

# Spring 2003 Prizes and Awards

## APS Announces Spring 2003 Prize and Award Recipients

Thirty-six APS prizes and awards will be presented during special sessions at three spring meetings of the Society: the 2003 March Meeting, 3-7 March, in Austin, TX; the 2003 April Meeting, April 5-8, in Philadelphia, PA; and the 2003 meeting of the APS Division of Atomic, Molecular and Optical Physics, May 21-24, 2003, in Boulder, CO.

Citations and biographical information for each recipient follow. The Apker Award recipients appeared in the December 2002 issue of *APS News* (<http://www.aps.org/apsnews/1202/120205.html>). Additional biographical information and appropriate Web links can be found at the APS Web site (<http://www.aps.org>). Nominations for most of next year's prizes and awards are now being accepted. For details, see pages 7 and 8 of this insert.

### PRIZES

#### 2003 HANS A. BETHE PRIZE

**Michael C. F. Wiescher**  
*University of Notre Dame*

Citation: "For his contributions to the experimental foundation of nuclear astrophysics, especially the delineation of the processes involved in explosive hydrogen burning in novae and x-ray bursters; and for providing an intellectual bridge between experimental nuclear astrophysicists and their theoretical colleagues."

Wiescher is presently the director of the Joint Institute of Nuclear Astrophysics (JINA) and Freimann Professor of Physics at the University of Notre Dame. His



present research interests range from nucleosynthesis scenarios during late stellar evolution to the fate of matter on accreting white dwarfs and neutron stars. He also developed a pioneering scientific program of close collaboration between nuclear physicists and astrophysicists within the highly interdisciplinary field of nuclear astrophysics. Wiescher got his PhD in 1980 at Muenster. He is very active in the future planning of the field from the motivation and construction of Rare Isotope Accelerator RIA to the Underground Laboratory.

#### 2003 TOM W. BONNER PRIZE

**Arthur Bruce McDonald**  
*Queen's University, Canada*

Citation: "For his leadership in resolving the solar neutrino problem with the Sudbury Neutrino Observatory."

McDonald earned his PhD from California Institute of Technology and worked at the Chalk River Nuclear Laboratories of AECL until 1981. From 1981 to 1989 he was a professor of physics at Princeton University and co-principal investigator of the Princeton Cyclotron. In 1989 he moved to Queen's



University in Kingston, Ontario as professor of physics and director of the Sudbury Neutrino Observatory (SNO) Institute and in 2002 he was awarded a University Research Chair in Physics. His research has centered on the use of the nucleus as a laboratory for the investigation of fundamental symmetries and interactions of nature. He continues an active teaching and research program in addition to the Directorship of SNO.

#### 2003 HERBERT P. BROIDA PRIZE

**George W. Flynn**  
*Columbia University*

Citation: "For pioneering, insightful and sustained studies of vibrational energy transfer in polyatomic molecules using a number of innovative experimental techniques, and for recent contributions to understanding of liquid-solid interfaces using scanning probe techniques."

Flynn received his PhD from Harvard in 1964. He did postdoctoral work in physics at M.I.T. from 1964-1966. In 1967 he joined Columbia University's Chemistry Department as an assistant professor. He served as Thomas Alva Edison Professor (1986-92) and became Higgins Professor of Chemistry in 1994. From 1979-2000 he served as either director or co-director of the Columbia Radiation Laboratory, and was appointed director of the Columbia Environmental Molecular Sciences Institute in 1998. His research interests include vibrational relaxation processes in molecules with "chemically significant" amounts of energy and laser temperature-jump techniques.



#### 2003 OLIVER E. BUCKLEY PRIZE

**Boris Altshuler**  
*Princeton University*

Citation: "For fundamental contributions to the understanding of the quantum mechanics of electrons in random potentials and confined geometries, including pioneering work on the interplay of interactions and disorder."

Altshuler was born on January 27, 1955 in Leningrad (now St. Petersburg) Soviet Union (now Russia). In 1970 he started his undergraduate studies at Leningrad State University and received his Diploma in 1976. The same year he became a graduate student at the Leningrad Institute for Nuclear Physics. Altshuler received his PhD there in 1979 and continued to work at that Institute until 1989, first as a junior research fellow and later as a senior research fellow. In 1989 he moved to the US and joined the faculty of the Massachusetts Institute of Technology. In 1996 he moved to Princeton University, where he is a professor of physics. From 1994 Altshuler also became a Fellow at the NEC Research Institute.



#### 2003 DAVISSON GERMER PRIZE

**Ruud Tromp**

*IBM TJ Watson Research Center*

Citation: "For his pioneering work in understanding the structure and growth of semiconductor surfaces and interfaces."

Tromp received a degree of physics engineer from the Twente University of Technology (the Netherlands) in 1978. In 1982 he obtained his PhD degree in physics from the University of Utrecht, for research at the FOM Institute for Atomic and Molecular Physics in Amsterdam. In 1983 he joined the IBM T.J. Watson Research Center as a research staff member. At IBM he has held positions as manager of Interface Science, and of Analytical Science, as consultant to the IBM Corporate Technology Council, and presently as manager of Molecular Assemblies and Devices. His research interests include the structure and growth of surfaces and interfaces, surface phase transitions, modifications of crystal growth by organic and inorganic monolayers ('surfactants'), and the development of novel experimental techniques and methods.



