

APL Achievement Awards and Prizes: Complete History of Winners Through 2017



PUBLICATION AWARD WINNERS

1986 (for work published in 1985)

Outstanding First Published Paper

David W. Jourdan, "Doppler Sonar Navigation Error Propagation and Correction," *Navigation* 32, 29–56 (1985).

Outstanding Paper in the *Johns Hopkins APL Technical Digest*

Robert N. McDonough, Barry E. Raff, and Joyce L. Kerr, "Image Formation from Spaceborne Synthetic Aperture Radar Signals," *Johns Hopkins APL Tech. Dig.* 6, 300–312 (1985). **John R. Apel, Donald R. Thompson, David G. Tilley, and Peter Van Dyke**, "Hydrodynamics and Radar Signatures of Internal Solitons in the Andaman Sea," *Johns Hopkins APL Tech. Dig.* 6, 330–337 (1985).

Honorable Mention: **Harold E. Gilreath**, "APL's Independent Research and Development Thrust in Oceanography," *Johns Hopkins APL Tech. Dig.* 6, 276–283 (1985). **William McCloskey**, "Chesapeake Bay Research Institutions: A Bay-Wide Presence," *Johns Hopkins APL Tech. Dig.* 6, 369–384 (1985).

Outstanding Paper in an Unclassified Refereed Journal or Proceedings

David P. Vasholz and Larry J. Crawford, "Dye Dispersion in the Seasonal Thermocline," *J. Phys. Oceanogr.* 15, 694–712 (1985). **John R. Apel, James R. Holbrook, Anthony K. Liu, and John J. Tsai**, "The Sulu Sea Internal Wave Experiment," *J. Phys. Oceanogr.* 15, 1625–1651 (1985).

Honorable Mention: **Edmond C. Roelof, Donald G. Mitchell, and Donald J. Williams**, "Energetic Neutral Atoms ($E \sim 50$ keV) from the Ring Current: IMP 7/8 and ISEE 1," *J. Geophys. Res.* 90, 10991–11008 (1985). **Richard A. Meyer, Srinivasa N. Raja, and James N. Campbell**, "Coupling of Action Potential Activity Between Unmyelinated Fibers in the Peripheral Nerve of Monkey," *Science* 227, 184–187 (1985). **Henry A. Kues, Lawrence W. Hirst, Gerard A. Luty, Salvatore A. D'Anna, and Gregory R. Dunkelberger**, "Effects of 2.45 GHz Microwaves on Primate Corneal Endothelium," *Bioelectromagnetics* 6, 177–188 (1985).

Outstanding Paper in a Classified Refereed Journal or Proceedings

Mark J. Mayr, Scott A. Gearhart, and Linda M. Howser, "Characterizing the Noise-Limited Operation of a Visible Scene-Matching Correlator," in *Proc. IRIS Imaging Conf.*, pp. 81–106 (1985).

Special Publications Award

James R. Kuttler and Vincent G. Sigillito, "Estimating Eigenvalues with a priori/a posteriori Inequalities," in *Research Notes in Mathematics, Pitman Advanced Publishing Program* (1985).

Honorable Mention: **Louis J. Lanzerotti and Stamatios M. Krimigis**, "Comparative Magnetospheres," *Physics Today*, 2–11 (Nov1985).

Award for Distinguished Scientific Publications

Robert R. Newton

1987 (for work published in 1986)

First Published Paper

Thomas W. Gerling, "Structure of the Surface Wind Field from the Seasat SAR," *J. Geophys. Res.* 91, 2308–2320 (1986).

Honorable Mention: **Allan G. Prosser and William G. Bath**, "Macroscopic Spatial-Temporal Correlation Properties of Radar Clutter," in *IEEE 1986 National Radar Conf. Proc.*, pp. 89–94 (1986). **Martin E. Fraeman, John R. Hayes, Robert L. Williams, and Thomas Zarembo**, "A 32 Bit Forth Microprocessor," in *Proc. Eighth Annual Forth Modification Laboratory (FORML) Conf.* (1986).

Papers in the *Johns Hopkins APL Technical Digest* (Walter G. Berl Award)

Russell L. McCally, Richard A. Farrell, C. Brent Bergeron, Henry A. Kues, and Bernard F. Hochheimer, "Nonionizing Radiation Damage in the Eye," *Johns Hopkins APL Tech. Dig.* 7, 73–91 (1986). **Andrew F. Cheng**, "Magnetospheres of the Outer Planets," *Johns Hopkins APL Tech. Dig.* 7, 348–355 (1986).

Honorable Mention: **David M. Rust, Ryszard L. Kanski, and Ralph F. Cohn**, "Development of Ultrastable Filters and Lasers for Solar Seismology," *Johns Hopkins APL Tech. Dig.* 7, 209–216 (1986). **Lawrence W. Hunter**, "High-Temperature Chemistry of Materials," *Johns Hopkins APL Tech. Dig.* 7, 362–371 (1986).

Papers in Unclassified Refereed Journals

Morton H. Friedman, Owen J. Deters, C. Brent Bergeron, Grover M. Hutchins, and Frank F. Mark, "Shear-Dependent Thickening of the Human Arterial Intima," *Atherosclerosis* 60, 161–171 (1986). **Kile B. Baker, Raymond A. Greenwald, A. D. M. Walker, Peter F. Bythrow, Lawrence J. Zanetti, Thomas A. Potemra, David A. Hardy, Frederick J. Rich, and Charles L. Rino**, "A Case Study of Plasma Processes in the Dayside Cleft," *J. Geophys. Res.* 91, 3130–3144 (1986).

Honorable Mention: **Barry H. Mauk**, "Quantitative Modeling of the 'Convection Surge' Mechanism of Ion Acceleration," *J. Geophys. Res.* 91, 13423–13431 (1986). **Donald R. Thompson and Richard F. Gasparovic**, "Intensity Modulation in SAR Images of Internal Waves," *Nature* 320, 345–348 (1986).

Papers in Classified Refereed Journals

James L. Keirseay, "The Dual-Combustion Ramjet, A New High-Speed Engine for Long-Range Air Defense," *J. Def. Res.* 17, 116–139 (Summer 1985).

Special Awards

Morton H. Friedman, *Principles and Models of Biological Transport*, Springer-Verlag, Berlin, Heidelberg (1986). **Bruce I. Blum**, *Clinical Information Systems*, Springer-Verlag, New York (1986). **Lester L. Cronvich**, "Aerodynamic Considerations for Autopilot Design," Chap. in *Tactical Missile Aerodynamics*, M. J. Hemsch and J. H. Nielsen, eds., American Institute of Aeronautics and Astronautics (1986). **Geoffrey B. Irani**, **Bruce L. Gotwols**, and **Allan W. Bjerkaas**, "The 1978 Ocean Wave Dynamics Experiment," Chap. 10 in *Wave Dynamics and Radio Probing of the Ocean Surface*, Plenum Publishing, pp. 165–179 (1986). **Frederick S. Billig**, **Paul J. Waltrup**, **Harold E. Gilreath**, **Michael E. White**, **David M. Van Wie**, and **Peter P. Pandolfini**, *Proposed Supplement to Propulsion System Management Support Plan* (1986). **Gordon L. Dugger**, Lifetime Accomplishment in Publishing and Editing.

1988 (for work published in 1987)

Lifetime Achievement Award

William H. Avery "in recognition of the extraordinary quantity and quality of his published works on chemistry, energy, and the environment." **James E. Hanson** (presented posthumously) "in recognition of the extraordinary quantity and quality of his written works on missiles and radar technology."

Papers in the *Johns Hopkins APL Technical Digest*

(Walter G. Berl Award)

Charles E. Schemm, **Laurence P. Manzi**, and **Harvey W. Ko**, "A Predictive System for Estimating the Effects of Range- and Time-Dependent Anomalous Refraction on Electromagnetic Wave Propagation," *Johns Hopkins APL Tech. Dig.* 8, 394–403 (1987). **William J. Tropf**, **Michael E. Thomas**, **Terry J. Harris**, and **Steven A. Lutz**, "Performance of Optical Sensors in Hypersonic Flight," *Johns Hopkins APL Tech. Dig.* 8, 370–385 (1987).

Honorable Mention: **Jack Calman**, "Introduction to Sea-Surface Topography from Satellite Altimetry," *Johns Hopkins APL Tech. Dig.* 8, 206–211 (1987). **Frederick W. Schenkel** and **Bernard S. Ogorzalek**, "Auroral Images from Space: Imagery, Spectroscopy, and Photometry," *Johns Hopkins APL Tech. Dig.* 8, 308–317 (1987).

