National Academy honors 17 for major contributions to science

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The National Academy of Sciences (NAS) has selected 17 individuals to receive awards honoring their outstanding scientific achievements. The awards will be presented on May 2 at a ceremony in Washington, D.C., during the Academy's 142nd annual meeting.

Awards and recipients are:

ARCTOWSKI MEDAL – a medal and a prize of $20,000, awarded every three years for outstanding contributions to the study of solar physics and solar-terrestrial relationships – goes to **EDWARD J. SMITH**, senior research scientist, Jet Propulsion Laboratory, California Institute of Technology, Pasadena. Smith was chosen "for his pioneering studies of the solar and heliospheric magnetic fields in deep space and of planetary magnetic fields and their interaction with the solar wind." The medal was established by a bequest of Jane Arctowska in honor of her husband, Henri Arctowki, and has been presented since 1969.

JOHN J. CARTY AWARD FOR THE ADVANCEMENT OF SCIENCE – a medal and a prize of $25,000, awarded annually for noteworthy and distinguished accomplishment in science (materials in 2005) – goes to **ROBERT J. CAVA**, professor, department of chemistry, Princeton University, Princeton, N.J. Cava was chosen "for his outstanding contributions in the synthesis and characterization of many new materials that display interesting and important superconducting, dielectric, magnetic, or thermal properties." The award was established by the American Telephone & Telegraph Co. in honor

of John J. Carty and has been awarded since 1932.

ARTHUR L. DAY PRIZE AND LECTURESHIP – a prize of $20,000 awarded every three years to a scientist making lasting contributions to the study of 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 **HERBERT H. HUPPERT**, professor, department of applied mathematics and theoretical physics, and foundation director, Institute of Theoretical Physics, University of Cambridge, United Kingdom. Huppert was chosen "for fundamental research into the fluid mechanics of natural and multiphase flows and for pioneering the field of geological fluid mechanics." The prize was established by a bequest from Arthur L. Day and has been presented since 1972.

HENRY DRAPER MEDAL – a medal and a prize of $15,000 awarded every four years for an original investigation in astronomical physics – goes to **CHARLES L. BENNETT**, professor, department of physics and astronomy, The Johns Hopkins University, Baltimore. Bennett was chosen "for his contribution to the precise determination of the age, composition, and curvature of the universe through his leadership of NASA's WMAP [Wilkinson Microwave Anisotropy Probe] cosmic microwave background mission." The medal was established by a gift from Mary Anna Palmer Draper in honor of her husband and has been presented since 1886.

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 **JOHN KURIYAN**, investigator, Howard Hughes Medical Institute, and Chancellor's Professor, department of molecular and cell biology, University of California, Berkeley. Kuriyan was chosen "for his critical role in revealing the structural mechanisms

underlying processivity in DNA replication and the regulation of tyrosine kinases and their interacting target proteins." The award was established by Vera Lounsbery in memory of her husband and has been presented since 1979.

NAS AWARD IN AERONAUTICAL ENGINEERING – a prize of $15,000 awarded every five years for distinguished contributions to aeronautical engineering – goes to **ELBERT L. RUTAN**, president and CEO, Scaled Composites LLC, Mojave, Calif. Rutan was chosen "for leadership in engineering design and construction of SpaceShipOne, Voyager, and other successful experimental aircraft." The award was established by a gift of Dr. and Mrs. J.C. Hunsaker and has been presented since 1968.

NAS AWARD IN CHEMICAL SCIENCES – a medal and prize of $15,000 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 **THOMAS C. BRUICE**, professor, department of chemistry, University of California, Santa Barbara. Bruice was chosen "for his leading role in the development of bioorganic chemistry, and especially for deep and lasting contributions to the understanding of enzyme mechanisms." The award, supported by The Merck Company Foundation, has been presented 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 **MARVIN H. CARUTHERS**, Distinguished Professor, department of chemistry and biochemistry, University of Colorado, Boulder. Caruthers was chosen "for his invention and development of chemical reagents and methods currently used for the automated synthesis of DNA oligonucleotides (i.e., the "gene

machine")." The award, established by E. I. du Pont de Nemours & Co. and given this year for contributions made in academia, has been presented since 1991.

