

Academy Honors 17 for Major Contributions to Science

The National Academy of Sciences has selected 17 individuals to receive awards honoring their outstanding contributions to science. The awards will be presented on April 26 at a ceremony in Washington, DC, during the Academy's 136th annual meeting. Awards and recipients are as follows:

Arctowski Medal—a prize of \$20,000, plus \$60,000 to an institution of the recipient's choice, awarded every three years to further research in solar physics and solar-terrestrial relationships—goes to **Arthur J. Hundhausen**, senior scientist emeritus, High Altitude Observatory, National Center for Atmospheric Research, Boulder. Hundhausen was chosen “for his exceptional research in solar and solar-wind physics, particularly in the area of coronal and solar-wind disturbances.” The medal was established in honor of Henryk Arctowski and has been awarded since 1969.

NAS Award in Chemical Sciences—a medal and prize of \$20,000 awarded annually for innovative research in the chemical sciences that, in the broadest sense, contributes to a better understanding of the natural sciences and to the benefit of humanity—goes to **John D. Roberts**, Institute Professor of Chemistry, Emeritus, and lecturer, Gates and Crellin Laboratories of Chemistry, California Institute of Technology, Pasadena. Roberts was chosen “for defining modern physical organic chemistry—the integration of physical chemistry and organic synthesis applied to the study of the relations between the structure and reactivity of organic molecules.” The prize, supported currently by the Merck Foundation, has been awarded since 1979.

NAS Award for Chemistry in Service to Society—a prize of \$20,000 awarded every two years for contributions to chemistry, either in fundamental science or its application, that clearly satisfy a societal need—goes to **C. Grant Willson**, IBM Almaden Research Laboratory (retired), and professor and Rashid Engineering Regents Chair, department of chemistry and chemical engineering, the University of Texas, Austin. Willson was chosen “for his fundamental contributions to the chemistry of materials that produce micropatterns in semiconductors and for its widespread application in the microelectronics industry for the benefit of society.” The award, established by E.I. du Pont de Nemours & Co. and given this year for contributions made while in industry, has been presented since 1991.

Comstock Prize in Physics—a prize of \$20,000 awarded approximately every five years to a resident of North America for recent innovative discovery or investigation

in electricity, magnetism, or radiant energy, broadly interpreted—goes to **John Clarke**, Luis W. Alvarez Memorial Chair for Experimental Physics and professor of physics, University of California, Berkeley. Clarke was chosen “for his major contributions to the development of superconducting quantum interference devices (SQUIDS) and their use for scientific measurements, especially involving electricity, magnetism, and electromagnetic waves.” The prize was established through the Cyrus B. Comstock Fund and has been presented since 1913.

The **Arthur L. Day Prize and Lectureship**—a prize of \$20,000 awarded approximately every three years to a scientist making new contributions to the physics of the Earth and whose four to six lectures would prove a solid, timely, and useful addition to the knowledge and literature in the field—goes to **Sean C. Solomon**, director, terrestrial magnetism department, Carnegie Institution of Washington. Solomon was chosen “for his analysis of seismological data constraining the tectonics of the Earth's lithosphere, and for his development of global tectonic models of the moon and terrestrial planets.” The prize was established by the bequest of Arthur L. Day and has been presented since 1972.

Gibbs Brothers Medal—a prize of \$5,000 awarded every two years for outstanding contributions in the field of naval architecture and marine engineering—goes to **Justin E. Kerwin**, professor of naval architecture, Massachusetts Institute of Technology, Cambridge. Kerwin was chosen “for his outstanding contributions in the field of naval architecture, including the development of computational methods used worldwide in propeller design.” The medal was established by the bequest of William Francis Gibbs and Frederic H. Gibbs and has been presented since 1965.

NAS Award for the Industrial Application of Science—a prize of \$25,000 awarded approximately every three years for original scientific work of intrinsic scientific importance and with significant, beneficial application in industry—goes to **Ralph F. Hirschmann**, Makineni Chair of Bioorganic Chemistry, department of chemistry, University of Pennsylvania, Philadelphia. Hirschmann was chosen “for his ingenuity in creative chemical design and synthesis directed to the commercial production of numerous essential pharmaceuticals, such as anti-inflammatory steroids and anti-hypertensive compounds.” The award was established by the IBM Corp. in honor of Ralph E. Gomory and has been presented since 1990.