Research Papers in Unclassified Refereed Publications

Barry H. Mauk, **Stamatis M. Krimigis**, **Edwin P. Keath**, **Andrew F. Cheng**, **Thomas P. Armstrong**, **Louis J. Lanzerotti**, **George Gloeckler**, and **Douglas C. Hamilton**, "The Hot Plasma and Radiation Environment of the Uranian Magnetosphere," *J. Geophys. Res.* 92, 15,283–15,308 (1987). **Kishin Moorjani**, **Joseph Bohandy**, **Frank J. Adrian**, **Boris F. Kim**, **Robert D. Shull**, **Chwan-Kang Chiang**, **Lydon J. Swartzendruber**, and **Lawrence H. Bennett**, "Superconductivity in Bulk and Thin Films of $\text{La}_{1.85}\text{Sr}_{0.15}\text{CuO}_{4-\delta}$ and $\text{Ba}_2\text{YCu}_3\text{O}_{7-\delta}$," *Phys. Rev. B* 36, 4036–4038 (1987).

Honorable Mention: **James C. Spall**, "A Stochastic Approximation Technique for Generating Maximum Likelihood Parameter Estimates," in *Proc. 1987 American Control Conf.*, pp. 1161–1167 (1987).

Developmental Papers in Unclassified Refereed Publications

Michael E. White, **John P. Drummond**, and **Ajay Kumar**, "Evolution and Application of CFD Techniques for Scramjet Engine Analysis," *J. Propul. Power* 3, 423–439 (1987).

Honorable Mention: **Frank R. Castella** and **J. Patrick Reilly**, "Radar Detection Statistics for Discrete Scatterer Target Models with Frequency Agile Illumination," in *Proc. IEE International Conf.—Radar 87*, 370–374 (1987). **Ella B. Dobson**, **Frank Monaldo**, **Julius Goldhirsh**, and **John Wilkerson**, "Validation of Geosat Altimeter-Derived Wind Speeds and Significant Wave Heights Using Buoy Data," *J. Geophys. Res.* 92, 10,719–10,731 (1987).

Papers in Classified Refereed Technical Publications

James E. Hanson and **W. Coleman Hyatt**, "Evolution of AAW Missiles ECM/ECCM," *J. Def. Res.* 17, 297–325 (1987).

Honorable Mention: **Russell E. Gingras**, "Concept for Carrier Battle Group Employment of Electronic Warfare Against Low-Flying Cruise Missiles," *J. Def. Res.* 18, 339–359 (1987). **Richard J. Pregarman**, **Jeffrey W. Thomas**, **Richard O. Giorgis**, and **W. Harold Harper**, "Radar Design for Short-Range AAW Improvement," in *Record of the Thirty-Third Annual Tri-Service Radar Symp.* (1987).

First Published Paper

Richard R. Talbott, "Network Survivability Analysis," in *Proc. FOC/LAN 87 Fiber Optics Communications and Local Area Networks Conf.*, pp. 178–188 (1987).

Scientific Books

John R. Apel, *Principles of Ocean Physics*, Academic Press, London (1987). **Anthony T. Y. Lui**, ed., *Magnetotail Physics*, The Johns Hopkins Univ. Press, Baltimore and London (1987).

Special Publications

Milton Gussow, *Basic Electricity*, McGraw-Hill Book Company, New York (1983, 1987). **Paul L. Hazan**, *VHSIC System Designer's Text*, VHSIC Technology and Application Workshops, Applied Physics Laboratory (1987).

Honorable Mention: **Robert C. Beal**, ed., Proceedings of the Symposium, "Measuring Ocean Waves from Space," *Johns Hopkins APL Tech. Dig.* 8, 3–147 (1987). **Charles C. Kilgus**, ed., "The Navy GEOSAT Mission," *Johns Hopkins APL Tech. Dig.* 8, 169–271 (1987). **Ronald J. Klauda** and **Michael E. Bender**, "Contaminant Effects on Chesapeake Bay Finfishes," Chap. 15, in *Contaminant Problems and Management of Living Chesapeake Bay Resources*, S. K. Majumdar, L. W. Hall, and H. M. Austin, eds., The Pennsylvania Academy of Science (1987). **Barry H. Mauk** and **Lawrence J. Zanetti**, "Magnetospheric Electric Fields and Currents," *Rev. Geophys.* 25, 541–554 (1987).

1989 (for work published in 1988)

Lifetime Achievement Award

Robert W. Hart "in recognition of his many outstanding contributions in research, writing, publication, editing, and research management during four decades of service at the Applied Physics Laboratory."

Outstanding First Paper

Edward P. Oppenheimer and **Anthony N. Michel**, "Application of Interval Analysis Techniques to Linear Systems: Part I—Fundamental Results, Part II—The Interval Matrix Exponential Function, Part III—Initial Value Problems," *IEEE Trans. Circuits Syst.* 35(9), 1129–1138, and 35(10), 1230–1256 (1988).

Honorable Mention: **Mark J. Mayr** and **Jeffery W. Warren**, "A Visible Laser Position Sensor for Testing a Precision Laser Beam Director," *Johns Hopkins APL Tech. Dig.* 9(4), 370–379 (1988). **Paul E. Paneton**, "Design of the U2 Experiment Ground Support Equipment," in *Proc. Second Annual AIAA/USU Conf. on Small Satellites*, Logan, Utah, Technical Session VI, "Support Systems," pp. 1–22 (1988). **Daniel C. Chin**, "Data Sensitivity Computation for Maximum Likelihood Estimation," in *Computing Sciences and Statistics, Proc. 20th Symp. on the Interface*, pp. 80–85 (1988).

Outstanding Paper in the *Johns Hopkins APL Technical Digest*

Michael W. Roth, "Neural-Network Technology and Its Applications," *Johns Hopkins APL Tech. Dig.* 9(3), 242–253 (1988). **Kishin Moorjani**, **Frank J. Adrian**, **Boris F. Kim**, **Joseph Bohandy**, **Terry E. Phillips**, **William J. Green**, **Elisabetta Agostinelli**, and **Bradley G. Boone**, "High-Temperature Superconducting Thin Films," *Johns Hopkins APL Tech. Dig.* 9(3), 174–188 (1988). **Edmond C. Roelof** and **Donald J. Williams**, "The Terrestrial Ring Current: From *In Situ* Measurements to Global Images Using Energetic Neutral Atoms," *Johns Hopkins APL Tech. Dig.* 9(2), 144–163 (1988).

Outstanding Research Paper in an Unclassified Refereed Publication

James C. Spall, "Bayesian Error Isolation for Models of Large-Scale Systems," *IEEE Trans. Autom. Control* 33(4), 341–347 (1988). **Donald R. Thompson**, "Calculation of Radar Backscatter Modulations from Internal Waves," *J. Geophys. Res.* 93(C10), 12,371–12,380 (1988).

Honorable Mention: **Robert E. Erlandson**, **Lawrence J. Zanetti**, **Thomas A. Potemra**, **Peter F. Bythrow**, and **Rickard N. Lundin**, "IMF B_z Dependence of Region 1 Birkeland Currents Near Noon," *J. Geophys. Res.* 93(A9), 9804–9814 (1988). **Patrick T. Newell** and **Ching-I. Meng**, "The Cusp and the Cleft/Boundary Layer: Low-Altitude Identification and Statistical Local Time Variation," *J. Geophys. Res.* 93(A12), 14,459–14,556 (1988). **Michael E. Thomas**, **Richard I. Joseph**, and **William J. Tropf**, "Infrared Transmission Properties of Sapphire, Spinel, Yttria, and ALON as a Function of Temperature and Frequency," *Applied Optics* 27(2), 239–245 (1988).

Outstanding Development Paper in an Unclassified Refereed Publication

Julius Goldhirsh, "Analysis of Algorithms for the Retrieval of Rain-Rate Profiles from a Spaceborne Dual-Wavelength Radar," *IEEE Trans. Geosci. Remote Sens.* 26(2), 98–114 (1988).

Honorable Mention: **Scott A. Gearhart and Michael E. Thomas**, "Evaluation of a Temperature Remote Sensing Technique," *Appl. Opt.* 27(17), 3630–3637 (1988). **Lynn W. Hart, Harvey W. Ko, James H. Meyer Jr., David P. Vasholz, and Richard I. Joseph**, "A Noninvasive Electromagnetic Conductivity Sensor for Biomedical Applications," *IEEE Trans. Biomed. Eng.* 35(12), 1011–1022 (1988).

Outstanding Paper in a Classified Refereed Technical Publication

James F. Carbery and Ching-I. Meng, "Significant Results from the Delta 180 Ultraviolet/Visible Experiment (U)," *APL Tech. Rev.* 1, 131–145 (1988).

Technical Book Award

James C. Spall, ed., *Bayesian Analysis of Time Series and Dynamic Models*, Marcel Dekker, New York (1988).

Special Publication Awards—Research

Robert B. Decker, "Computer Modeling of Test Particle Acceleration at Oblique Shocks," *Space Sci. Rev.* 48, 195–262 (1988).

Honorable Mention: **Richard A. Steinberg**, *A GLR Algorithm for Polyline Approximation of Waveforms*, JHU/APL TG-1370 (1988).

Special Publication Awards—Development

Robert L. McDonald, "STANDARD Missile ECCM Capability and Test Results (U)," in *Proc. 33rd Annual Joint Electronic Warfare Conf.*, Monterey, Vol. 2, pp. 415–438 (1988).