NAS AWARD FOR THE INDUSTRIAL APPLICATION OF SCIENCE – a prize of $25,000 awarded every three years for original scientific work of intrinsic scientific importance and with significant, beneficial application in industry – goes to **PHILIP NEEDLEMAN**, associate dean for special projects, Washington University School of Medicine, St. Louis. Needleman was chosen "for his groundbreaking contributions to our understanding of the metabolism of arachidonic acid in physiology and pathophysiology, which generates prostacyclin and thromboxane." 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 computational science/applied mathematics in 2005 to recognize innovative young scientists and to encourage research likely to lead toward new capabilities for human benefit – goes to **RONALD FEDKIW**, assistant professor, department of computer science, Stanford University, Stanford, Calif. Fedkiw was chosen "for his many innovations in the modeling and numerical simulation of flows and his pioneering contributions to physically based computer graphics." The award, presented since 1981, was established by AT&T Bell Laboratories in honor of William O. Baker.

NAS AWARD IN MOLECULAR BIOLOGY – a medal and a prize of $25,000 awarded annually for a recent notable discovery in molecular biology by a young scientist – goes to **DAVID BARTEL**, member, Whitehead Institute for Biomedical Research, and professor, department of biology, Massachusetts Institute of Technology, Cambridge. Bartel was chosen "for his discoveries on the repertoire of catalytic RNA and the analysis of micro RNA genes and their targets." The award is

supported by Pfizer Inc. and has been presented since 1962.

NAS AWARD FOR SCIENTIFIC REVIEWING – a prize of $10,000 awarded annually for excellence in scientific reviewing within the past 10 years (psychology in 2005) – goes to **DANIEL L. SCHACTER**, professor, department of psychology, Harvard University, Cambridge, Mass. Schacter was chosen "for his numerous books and reviews, which illuminate and explain the psychology and neuroscience of human memory for specialists, scientific colleagues, and the public." The award is supported by Annual Reviews, the Institute for Scientific Information, and THE SCIENTIST in honor of J. Murray Luck and has been presented since 1979.

ROBERTSON MEMORIAL LECTURE – a prize of $10,000 awarded every three years in any field of science to a distinguished scientist who is invited to lecture on his or her work and its international implications (cosmology in 2005) – goes to **JOHN E. CARLSTROM**, Subrahmanyan Chandrasekhar Distinguished Service Professor, department of astronomy and astrophysics, University of Chicago, Chicago. Carlstrom was chosen "for his pioneering use of interferometry to measure the anisotropy and polarization of the cosmic microwave background and its distortion due to intervening hot cluster gas." The lecture was established by friends and associates of Howard P. Robertson and has been presented since 1967.

TROLAND RESEARCH AWARDS – a research award of $50,000 given annually to each of two recipients to recognize unsusual achievement and to further their research within the broad spectrum of experimental psychology – go to **GREGORY C. DEANGELIS**, assistant professor, department of anatomy and neurobiology, Washington University School of Medicine, St. Louis, and to **JACOB FELDMAN**, associate professor, department of psychology and Center for Cognitive Science, Rutgers University, New Brunswick, N.J.

DeAngelis was chosen "for his fundamental contributions to understanding the neural mechanisms underlying stereoscopic vision: the discovery of a disparity mechanism and how it contributes to depth perception." Feldman was chosen "for his advancement of mathematical and computational approaches to perceptual organization in human vision and human concept learning." The rerserch awards were established by a bequest from 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 **LUCY SHAPIRO**, Ludwig Professor of Cancer Research, department of developmental biology, Stanford University School of Medicine, Stanford, Calif. Shapiro was chosen "for her pioneering work revealing the bacterial cell as an integrated system with transcriptional circuitry interwoven with the 3-D deployment of regulatory and morphological proteins." The award is supported by the Foundation for Microbiology and has been presented since 1968.

Also to be honored at the May 2 ceremony is **WILLIAM H. FOEGE**, who was chosen to receive the Academy's PUBLIC WELFARE MEDAL. The Academy selected Foege "for his extraordinary leadership, public service, and commitment to human well-being throughout the world." The medal was established to recognize distinguished contributions in the application of science to the public welfare and has been presented since 1914.

Source: The National Academies