NAS Award for Initiatives in Research—a prize of \$15,000 awarded annually in a different field (biomedical science in 1999) to recognize innovative young scientists and to encourage research likely to lead toward new capabilities for human benefit—goes to **Jennifer A. Doudna**, assistant investigator, Howard Hughes Medical Institute, and associate professor of molecular biophysics and biochemistry, Yale University, New Haven. Doudna was chosen “for her pioneering studies, which have enabled the determination of complex RNA structures, especially those of ribozymes, through X-ray crystallography.” The award, presented since 1981, was established by AT&T Bell Laboratories in honor of William O. Baker and is supported currently by Lucent Technologies.

Richard Lounsbery Award—a medal and a prize of \$50,000, awarded annually in recognition of extraordinary scientific achievement in biology and medicine, alternating between young American and French scientists—goes to **Elliot M. Meyerowitz**, professor of biology, California Institute of Technology, Pasadena. Meyerowitz was chosen “for his pioneering contributions to the molecular genetics of plant architecture, which have practical implications for agriculture.” The award was established by Vera Lounsbery in memory of her husband and has been presented since 1979.

NAS Award in Molecular Biology—a medal and a prize of \$20,000 awarded annually for a recent notable discovery in molecular biology by a young scientist—goes to **Clifford J. Tabin**, associate professor, department of genetics, Harvard Medical School, Boston. Tabin was chosen “for his contributions in analyzing genes that establish asymmetric body patterns and control limb development in vertebrates.” The award is supported currently by the Monsanto Co. and has been presented since 1962.

Robertson Memorial Lecture—a prize of \$7,500 awarded approximately every three years to a distinguished scientist of any nationality who is invited to lecture on his or her work and its international implications (the 1999 field is environmental science)—goes to **Akkihebal R. Ravishankara**, chief, atmospheric chemical kinetics group, National Oceanic and Atmospheric Administration, Boulder. Ravishankara was chosen “for his fundamental contributions to quantifying atmospheric chemical processes, which have led to dramatic improvements in our understanding of global chemical changes.” The lecture was established by friends and associates of Howard P. Robertson and has been presented since 1967.

NAS Award for Scientific Reviewing—a prize of \$5,000 for excellence in scientific reviewing within the past 10 years (the 1999 field is economics)—goes to **James M. Poterba**, Mitsui Professor of Economics, department of economics, Massachusetts Institute of Technology, Cambridge. Poterba was chosen “for his influential and comprehensive

review of factors determining the savings of individuals over their lifetimes and the private accumulation of wealth for retirement.” The award was established by Annual Reviews Inc. and the Institute for Scientific Information in honor of J. Murray Luck and has been presented since 1979.

Mary Clark Thompson Medal—a prize of \$7,500 awarded every three to five years for important contributions to geology and paleontology—goes to **Jan Smit**, professor of sedimentary geology, Free University of Amsterdam, Netherlands. Smit was chosen “for establishing the sequence of impact-generated events that occurred 65 million years ago, including ejecta fallout, tsunami propagation, geochemical disturbances, and extinction in foraminifera and dinosaurs.” The medal was established by a gift of Mary Clark Thompson and has been presented since 1921.

Troland Research Awards—a sum of \$35,000 given annually to each of two recipients, to be used to support their research within the broad spectrum of experimental psychology—goes to **Nancy G. Kanwisher**, associate professor, department of brain and cognitive sciences, Massachusetts Institute of Technology, Cambridge, and to **Harold E. Pashler**, professor, department of psychology, University of California, San Diego. Kanwisher was chosen “for her innovative research on visual attention, awareness, and imagery, including the characterization of a face perception module and discovery of a place encoding module.” Pashler was chosen “for his many experimental breakthroughs in the study of spatial attention and central executive control and for his insightful theoretical analysis of human cognitive architecture.” The awards were established by the bequest of Leonard T. Troland and have been presented since 1984.

Selman A. Waksman Award in Microbiology—a prize of \$5,000 given approximately every two years in recognition of excellence in the field of microbiology—goes to **R. John Collier**, Presley Professor of Microbiology and Immunology, department of microbiology and molecular genetics, Harvard Medical School, Boston. Collier was chosen “for his seminal contribution to the understanding of bacterial pathogenesis by the elucidation of the action of the diphtheria toxin.” The award is supported by the Foundation for Microbiology and has been presented since 1968.

The **Public Welfare Medal**, the Academy’s highest honor, will be presented this year to **Arnold O. Beckman**, founder and chairman, retired, Beckman Instruments Inc. Beckman was chosen “for his leadership in the development of analytical instrumentation and for his deep and abiding concern for the vitality of the nation’s scientific enterprise.” The medal was established to recognize distinguished contributions in the application of science to the public welfare and has been presented since 1914.