Honorable Mention: **Michael E. White, James R. Stevens, James L. Keirse, David M. Van Wie, and Louis A. Mattes**, "Investigation of Cowl Vent Slots for Stability Enhancement in MITS Scramjet Inlets," in *AIAA/ASME/SAE/ASEE 24th Joint Propulsion Conf.*, Boston, pp. 1–9 (1988).

1990 (for work published in 1989)**Lifetime Achievement Award**

Samuel N. Foner, "in recognition of his masterful contributions to the development of novel mass spectrometric techniques in the detection of highly reactive species, such as atoms and free radicals, in chemical reactions, and for his contributions as Chairman of the Editorial Board of the *APL Technical Digest* for fourteen years."

Outstanding First Paper in an Unclassified or Classified Publication

Donald D. Duncan, David G. Fischer, and Charles H. Lange, "Scatter Characteristics of Crystalline and Polycrystalline Oxides," in *Proc. 3rd DoD EM Windows Symp.*, GACIAC PR 89.03, pp. 209–217 (Nov1989).

Honorable Mention: **Griffin Corpening and John D. Anderson Jr.**, "Numerical Solutions in Three-Dimensional Shock Wave/Vortex Interaction at Hypersonic Speeds," *AIAA 27th Aerospace Sciences Meeting*, AIAA Preprint No. 89-0674 (1989). **Lora L. Suther**, "Imaging the Solar System with Computers," *Johns Hopkins APL Tech. Dig.* 10(3), 238–245 (1989).

Outstanding Paper in the Johns Hopkins APL Technical Digest

Quentin E. Dolecek, "QUEN: The APL Wavefront Array Processor," *Johns Hopkins APL Tech. Dig.* 10(3), 198–207 (1989).

Honorable Mention: **Jack Calman and Laurence P. Manzi**, "Real-Time Satellite Altimetry," *Johns Hopkins APL Tech. Dig.* 10(4), 380–385 (1989).

Outstanding Paper in the APL Technical Review

Richard E. Gorozdos, Benjamin F. Hoffman, Lawrence E. Klein, Roger H. Lapp, and John R. Albertine, "The Navy High-Energy Laser Experimental Test Systems (U)," *APL Tech. Rev.* 1(2), 121–134 (1989).

Honorable Mention: **Harry K. Charles Jr.**, "VHSIC Packaging for Performance," *APL Tech. Rev.* 1(2), 47–58 (1989).

Outstanding Research Paper in an Unclassified Refereed Publication

Kenneth R. Allen and Richard I. Joseph, "A Canonical Statistical Theory of Oceanic Internal Waves," *J. Fluid Mech.* 204, 185–228 (1989). **Stamatios Krimigis, Thomas P. Armstrong, W. Ian Axford, Carl O. Bostrom, Andrew F. Cheng, George Gloeckler, Douglas C.**

Hamilton, Edwin P. Keath, Louis J. Lanzerotti, Barry H. Mauk, and James A. Van Allen, "Hot Plasma and Energetic Particles in Neptune's Magnetosphere," *Science* 246, 1483–1489 (1989). **James D. Franson**, "Bell Inequality for Position and Time," *Phys. Rev. Lett.* 62(19), 2205–2208 (1989).

Honorable Mention: **David G. Sibeck, Wolfgang Baumjohann, Richard C. Elphic, Donald H. Fairfield, Joseph F. Fennell, William B. Gail, Louis J. Lanzerotti, Ramon E. Lopez, Hermann Luhr, Anthony T. Y. Lui, Carol G. MacLennan, Richard W. McEntire, Thomas A. Potemra, Theodore J. Rosenberg, and Kazuo Takahashi**, "The Magnetospheric Response to 8-Minute Period Strong-Amplitude Upstream Pressure Variations," *J. Geophys. Res.* 94(A3), 2505–2519 (1989).

Outstanding Development Paper in an Unclassified Refereed Publication

J. Patrick Reilly, "Peripheral Nerve Stimulation by Induced Electric Currents: Exposure to Time-Varying Magnetic Fields," *Med. Biol. Eng. Comput.* 27, 101–110 (1989). **Michael W. Roth**, "Neural Networks for Extraction of Weak Targets in High Clutter Environments," *IEEE Trans. Syst., Man, Cybern.* 19(5), 1210–1217 (1989).

Honorable Mention: **Harold E. Gilreath and Gary A. Sullins**, "Investigation of the Mixing of Parallel Supersonic Streams," in *Proc. Ninth International Symp. on Air-Breathing Engines*, AIAA, Vol. I, pp. 585–595 (1989). **Jane W. Maclachlan Spicer, William D. Kerns, Leonard C. Aamodt, and John C. Murphy**, "Measurement of Coating Physical Properties and Detection of Coating Disbonds by Time-Resolved Infrared Radiometry," *J. Nondestruct. Eval.* 8(2), 107–120 (1989). **Robert C. Hoffman and Richard S. Potember**, "Organometallic Materials for Erasable Optical Storage," *Appl. Opt.* 28(7), 1417–1421 (1989).

Outstanding Paper in a Classified Refereed Technical Publication

Randolph W. Bruns and William J. Tropsf, "High-Performance IR Seeker Demonstration Program (U)," *Proc. IRIS* 33, 327–345 (1989). **Jerome R. Vetter, Vernon L. Schwenk, and Thomas M. Hattox**, "An Improved GPS Based Tracking System for High Accuracy Trident II Missile Navigation and Guidance Evaluation," *Fourteenth Biennial Guidance Test Symp.*, MSD-TR-89-21, Vol. II, pp. 67–86 (1989).

Technical Book Award

John P. Enterline, Raymond E. Lenhard Jr., and Bruce I. Blum, *A Clinical Information System for Oncology*, Springer-Verlag, Inc., New York (1989). **Helmuth F. Orthner and Bruce I. Blum**, *Implementing Health Care Information Systems*, Springer-Verlag, Inc., New York (1989). **Pierre Lafrance**, *Fundamental Concepts in Communication*, Prentice-Hall, Inc., Englewood Cliffs, NJ (1989).

Special Publications—Research

John C. Murphy, Jane W. Maclachlan Spicer, and Leonard C. Aamodt, "The Role of Thermal Wave Techniques in Materials Characterization," in *International Advances in Nondestructive Testing*, Gordon and Breach Science Publishers, New York, New York, Vol. 14, pp. 175–218 (1989). **Andrew F. Cheng and Robert E. Johnson**, "Effects of Magnetosphere Interactions on Origin and Evolution of Atmospheres," in *Origin and Evolution of Planetary and Satellite Atmospheres*, Univ. of Arizona Press, Tucson, Arizona, pp. 682–722 (1989).

Special Publications—Development

G. Daniel Dockery and Eric R. Thews, "The Parabolic Equation Approach to Predicting Tropospheric Propagation Effects in Operational Environments," *NATO AGARD Conf. Proc. No. 453: Operational Decision Aids for Exploiting and Mitigating Electromagnetic Propagation Effects*, Neuilly sur Seine, France, pp. 18-1–18-9 (1989).

Honorable Mention: **Harry K. Charles Jr. and Guy V. Clatterbaugh**, "Thin Film Hybrids," in *Electronic Materials Handbook, Volume I: Packaging*, ASM International, Materials Park, Ohio, pp. 313–331 (1989).

1991 (for work published in 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

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 Conf.*, Orlando, pp. 1–8 (1990).

Outstanding Paper in the Johns Hopkins APL Technical Digest

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

Honorable Mention: **James D. Kinnison, Richard H. Maurer, and Thomas M. Jordan**, "Estimation of the Charged Particle Environment for Earth Orbit," *Johns Hopkins APL Tech. Dig.* 11(3&4), 300–310 (1990). **Charles C. Sarabun and Daniel C. Dubbel**, "High-Resolution Thermistor Chain Observations in the Upper Chesapeake Bay," *Johns Hopkins APL Tech. Dig.* 11(1&2), 48–53 (1990).

Outstanding Paper in the APL Technical Review

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

Honorable Mention: **Kim T. Constantikes**, "Multidimensional Matched Filtering with Embedded Velocity Knowledge (U)," *APL Tech. Rev.* 2(2), 250–253 (1990).

Outstanding Research Paper in an Unclassified Refereed Publication

Donald D. Duncan, C. Brent Barger, Sue E. Borchardt, Owen J. Deters, Scott A. Gearhart, Frank F. Mark, and Morton H. Friedman, "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

Daniel M. Sunday, "A Very Fast Substring Search Algorithm," *Comm. 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

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 Symp.*, Monterey, pp. 26–28 (1990).

Technical Book Award

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

Special Publications—Research

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

Special Publications—Development

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, OH, pp. 579–603 (1990).

