Measured Operating Characteristics of a Rectangular Combustor/
Inlet Isolator," in *AIAA-90-2221, 26th Joint Propulsion Conference*,
Orlando, Fla., pp. 1–8 (1990).

OUTSTANDING PAPER IN THE *JOHNS HOPKINS APL TECHNICAL DIGEST*

Award

Kile B. Baker, "Space Physics in Antarctica: An Adventure on the Ice,"
Johns Hopkins APL Technical Digest **11**(3&4), 228–238 (1990).

Honorable Mention

James D. Kinnison and Richard H. Maurer (APL), and Thomas M.
Jordan (Experimental and Mechanical Physics Consultants), "Esti-
mation of the Charged Particle Environment for Earth Orbits,"
Johns Hopkins APL Technical Digest **11**(3&4), 300–310 (1990).

Charles C. Sarabun and Daniel C. Dubbel, "High-Resolution Ther-
mistor Chain Observations in the Upper Chesapeake Bay," *Johns
Hopkins APL Technical Digest* **11**(1&2), 48–53 (1990).

OUTSTANDING PAPER IN THE *APL TECHNICAL REVIEW*

Award

Gary A. Sullins and Peter P. Pandolfini, "Connected-Pipe Tests of a
Scramjet Combustor," *APL Technical Review* **2**(1), 150–160
(1990).

Honorable Mention

Kim T. Constantikes, "Multidimensional Matched Filtering with
Embedded Velocity Knowledge (U)," *APL Technical Review* **2**(2),
250–253 (1990).

OUTSTANDING RESEARCH PAPER IN AN UNCLASSIFIED REFEREED PUBLICATION

Award

Donald D. Duncan, C. Brent Bargeron, Sue E. Borchardt, Owen J. Deters, Scott A. Gearhart, and Frank F. Mark (APL), and Morton H. Friedman (Ohio State University), "The Effect of Compliance on Wall Shear in Casts of a Human Aortic Bifurcation," *ASME J. Biomech. Eng.* **112**, 183–188 (1990).

Honorable Mention

David E. Freund and Richard A. Farrell, "A Variational Principle for the Scattered Wave," *J. Acoust. Soc. Am.* **87**(5), 1847–1860 (1990).

OUTSTANDING DEVELOPMENT PAPER IN AN UNCLASSIFIED REFEREED PUBLICATION

Award

Daniel M. Sunday, "A Very Fast Substring Search Algorithm," *Communications of the ACM* **33**(8), 132–142 (1990).

Honorable Mention

Boris F. Kim, Joseph Bohandy, Frank J. Adrian, and Kishin Moorjani, "Superconducting Magnetometer," *Appl. Phys. Lett.* **56**(20), 2037–2038 (1990).

OUTSTANDING PAPER IN A CLASSIFIED REFEREED PUBLICATION

Award

Richard J. Prengaman, Jeffrey W. Thomas, David L. Marable, and Rick R. York, "Design of a Wideband Solid State Multi-function Radar Integrated with Passive Sensors for Short Range AAW Applications (U)," in *Record of 36th Annual Tri-Service Radar Symposium*, Monterey, Calif., pp. 26–28 (1990).

TECHNICAL BOOK AWARD

Awards

Russell C. Eberhart and Roy W. Dobbins (eds.), *Neural Network PC Tools, A Practical Guide*, Academic Press, Inc., Harcourt Brace Jovanovich, San Diego (1990).

Bruce I. Blum (APL) and Karen Duncan (Health Information Systems) (eds.), *A History of Medical Informatics*, Addison-Wesley Publishing Company, ACM Press, New York (1990).

Bruce I. Blum, *TEDIUM and the Software Process*, The MIT Press, Cambridge, Mass. (1990).

John C. Murphy, Jane W. Maclachlan Spicer, and Leonard C. Aamodt (APL), and Barrie S. H. Royce (Princeton University) (eds.), *Proc. 6th International Conference on Photoacoustics & Photothermal Phenomena II*, Springer-Verlag, Berlin and Heidelberg (1990).

SPECIAL PUBLICATIONS—RESEARCH

Award

Russell L. McCally and Richard A. Farrell, "Light Scattering from Cornea and Corneal Transparency," Chapter 12 in *Noninvasive Diagnostic Techniques in Ophthalmology*, Springer-Verlag, New York, pp. 189–210 (1990).

SPECIAL PUBLICATIONS—DEVELOPMENT

Award

Harry K. Charles, Jr., "Electronic Packaging Applications for Adhesives and Sealants," in *ASM Engineered Materials Handbook Volume 3: Adhesives and Sealants*, ASM International, Materials Park, Ohio, pp. 579–603 (1990).

R. W. HART PRIZES HONORING EXCELLENCE IN
INDEPENDENT RESEARCH AND DEVELOPMENT (1990)

RESEARCH

Prize Winner

Statistical Estimation

James C. Spall, *Principal Investigator*

Stacy D. Hill

John L. Maryak

Daniel C. Chin

Xueshan Yang

Honorable Mention

Wave Propagation and Scattering

David E. Freund

DEVELOPMENT

Prize Winner

Biomedical Research—Microwave Radiation

Henry A. Kues

Honorable Mention

Adaptive Optics Processor

Jay R. Dettmer, *Principal Investigator*

Wolfger Schneider

William A. Becraft

E. Brian Alvarez