1992 (for work published in 1991)**Lifetime Achievement Award**

Carl O. Bostrom, "in recognition of his experimental and analytical contributions to the understanding of space plasmas, his leadership of the Space Department and of the Laboratory, and his years of dedi-

cation to the support and development of space science and of the missions and goals of the Applied Physics Laboratory." **Robert M. Fristrom**, "in recognition of his experimental studies of combustion and flame processes and his co-authorship with Arthur A. Westenberg of the trailblazing book *Flame Structure*."

Outstanding First Paper in an Unclassified or Classified Publication

Kenneth E. Williams, "Prediction of Solar Activity with a Neural Network and Its Effect on Orbit Prediction," *Johns Hopkins APL Tech. Dig.* 12(4), 310–317 (1991).

Outstanding Paper in the Johns Hopkins APL Technical Digest (Walter G. Berl Award)

James A. St. Ville, John A. Ecker, James M. Winget, and Meri H. Berghauer, "The Anatomy of Midthigh Pain after Total Hip Arthroplasty," *Johns Hopkins APL Tech. Dig.* 12(2), 198–214 (1991).

Honorable Mention: **Dale E. Olsen, John A. Cristion, and Charles W. Spaur**, "Automatic Detection of Epileptic Seizures Using Electroencephalographic Signals," *Johns Hopkins APL Tech. Dig.* 12(2), 182–191 (1991). **Moise H. Goldstein Jr., Weimin Liu, and Robert E. Jenkins**, "Speech Processing by Real and Silicon Ears," *Johns Hopkins APL Tech. Dig.* 12(2), 115–128 (1991).

Outstanding Research Paper in an Unclassified Refereed Publication

John C. Sommerer, William L. Ditto, Celso Grebogi, Edward Ott, and Mark L. Spano, "Experimental Confirmation of the Scaling Theory for Noise-Induced Crises," *Phys. Rev. Lett.* 66(15), 1947–1950 (1991). **Anthony T. Y. Lui, Charles L. Chang, Alan Mankofsky, Hung K. Wong, and Dan Winske**, "A Cross-Field Current Instability for Substorm Expansions," *J. Geophys. Res.* 96(A7), 11,389–11,401 (1991).

Honorable Mention: **Richard A. Meyer, Karen D. Davis, Richard H. Cohen, Rolf-Detlef Treede, and James N. Campbell**, "Mechanically Insensitive Afferents (MIAs) in Cutaneous Nerves of Monkey," *Brain Res.* 561, 252–261 (1991). **James D. Franson**, "Violations of a Simple Inequality for Classical Fields," *Phys. Rev. Lett.* 67(3), 290–293 (1991).

Outstanding Development Paper in an Unclassified Refereed Publication

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Honorable Mention: **J. Michael Ruohoniemi, Robin J. Barnes, Raymond A. Greenwald, and Simon G. Shepherd**, "The Response of the High-Latitude Ionosphere to the Coronal Mass Ejection Event of April 6, 2000: A Practical Demonstration of Space Weather Nowcasting with the Super Dual Auroral Radar Network HF Radars," *J. Geophys. Res.* 106(A12), 30,085–30,097 (2001).

Special Publications

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2003 (for work published in 2002)**Author's First APL Paper**

Ronald J. Vervack Jr., "Atmospheric Remote Sensing Using a Combined Extinctive and Refractive Stellar Occultation Technique 3. Inversion Method for Refraction Measurements," *J. Geophys. Res.* 107(D15) ACH 7-1–7-19 (2002).

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Honorable Mention: **Deborah L. Domingue and Andrew F. Cheng**, "Near Earth Asteroid Rendezvous: The Science of Discovery," *Johns Hopkins APL Tech. Dig.* 23(1), 6–17 (2002).

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Michael Vlahos, *Terror's Mask: Insurgency Within Islam*, an APL/JWAD Occasional Paper (2002).

Honorable Mention: **Andrew F. Cheng**, "Near Earth Asteroid Rendezvous: Mission Summary," in *Asteroids III*, W. Bottke, A. Cellino, P. Padicchi, and R. Binzel (eds.), Univ. of Arizona Press, Tucson, pp. 351–366 (2002). **James C. Spall**, "Uncertainty Bounds in Parameter Estimation with Limited Data," Chap. 27, in *Modeling Uncertainty: An Examination of Stochastic Theory, Methods, and Applications*, M. Dror, P. L. Ecuyer, and F. Szidarovszky (eds.), Kluwer Academic, Norwell, MA, pp. 685–709 (2002).

2004 (for work published in 2003)**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.

Author's First Paper in a Peer-Reviewed Journal

Marc A. Camacho, "SATRACK Tests Missile Accuracy," *IEEE Instrum. Meas. Mag.* 6(2), 37–45 (2003).

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Isaac N. Bankman and Joseph J. Suter, "Living with Sensors at APL," *Johns Hopkins APL Tech. Dig.* 24(1), 87–101 (2003).

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Anthony T. Y. Lui, “Solving a Four-Decade-Old Mystery,” *Johns Hopkins APL Tech. Dig.* 27(3), 233–238 (2007).

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Joshua Broadwater and Rama Chellappa, “Hybrid Detectors for Sub-pixel Targets,” *IEEE Trans. Pattern Anal. Mach. Intell.* 29(11), 1891–1903 (2007).

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Walter W. Rice, *How To Prepare Defense-Related Scientific and Technical Reports: Guidance for Government, Academia, and Industry*, Wiley Interscience, Hoboken, NJ (2007).

Outstanding Special Publication

Harry K. Charles Jr., “The Wirebonded Interconnect: A Mainstay for Electronics,” Chap. 3, in *Micro- and Opto-Electronic Materials and Structures: Physics, Mechanics, Design, Reliability, and Packaging*, Vol. 2, E. Suhir, Y. C. Lee, and C. P. Wong (eds.), Springer, pp. 71–120 (2007).

2009 (for work published in 2008)

Lifetime Achievement Award

Edmond C. Roelof, in recognition of his outstanding scientific leadership in space plasma physics and of his seminal contributions to our understanding of the Sun’s corona, the interplanetary medium, planetary magnetospheres, and energetic neutral atom imaging.

Author’s First Paper in a Peer-Reviewed Journal

Sean R. O’Connor, “Wideband Adaptive Feedforward Photonic Link,” *IEEE J. Lightw. Technol.* 26(15), 2810–2816 (2008).

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Bryan C. Jacobs and James D. Franson, "All-Optical Switching Using the Quantum Zeno Effect and Two-Photon Absorption," *Phys. Rev. A* 79, 063830, (2009).

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2011 (for work published in 2010)**Author's First Paper in a Peer-Reviewed Journal**

Jason J. Benkoski, Ryan M. Deacon, H. Bruce Land, Lance M. Baird, Jennifer L. Breidenich, Rengaswamy Srinivasan, Guy V. Clatterbaugh, Pei Yuin Keng, and Jeffrey Pyun, "Dipolar Assembly of Ferromagnetic Nanoparticles into Magnetically Driven Artificial Cilia," *Soft Matter* 6, 602–609 (2010).

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Ibolja Cernak, "The Importance of Systemic Response in the Pathobiology of Blast-Induced Neurotrauma," *Front. Neurol.* 1(Dec 10), 1–9 (2010). Thomas R. Clark Jr., Sean R. O'Connor, and Michael L. Dennis, "A Phase-Modulation I/Q-Demodulation Microwave-to-Digital Photonic Link," *IEEE Trans. Microw. Theory Techn.* 58(11), 3039–3058 (2010).

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2012 (for work published in 2011)**Lifetime Achievement Publication Award**

Harry K. Charles Jr. Dr. Charles is an internationally recognized contributor to the world's body of technical literature, having published more than 200 articles and presentations in various fields including antiferromagnetism, solar cells, microelectronics, electronic materials, and biomedical devices. His most significant contributions lie in the microelectronics arena, especially wire bonding and advanced soldered interconnect.

Author's First Paper in a Peer-Reviewed Journal or Proceedings

Patrick N. Peplowski, Larry G. Evans, Steven A. Hauck II, Timothy J. McCoy, William V. Boynton, Jeffery J. Gillis-Davis, Denton S. Ebel, John O. Goldsten, David K. Hamara, David J. Lawrence, Ralph L. McNutt Jr., Larry R. Nittler, Sean C. Solomon, Edgar A. Rhodes, Ann L. Sprague, Richard D. Starr, and Karen R. Stockstill-Cahill, "Radioactive Elements on Mercury's Surface from MESSENGER: Implications for the Planet's Formation and Evolution," *Science* 333(6051), 1850–1852 (2011).

Outstanding Paper in the Johns Hopkins APL Technical Digest (Walter G. Berl Award)

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Elizabeth P. Turtle, Jason E. Perry, Alex G. Hayes, Ralph D. Lorenz, Jason W. Barnes, Alfred S. McEwen, Robert A. West, Anthony D. Del Genio, John M. Barbara, Jonathan I. Lunine, Emily L. Schaller, Trina L. Ray, Rosaly M. C. Lopes, and Ellen R. Stofan, "Rapid and Extensive Surface Changes Near Titan's Equator: Evidence of April Showers," *Science* 331(6023), 1414–1417 (2011).

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Juan C. Juarez, David W. Young, Joseph E. Sluz, and Larry B. Stotts, "High-Sensitivity DPSK Receiver for High-Bandwidth Free-Space Optical Communication Links," *Opt. Express* 19(11), 10789–10796 (2011).

Outstanding Special Publication

David H. Scheidt and Kevin M. Schultz, "On Optimizing Command and Control Structures," *Proc. 16th International Command and Control Research and Technology Symp.* (2011).

2013 (for work published in 2012)**Lifetime Achievement Publication Award**

Keith Raney. Dr. Raney is a world-recognized expert in space-based radar design and ocean science. During his time at APL, he published nearly 100 scientific articles that have been cited nearly 1400 times. He was the design architect for APL's Mini-RF hybrid-polarimetric radar on India's Chandrayaan-1 and NASA's Lunar Reconnaissance Orbiter.

Author's First Paper in a Peer-Reviewed Journal or Proceedings

Xiomara Calderón-Colón, Zhiyong Xia, Jennifer L. Breidenich, Daniel G. Mulreany, Qiongyu Guo, Oscar M. Uy, Jason E. Tiffany, David E. Freund, Russell L. McCally, Oliver D. Schein, Jennifer H. Elisseff, and Morgana M. Trexler, "Structure and Properties of Collagen Vitrigel Membranes for Ocular Repair and Regeneration Applications," *Biomaterials* 33(33), 8286–8295 (2012).

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2014 (for work published in 2013)

Author's First Paper in a Journal or Proceedings

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Christopher R. Ratto, Kenneth D. Morton Jr., Leslie M. Collins, and Peter A. Torrione, "Bayesian Context-Dependent Learning for Anomaly Classification in Hyperspectral Imagery," *IEEE Trans. Geosci. Remote Sens.* 52(4), 1969–1981 (2013).

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Nicola J. Fox, *The Van Allen Probes Mission*, Springer, New York (2014).

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Author's First Paper in a Journal or Proceedings

Jacob D. Couch and John Arkoian, "An Investigation into a Circuit Based Supply Chain Analyzer for FPGAs," *Proc. 26th International Conf. on Field Programmable Logic and Applications*, Lausanne, Switzerland, pp. 1–9 (2016).

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Elena Y. Adams, Nicola J. Fox, Kristin A. Fretz, and Aleksandr Y. Ukhorskiy, "Van Allen Probes Mission Overview and Discoveries to Date," *Johns Hopkins APL Tech. Dig.* 33(3), 173–182 (2016).

Outstanding Research Paper in an Externally Refereed Publication

Guy Hotson, David P. McMullen, Matthew S. Fifer, Matthew S. Johannes, Kapil D. Katyal, Matthew P. Para, Robert S. Armiger, William S. Anderson, Nitish V. Thakor, and Brock A. Wester, "Individual Finger Control of a Modular Prosthetic Limb Using High-Density Electroencephalography in a Human Subject," *J. Neural Eng.* 13(2), 1–13 (2016).

Outstanding Development Paper in an Externally Refereed Publication

Thomas R. Clark Jr., Jean H. Kalkavage, and Matthew D. Sharp, "Wideband Photonic Compressive Sampling System," *J. Lightwave Technol.* 34(11), 2848–2855 (2016).

Outstanding Special Publication

Nicola J. Fox, M. C. Velli, S. D. Bale, Robert B. Decker, Andrew S. Driesman, R. A. Howard, J. C. Kasper, James D. Kinnison, Martha B. Kusterer, David Lario Loyo, Mary Kae Lockwood, D. J. McComas, and Nour E. Raouafi, "The Solar Probe Plus Mission: Humanity's First Visit to Our Star," *Space Sci. Rev.* 204(1), 7–48 (2016).

R. W. HART PRIZE WINNERS**1989 (for efforts in 1988)**

Excellence in Research: Kishin Moorjani, Frank J. Adrian, Joseph Bohandy, William J. Green, and Boris F. Kim, "Microphysics/High- T_c Superconductivity."

Honorable Mention: Richard A. Farrell, C. Brent Barger, Henry A. Kues, Russell L. McCally, and David M. Silver, "Biomedical Research." Charles C. Sarabun Jr., Mark D. Bulla, Frederick A. Carmen, William K. Clark, Arthur R. Croucher II, Robert H. Grauel, Robert C. Hendricks, and Joseph E. Hopkins, "Ocean Engineering."

Excellence in Development: Robert E. Jenkins and Andreas G. Andreou, "Custom VLSI/Spacecraft Systems."

Honorable Mention: Martin E. Fraeman, "Multiprocessor Embedded Computer Using Forth Engines." Kenneth W. Koontz, "Computer Architectures."

1990 (for efforts in 1989)

Excellence in Research: Raul Fainchtein, "Observation of Charge Density Waves in Scanning Tunneling Microscopy."

Honorable Mention: Leonard C. Aamodt, Jane W. Maclachlan Spicer, and John C. Murphy, "Time-Resolved Infrared Radiometry."

Excellence in Development: Jay R. Dettmer, Paul L. Hazan, E. Brian Alvarez, and Ian E. Feldberg, "System Design Synthesis Tool."

1991 (for efforts in 1990)

Excellence in Research: James C. Spall, Stacy D. Hill, John L. Maryak, Daniel C. Chin, and Xueshan Yang, "Statistical Estimation."

Honorable Mention: David E. Freund, "Wave Propagation and Scattering."

Excellence in Development: Henry A. Kues, "Biomedical Research—Microwave Radiation."

Honorable Mention: Jay R. Dettmer, Wolfger Schneider, William A. Becraft, and E. Brian Alvarez, "Adaptive Optics Processor."

1992 (for efforts in 1991)

Excellence in Research: James D. Franson and Hillar Ilves, "Quantum Mechanical Encryption."

Honorable Mention: Isaac N. Bankman, "Applied Mathematics—Analyzing the Electrical Activity of Individual Neurons."

Excellence in Development: Robert E. Jenkins and Andreas G. Andreou, "Application of Custom VLSI to Advanced Processing."

1993 (for efforts in 1992)

Excellence in Research: John C. Sommerer, "Dynamics of Complex Surface Flows and Chaos Theory."

Excellence in Development: Larry J. Levy and David W. Porter, "Maximum Likelihood System Identification."

Honorable Mention: Ralph D. Semmel, "Automated Query Formulation." Kirk S. Decker, "Connectorless Cable Interface Module for Sensor Array Systems."

1994 (for efforts in 1993)

Excellence in Research: Richard A. Meyer, "Neurophysiology of Nerve Injury Pain."

Excellence in Development: Robert C. Beal and Stephen F. Oden, "Real-Time SAR Processor for Ocean Wave Spectra."

Honorable Mention: James D. Franson and Bryan C. Jacobs, "Atomic Interferometer Inertial Sensors."

1995 (for efforts in 1994)

Excellence in Development: Wayne A. Bryden, Richard C. Benson, Scott A. Ecelberger, and Terry E. Phillips, "Tiny Time-of-Flight Mass Spectrometer."

1996 (for efforts in 1995)

Excellence in Development: L. Edward Antosek, William M. Antosek, Miguel A. Cubano, Quentin E. Dolecek, Richard A. Henle, Mark A. Scoville, Robert L. Stewart, Mark A. Talamini, and Stephen P. Yanek, "Navy Battlegroup Telemedicine Project."

Honorable Mention: Gary A. Sullins, "Jet Interactions for Missile Terminal Maneuvers."

1997 (for efforts in 1996)

Excellence in Research: Robert B. Givens, Robert Osiander, Thomas J. Kistenmacher, Dennis K. Wickenden, and John C. Murphy, "Developing a New Class of Magnetometer Sensors."

Excellence in Development: Thomas Thompson, William S. Devereux, James M. Dougherty, and Thomas M. Hattox, "Two-Centimeter GPS Measurement System for Missile Intercept Test and Evaluation."

1998 (for efforts in 1997)

Excellence in Research: James D. Franson and Todd B. Pittman, "An Optical Approach to Quantum Computing."

Excellence in Development: Jennifer A. Davis, Jean S. Deboy, Jay R. Dettmer, Binh Q. Le, David M. Lee, S. John Lehtonen, Ark L. Lew, Katherine J. Mach, Richard H. Maurer, and Elbert Nhan, "Chip-On-Board Technology."

1999 (for efforts in 1998)

Excellence in Research: James C. Mayfield, Paul McNamee, and Christine D. Piatko, "New Approaches to Information Retrieval."

Honorable Mention: John R. Benedict Jr., Joseph Gezelter, Fernando J. Pineda, and Christine D. Piatko, "Advanced Mine Countermeasures."

Excellence in Development: Martin E. Fraeman, Robert E. Jenkins, Kim Strohbehn, Douglas S. Mehoke, Paul D. Wienhold, Deanna K. Temkin, Robert S. Bokulic, and George R. Seylar, "Advanced Electronic Architecture for Spacecraft."

2000 (for efforts in 1999)

Excellence in Development: Timothy J. Cornish, Harry K. Charles Jr., and Paul D. Wienhold, "Fabricating Complex Reflector Structures for Use in Time-of-Flight Mass Spectrometers."

Honorable Mention: Henry A. Kues Jr., Paul R. Schuster, Matthew G. Bevan, and Carl V. Nelson, "Drowsy Driver Detection System."

2001 (for efforts in 2000)

Excellence in Research: Fernando J. Pineda, Peter F. Scholl, Amy K. Karlson, Miquel D. Antoine, Jeffrey S. Lin, Bernard F. M. Collins, and Nancy E. Woods, "Novel Approaches in Defense Bioinformatics."

Honorable Mention: James C. Spall, Daniel C. Chin, Stacy D. Hill, John L. Maryak, David R. Stark, David W. Hutchison, and Laszlo Gerencser, "Stochastic Optimization and Control."

Excellence in Development: Joseph S. Lombardo, Howard S. Burkom, Richard A. Wojcik, and Fernando J. Pineda, "Automated Alerting for Bioterrorism Using Autonomous Agents." Patrick A. Stadter, Eric A. Olsen, and Mark S. Asher, "Improvement in Relative Navigation Algorithms for Formation Flying."

2002 (for efforts in 2001)

Excellence in Research: David P. Silberberg, Amy K. Karlson, Jessica L. Pistole, and Rosemary A. Daley, "A Simplified Approach for Accessing Large Repositories of Heterogeneous Information."

Excellence in Development: Kenneth V. Kitzman, "Advanced Infrared Sensors and Classification Techniques in Ballistic Missile Defense Target Discrimination."

2003 (for efforts in 2002)

Excellence in Research: Andrew B. Feldman, Jeffrey S. Lin, Plamen A. Demirev, Miquel D. Antoine, Rengaswamy Srinivasan, Hassan M. Saffarian, Timothy J. Cornish, Sean P. Murphy, N. Kumar, D. Sullivan, P. Scholl, R. A. Gasser Jr., and D. Kongkasuriyachai, "Malaria Detection Program."

Excellence in Development: Donald E. Maurer, "Efficient Radar-to-IR Correlation and Bias Estimation."

2004 (for efforts in 2003)

Excellence in Research: John R. Gersh, Amy K. Karlson, Bessie Y. Lewis, Jaime Montemayor, and Christine D. Piatko, "Visualization of Complex Conceptual Structures."

Excellence in Development: Bradley G. Boone, Bernard E. Kluga, Jonathan R. Bruzzi, Daniel V. Hahn, Karl B. Fielhauer, and Donald D. Duncan, "New Optical Sensor/Weapon Network."

2005 (for efforts in 2004)

Excellence in Research: Stephen M. Scorpio, Alan Brandt, Eric A. Ericson, Charles E. Schemm, Ricardo C. Blackett, and Joseph E. Hopkins Jr., "Surface Wake Modeling."

Excellence in Development: William G. Bath, Geoffrey L. Silberman, Bradford S. Weir, Frank W. Hsu, Ariel M. Greenberg, Sze-Ping Kuo, Ralph L. Gootee, and John Samsundar, "Air Defense Interoperability."

2006 (for efforts in 2005)

Excellence in Research: Steven M. Babin, Howard S. Burkom, Andrew B. Feldman, Jeffrey S. Lin, and Sean P. Murphy, "Data Fusion and Hypothesis Evaluation for Syndromic Surveillance."

Honorable Mention: Robert Bamberger Jr., Robert W. Chalmers, Christopher P. Chiu, Osama I. Farrag, Robert C. Hawthorne, Steven J. Marshall, Todd M. Neighoff, David H. Scheidt, and Jason A. Stipes, "Autonomy Enterprise Thrust—Cooperating Unmanned Vehicles."

Excellence in Development: Keith S. Caruso, Dale E. Clemons, David G. Drewry Jr., Don E. King, Michael P. Mattix, Jennifer L. Sample, Michael E. Thomas, and Dennis C. Nagle, "High Temperature Structures and Thermal Management Systems."

2007 (for efforts in 2006)

Excellence in Research: James C. Mayfield, Paul McNamee, Christine D. Piatko, Richard S. Cost, Wayne L. Bethea, Paul A. Frank, Clayton R. Fink, Markus E. Dale, Eric C. King, and Robert T. Hider Jr. ("Sandy"), "Distributed Information Systems."

Excellence in Development: Andrew J. Newman, Jonathan T. DeSena, Cameron K. Peterson, and Gregg A. Harrison, "Tactically Responsive Intelligence, Surveillance, and Reconnaissance Management (TRIM)." Keith J. Rebello, Robert Osiander, David A. Kitchin, Robert Henrick, Charles B. Cooperman, S. John Lehtonen, Allen C. Keeney, and Francisco Tejada, "MEMS Hydrophones for Beamforming Applications."

2008 (for efforts in 2007)

Excellence in Research: Alan F. Becknell, Nathan A. Hagan, Robert S. Pilato, Kelly A. Van Houten, Plamen A. Demirev, Miquel D. Antoine, Timothy P. Lippa, Joshua L. Santarpia, Timothy J. Cornish, Jonathan W. Boyd, and Neal A. Baker, "Detection of Low-Vapor-Pressure Materials."

Honorable Mention: Charles C. Young, Emily E. Seay, Terry E. Phillips, and Sarah L. Grady, "Isotachophoretic Method for the Simultaneous Purification of DNA and Protein."

Excellence in Development: Salvador H. Talisa, Hedi A. Krichene, Keir C. Lauritzen, Cesar A. Lugo, Erica B. Simcoe, Joseph E. Sluz, and George G. Veticad, "Digital Array Radar Technology."

Honorable Mention: Scott E. Wunsch, Keith S. Caruso, Artemas P. Herzog, Jeffrey H. Smart, Allen T. Hayes, Jeffrey P. Cullina, and W. Lloyd Luedeman, "Appliqué Technology for Undersea Warfare." Jeffrey J. Dumm, Michael P. Boyle, Myron Z. Brown, John P. Clancy, Matthew R. Feinstein, Allan R. Jablon, Glenn S. Gealy, and David A. Grunschel, "High-Fidelity Antenna Pattern Modeling with Lidar Characterization."

2009 (for efforts in 2008)

Excellence in Research: I-Jeng Wang, Dennis G. Lucarelli, Philippe M. Burlina, Daniel F. DeMenthon, Anne A. Jorstad, and Anshu Saksena, "Information Fusion and Localization in Distributed Sensor Systems." Chad M. Hawes, Gregory S. Avicola, E. David Jansing, Michael E. Nord, and Rickey D. Chapman, "Exploitation of Synthetic Aperture Radar Data Products."

Honorable Mention: Dawnielle Farrar, David M. Lee, George L. Coles Jr., and Carl L. Carpenter, "Applications for Piezo Polymer Composites."

Excellence in Development: Joshua L. Santarpia, Shanna A. Ratenar-Shumate, Kelly Marie Brinkley, Jason J. Quizon, Nathan A. Hagan, Plamen A. Demirev, Albert J. Paul Jr., Evan P. Thrush, Thomas J. Buckley, Miquel D. Antoine, Neal A. Baker, and David A. Kitchin, "Environmental Changes on Biological Aerosol Particles."

Honorable Mention: George C. Ho, Glenn M. Mason, Gordon Bruce Andrews, Kenneth S. Nelson, Egidio J. Rossano, and James C. Hutcheson, "ULEIS Jr."

2010 (for efforts in 2009)

Excellence in Research: Stergios J. Papadakis, Andrew H. Monica, Noam R. Izenberg, George L. Coles Jr., and Robert Osiander, "Carbon Nanotube Triodes for Harsh Environment Electronics."

Excellence in Development: Brian K. Funk, Bohdan Z. Cybyk, Jeffrey D. Barton, David G. Drewry Jr., Alison K. Carr, Jonathan C. Castelli, Christopher P. Chiu, Austin B. Cox, Timothy M. Frey, Jeffrey S. Garretson, Sarah J. Haack, Andrew Lee, Brian E. McGrath, Erich H. Mueller, Garrick Orchard, and Ralph Etienne-Cummings, "Weaponized Small Unmanned Aircraft System (UAS) for Engaging Moving Urban Targets."

2011 (for efforts in 2010)

Excellence in Research: Andrew B. Feldman, Jeffrey S. Lin, Plamen A. Demirev, Ariel M. Greenberg, Sean P. Murphy, Keith J. Rebello, Thomas S. Mehoke, I. K. Ashok Sivakumar, Charles C. Young, Nathan A. Hagan, and Mekbib Astatke, "Applied DNA Sequencing Initiative."

Excellence in Development: Carlos E. Alfonso, William G. Bath, Ana Leticia F. Bento, Richard L. Bourgeois, Julie L. Farmer, Russell W. Garrett, Steven A. Kahn, Kathryn E. Mackey, Margaret A. McGarry, Adam J. Miller, Carol A. Nolf, and John H. Zouck, "Componentized Analysis Framework of Next-Generation Combat Systems Components."

2012 (for efforts in 2011)

Excellence in Research: Martin T. Ozimek and Christopher J. Scott, "Capture and Control about Planetary Satellites and Asteroids Using Dynamical Systems Theory."

Honorable Mention: Charbel G. Rizk, Arnold C. Goldberg, Kim Strohhahn, Seppo J. Lehtonen, and Matiwo H. Kafel, "Flexible Readout and Integration Sensor (FRIS)."

Excellence in Development: G. Scott Peacock, Derek C. Fulk, Kevin H. Gormally, Cory R. Lorenz, David N. Barsic, Melissa A. Jones, Robert M. Patterson, and William R. Gray, "Automated Passive Sonar Signal Processing; Development of Shallow Water Autonomous DCL Systems."

2013 (for efforts in 2012)

Excellence in Research: Joan A. Hoffmann, David M. Deglau, Stergios J. Papadakis, Thomas S. Mehoke, Ryan M. Deacon, and Brian M. Fisher, "Nanostructured Materials: Radiation Sensing Applications."

Excellence in Development: David H. Scheidt, Robert W. Chalmers, Christopher C. Olson, Jonathan C. Castelli, Dennis S. Patrone, Adam S. Watkins, Russell J. Turner, William L. Van Besien, William B. Fitzpatrick, Robert C. Hawthorne, Robert J. Bamberger Jr., Justin Thomas, Andrew J. Newman, Michael H. Biggins, Eliezer G. Kahn, Michael Lucks, Stephen S. Carr, and Nathan J. Abraham, "Organic Persistent Intelligence, Surveillance and Reconnaissance (OPISR)."

2014 (for efforts in 2013)

Excellence in Research: Kaushik A. Iyer, John J. Aiello, and O. Manny Uy, "High-Energy Laser (HEL) Effects on Space Systems and Materials."

Excellence in Development: David M. Van Wie, Jeffrey D. Barton, Cameron K. Peterson, Hans P. Widmer, Mark A. Oursler, Treven P. Wall, Brian L. Geesaman, Coire J. Maranzano, Daniel J. Silveira, and Edmund H. Nowicki, "Offensive Operations in an Anti-Access/Area Denial (A2AD) Environment." Raul Fainchtein, David M. Brown, Karen M. Siegrist, Ryan P. DiNello-Fass, Terry E. Phillips, Andrew H. Monica, and David M. Deglau, "Agile Infrared Scene Projector on Carbon Nanotubes."

2015 (for efforts in 2014)

Excellence in Research: William R. Gray Roncal, Dean M. Kleissas, and Mark A. Chevillet, "Machine Intelligence from Cortical Networks (MICrONS)."

Excellence in Development: Steven D. Jones, Jarriel D. Cook, Jerry R. Hampton, and Feng Ouyang, "Command and Control of Deeply Placed Capabilities (C2DEEP)."

2016 (for efforts in 2015)

Excellence in Research: Mark A. Chevillet, Michael E. Wolmetz, Matthew J. Roos, Christopher R. Ratto, and Carlos A. Caceres Garcia, "Neurally Integrated Computing."

Excellence in Development: Aaron T. Katz, "Enhanced Weapons of Mass Destruction Analytics."

2017 (for efforts in 2016)

Excellence in Research: Principal participants David W. Blodgett, Kevin C. Baldwin, Joseph A. Duperre, Michael J. Fitch, Scott M. Hendrickson, Clare W. Lau, Carissa L. Rodriguez, and Clara A. Scholl, "Intelligent Systems: Noninvasive Brain-Computer Interface Development (NiBCI)."

Excellence in Development: Primary contributors Kenneth E. Hibbard, Douglas S. Adams, Clint T. Apland, Stephen C. Chan, Gary A. Holtzman, Calvin A. Kee, John M. O'Neil, Stergios J. Papadakis, Ryan T. Stevens, and Kenneth R. Turner, "Atmospheric Entry and Descent Technology and Analysis for Design."

INVENTION OF THE YEAR AWARD**2000** (for disclosures in 1999)

Craig Kelly, George Murray, and Manuel Uy, "Molecularly Imprinted Polymer Sensors for Food Safety Applications."

2001 (for disclosures in 2000)

David Silver, Andras Berta, Andras Berta, Adrienne Custak, and Jozsef Tozer, "Plasminogen Activator to Prevent Haze after Laser Vision Correction Surgery."

2002 (for disclosures in 2001)

John Murphy, Robert Osiander, and Jerry Williams, "Method and Apparatus for Imaging and Spectroscopy of Tumors and Determination of the Efficacy of Anti-Tumor Drugs."

2003 (for disclosures in 2002)

Plamen A. Demirev, Andrew B. Feldman, D. Kongkasuriyachai, N. Kumar, P. Scholl, and D. Sullivan, "Portable Malaria Screening and Diagnosis Method." Carol A. Sniegoski, "Software for Automated Medical Records Coding." Wayne A. Bryden, Scott A. Ecelberger, and R. Cotter, "Combined Chemical/Biological Agent Detection by Mass Spectrometry."

2004 (for disclosures in 2003)

Richard S. Potember and Wayne A. Bryden, "Hydroxyl Free Radical Induced Decontamination of Spores, Viruses and Bacteria in a Dynamic System." James D. Franson, Brian C. Jacobs, and Todd B. Pittman, "Method for Quantum Information Processing Using Single Photons and the Zenon Effect." Jack C. Roberts, Paul J. Biermann, and Richard Reidy, "Strain-Rate Sensitive Flexible Armor with Laminated Composite Elements."

2005 (for disclosures in 2004)

Henry A. Kues and Eric J. Van Gieson, "Microwave/Radio Frequency Energy-Assisted Drug Delivery Device." Jerry A. Krill, "3-D Display with Walkthrough and 'Virtual Visitation' Features for Command and Control Centers, Teleconferencing and Personal Communication." Matthew G. Bevan, Bradley G. Boone, Ann G. Darrin, Donald D. Duncan, and Raymond M. Sova, "Apparatus and Method for Providing Secure Multi-Channel Optical Laser Communications."

2006 (for disclosures in 2005)

Protogoris N. Cutchis, "Electrode Array for Determination of Specific Axonal Firing Within a Peripheral Nerve." Joany Jackman and Nathan Boggs, "Use of Protein Detector Accessory with Exhaled Breath Condensate." Benjamin Barnum, Nathaniel Winstead, and Raymond Sterner, "Dust Storm Forecaster." Kim Strohhahn and Mark Martin, "Selection Circuit for Image Sensor and/or Position Sensing Detector."

2007 (for disclosures in 2006)

H. Bruce Land III, "Portable Arc Flash Protection System." Stergios J. Papadakis, "Nanoporous Nucleic Acid Sensor." Harry K. Charles Jr., Charles V. Banda, Arthur Shaun Francomacaro, Allen C. Keeney, and S. John Lehtonen, "Advanced Thin Flexible Micro-electronic Assemblies."

2008 (for disclosures in 2007)

Russell A. Fink, "The Passive Forensic Identification of Networked TCP/IP." Zaruhi Mnatsakanyan, "Bayesian Information Fusion Network." Paul Bierman, Craig Leese, Jeffrey Maranchi, Rengaswamy Srinivasan, and Gary Peck, "Nanotube Battery."

2009 (for disclosures in 2008)

Lance M. Baird, Jason J. Benkoski, Andrew F. Mason, and Jennifer L. Sample, "Triggered Drug Release via Physiologically Responsive Polymers." Harry K. Charles Jr., Arthur Shaun Francomacaro, Allen C. Keeney, and Seppo John Lehtonen, "Ultra-Thin, Flexible Multichip Modules Using Standard Microelectronic Assembly Techniques."

2010 (for disclosures in 2009)

Plamen A. Demirev, Miquel D. Antoine, Andrew B. Feldman, Nathan A. Hagan, and Jeffrey S. Lin, "Mass Spectrometry-Based Method and System to Establish Drug Resistance/Susceptibility in Microorganisms: IsoMS-Drug-Array."

2011 (for disclosures in 2010)

Jason J. Benkoski, Hala J. Tomey, George L. Coles Jr., Morgana M. Trexler, Robert C. Matteson III, Chao-Wei Hwang, and Jon Resar, "Implantable Pressure-Actuated Drug-Delivery Systems and Methods."

2012 (for disclosures in 2011)

Harry A. Eaton and Douglas S. Wenstrand, "Ultra-Compact Multitasking Motor Controller."

2013 (for disclosures in 2012)

Jonathan D. Cohen, Ryan W. Gardner, Laura J. Glendenning, Sakunthala Harshavardhana, Robert T. Hider, Margaret F. Lospinuso, C. Durward McDonnell III, David M. Patrone, Dennis S. Patrone, Nathan S. Reller, Benjamin R. Salazar, and David P. Silberberg, "Apparatus and Method for Identifying Related Code Variants in Binaries."

2014 (for disclosures in 2013)

Andrew B. Feldman and Jeffrey S. Lin, "System and Method to Rapidly Design Viral Vaccines to Prevent Vaccine Failure."

2015 (for disclosures in 2014)

Jason E. Tiffany, "Vertically Grooved Electrode Wells for Nerve Growth Guidance to an Electrode Contact."

2016 (for disclosures in 2015)

Zhiyong Xia and Brad M. Ward, "Novel Water Filtration Membranes."

2017 (for disclosures in 2016)

Lance M. Baird and Xiomara Calderon-Colon, "Modified Anti-cancer Responsive Theranostic (SMART)."

MASTER INVENTOR AWARD

2007

Joseph L. Abita, Paul J. Biermann, Bliss G. Carkhuff, Harry K. Charles Jr., Timothy J. Cornish, Robert E. Fischell, Harvey W. Ko, Sverre Kongelbeck, Jerry A. Krill, John H. Kuck, Roger H. Lapp, John C. Murphy, George M. Murray, Carl V. Nelson, Eugene L. Nooker, Richard Potember, David W. Rabenhorst, Ralph O. Robinson Jr., Woodrow Seamone, Charles J. Swet, Gilber Wilkes II, and Theodore Wyatt

2009

Jack C. Roberts

2010

Micah A. Carlson

2014

Rengaswamy "Srin" Srinivasan

2015

Charles W. Kerechanin II

2016

Russell P. Cain

GOVERNMENT PURPOSE INNOVATION AWARD

2011 (for innovation in 2010)

John M. Klimek, "Naturally Occurring Indigenous Sound Emulation (NOISE)."

2012 (for innovation in 2011)

Joshua B. Broadwater, Craig J. Carmen, and Ashley J. Llorens, "Constrained Probability of False Alarm Classification."

2013 (for innovation in 2012)

William J. Geckle, "Airport Radar Counter-Terrorism Protection System."

2014 (for innovation in 2013)

Mason M. Baron, Gregory H. Barr, and James G. Cochran, "Aircraft and Sensor Product Geo-Registration in GPS-Denied Environments."

2015 (for innovation in 2014)

Patrick D. Allen and Steven A. Handy, "Deception for Defense: Applying Traditional Camouflage Techniques Adapted to Cyber Network Defense."

2016 (for innovation in 2015)

Timothy P. Magnani and Jay H. Song, "Advanced RF Jamming Techniques."

2017 (for innovation in 2016)

William Mark Buchta and Dajie Zhang, "High-Temperature, Oxidation-Resistant Silicide Coatings for Industrial-Scale Refractory Structures in Oxidizing Atmospheres."

IGNITION GRANT PRIZE FOR INNOVATION

2013 (for innovation in 2012)

Daniel H. Simon and Paul J. Biermann, "Protecting Soldiers from Hearing Damage."

2014 (for innovation in 2013)

Robert Osiander, Kimberly M. Griffin, Robert A. Bernardino, and Colin J. Taylor, "APL Maker Exploitation, Maker Movement or 'MEME.'"

2015 (for innovation in 2014)

Christopher J. Krupiarz, Nathaniel S. Parsons, David J. Edell, and William L. Van Besien, "SpaceDrone: Flying a Parrot AR Drone with APL Spacecraft Flight Software."

Tara K. Echlin, Mars J. Gralia, Bruce L. Ballard, Robert A. Bernardino, James J. Bogard, Zaza Soriano, and Brian T. Taylor, "Development of an Arduino Course."

2016 (for innovation in 2015)

Jason O. Johnson, "Improved Personal Protective Equipment for Ebola Healthcare Workers."

2017 (for innovation in 2016)

Elizabeth M. Bathrick, Jeffrey A. Dunne, Sean M. Kain, and Blake A. Schreurs, "Tactical Use of the Microsoft HoloLens."

OUTSTANDING MISSION ACCOMPLISHMENT AWARD

2014 (for accomplishments in 2013)

Current Challenge: Mason M. Baron, Weston R. Boyd, Daniel J. Christine, James G. Cochran, Michael A. Delaney, Scott D. Heitkamp, Larry W. Nemsick, Conor R. Scott, and Mark A. Swana, "Minotaur Mission Processor."

Emerging Challenge: Jeffrey C. Mitchell, William C. Hughes, Dwayne A. Hawbaker, Kenneth A. Plantz, Matthew J. Kazanas, and Lorenzo R. Brooks, "Naval Integrated Fire Control – Counter Air (NIFC-CA)."

2015 (for accomplishments in 2014)

Current Challenge: Amanpreet S. Johal, Amy K. Castner, Paul G. Velez, Eric C. Naber, David G. Katz, John P. Osborne, Emily Ronald, Rodney M. Jokerst, and Reuben A. Johnston, "The ALPHA Project."

Emerging Challenge: G. D. (Dan) Dockery, Donald E. Chesley, Charles L. Farthing, Christopher K. Barker, and Eric R. Thews, "Next-Generation Air and Missile Defense Radar (AMDR)."

2016 (for accomplishments in 2015)

Current Challenge: Awarded to the New Horizons Core Mission Team: Peter Bedini, Kerri B. Beisser, Michael R. Buckley, Alice F. Bowman, Andrew Calloway, Christopher B. Hersman, Mark E. Holdridge, Valerie A. Mallder, Gabe D. Rogers, and Harold A. Weaver Jr., "The New Horizons Mission."

Emerging Challenge: Preston C. Dunlap, Ashley J. Llorens, Thomas M. Falk, Ed Vince Doran, and Jeremy P. Sotzen, "Time-Critical Target Defeat."

2017 (for accomplishments in 2016)

Current Challenge: Aaron M. Correa, Hunter A. Dejarnette III, Paul M. Fritschen, Aaron D. Kunz, Eric W. McGinnis, Kurt A. Rice, Mary Ann M. Saunders, Matthew L. Spisso, Miller L. Wilt, and Warren E. Zander, "PAPERSPOCK/RODENT."

Emerging Challenge: Marshall H. Alworth III, Raphael T. Austin, Christopher W. Baumgart, Kenneth Dewayne Brown, Jonathan T. DeSena, Jeffrey M. Gilbert, Glen A. Long, Andrew J. Newman, Kathleen A. Newton, and Michael J. White, "CLUTCHSHOT."

ENTERPRISE ACCOMPLISHMENT AWARD

2015 (for accomplishments in 2014)

Kristopher A. Bell, Angelina H. Boampong, Catherine M. Colangelo, Steven F. Ferraro, Wendy S. Hess, Gregory C. Hustead, Ann E. Kedia, Dennis O. Smith, Donald J. Vislay, and Susan L. Watkins, "Central Spark Implementation."

2016 (for accomplishments in 2015)

Thomas A. Heffner, Dennis O. Smith, David L. Nobles, Joshua D. Smith, and Donald A. Noyes, "The Design Thinking Corps: Embedding Design Thinking Throughout the Organization."

2017 (for accomplishments in 2016)

Chinmay H. Amin, Nagakavitha Bajamahal, Jessica H. Chase, Robert C. Fleming, Manjula Ganapathi, Douglas W. Manning, Gregory J. Miller, Nikunj R. Patel, Robin G. Rude, and Mary L. Virtue, "Warehouse Inventory Management System (WIMS) Implementation."

THE ALVIN R. EATON AWARD

2001 (for efforts in 2000)

Alvin R. Eaton

2002 (for efforts in 2001)

Lorenz J. Happel

2003 (for efforts in 2002)

Daniel G. Henderson

2004 (for efforts in 2003)

T. W. Jerardi

2005 (for efforts in 2004)

Thomas B. Criss

2006 (for efforts in 2005)

M. V. Cruz

2007 (for efforts in 2006)

William G. Bath

2008 (for efforts in 2007)

Glenn E. Mitzel

2009 (for efforts in 2008)

J. D. Phillips

2010 (for efforts in 2009)

Richard T. Roca

2011 (for efforts in 2010)

Louis A. Colangelo

2012 (for efforts in 2011)

Kenneth E. Verbrugge

2013 (for efforts in 2012)

David R. Lewis

2014 (for efforts in 2013)

Lisa A. Blodgett

2015 (for efforts in 2014)

John M. Brupbacher

2016 (for efforts in 2015)

Scott T. Radcliffe

2017 (for efforts in 2016)

Keith S. Caruso

COMBUSTION GRANT PRIZE FOR INNOVATION

2017 (for innovation in 2016)

Jacob W. Alldredge and Matthew K. Brinkley, "Custom Acoustic Meta-materials for the Blood Brain Barrier."

DIRECTOR'S AWARD FOR SPECIAL ACHIEVEMENT

2017 (for achievements in 2016)

Thomas M. Falk, Michael N. McIntyre, Johnathan A. Pino, Peter J. Sharer, Fazle E. Siddique, and Susan D. Smith, "Assured Space Operations Game Technical Analysis (Also Known as The Space Game)."