In 1938 he moved to Princeton University, where he remained until 1976. He then spent a decade at the University of Texas at Austin. His early contributions include the S matrix, the theory of nuclear rotation, the theory of nuclear fission, action-at-a-distance electrodynamics, and the collective model of the nucleus. Beginning in 1952, he became immersed in gravitation physics, "inventing" the geon and quantum foam, and later coining the terms Planck scale and black hole. In the 1940s Wheeler contributed to the Manhattan Project, and in the 1950s to the development of thermonuclear weapons. He served as APS President in 1966.



#### 2003 DANNIE HEINEMANN PRIZE

**Yvonne Choquet-Bruhat**

*Université Pierre et Marie Curie, Paris*

**James W. York**  
*Cornell University*

Citation: "For separate as well as joint work in proving the existence and uniqueness of solutions to Einstein's gravitational field equations for a variety of sources, and for formulating these equations so as to improve numerical solution procedures with relevance to realistic physical systems."

Born in Lille, France, Choquet-Bruhat studied at the Ecole Normale Supérieure and received her PhD in 1951 from the Université de Paris. She was a researcher at Princeton University's Institute for Advanced Study for two years before joining the faculty of the Université de Marseille in 1953. She has been a professor at the Université de Paris since 1968, where she currently holds emeritus status. Her current work is on developing the best hyperbolic formulation of evolution problems in numerical studies; and on lowering the smoothness of solutions of constraints in isolated bodies. She received France's prestigious commandeur de la légion d'honneur in 1999.



#### 2003 EINSTEIN PRIZE

**Peter G. Bergmann**

*Syracuse University, (deceased)*

**John A. Wheeler**

*Princeton University, (retired)*

Citation: "For pioneering investigations in general relativity, including gravitational radiation, quantum gravity, black holes, space time singularities, and symmetries in Einstein's equations, and for leadership and inspiration to generations of researchers in general relativity."

Bergmann was born in Berlin. At age 21, he received his PhD from the German University in Prague. From 1936 to 1941, he collaborated with Albert Einstein at the Institute for Advanced Studies. From 1941-1944, Bergmann taught at Black Mountain College and at Lehigh University. From 1944-1947, he was engaged in war research on underwater sound at Columbia University and the Woods Hole Oceanographic Institution. In 1947, he took a position at Syracuse University. Here together with his students and coworkers he began a research program to construct a quantum theory of relativity. He retired from Syracuse University in 1982 and became a Research Professor at NYU. He died on October 19, 2002.



Wheeler received his PhD in theoretical physics from Johns Hopkins University in 1933. Following postdoctoral years in New York and in Copenhagen, he joined the faculty of the University of North Carolina.

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theory. His other principal research interest is the statistical thermodynamics of black holes and gravitational fields generally. In 1973 York joined the faculty of the University of North Carolina at Chapel Hill. He became Distinguished Professor in 1989 and retired in 2002, when he joined the faculty of Cornell University as Professor of Physics, associated with the Laboratory for Elementary Particle Physics and the Center for Radiophysics and Space Research.



#### 2003 IRVING LANGMUIR PRIZE

**Phaedon Avouris**  
IBM Research

Citation: "For fundamental pioneering contributions to nanostructures and atomic-scale phenomena at surfaces."

Avouris is currently manager of Nanometer Scale Science and Technology at the IBM T.J. Watson Research Center. He received his PhD degree from Michigan State University in 1975.



After postdoctoral work at UCLA and AT&T Bell Laboratories he joined the Research Division of IBM in 1978. Over the years, his research has involved a wide variety of subjects including laser spectroscopy, surface physics and chemistry, scanning tunneling microscopy and manipulation with proximal probes. His current research focuses on the electrical properties and transport mechanisms in carbon nanotubes, molecular wires and other nanostructures.

#### 2003 JULIUS EDGAR LILIENTHAL PRIZE

**Frank Wilczek**  
MIT

Citation: "For his role in the development of asymptotic freedom and other aspects of quantum chromodynamics, a cornerstone of the standard model; for his remarkable versatility in research in condensed matter and astrophysics as well as particle physics; and for his outstanding ability to lecture and write with clarity, profundity, and enthusiasm."

Wilczek is known for the discovery of asymptotic freedom, the development of quantum chromodynamics, the invention of axions, and the discovery and exploitation of new forms of quantum statistics (anyons). He received his PhD from Princeton University and taught there from 1974 to 1981. From 1981 to 1988, he was the Chancellor Robert Huttenback



Professor of Physics at the University of California at Santa Barbara, and the first permanent member of the National Science Foundation's Institute for Theoretical Physics. In the fall of 2000, he moved from the Institute for Advanced Study, where he was the J.R. Oppenheimer Professor, to the Massachusetts Institute of Technology, where he is the Herman Feshbach Professor of Physics. He is a past recipient of the APS J.J. Sakurai Prize, and contributes regularly to *Physics Today* and to *Nature*.

#### 2003 JAMES C. MCGRODDY PRIZE

**Charles Lieber**  
Harvard University

Citation: "For his outstanding contributions in nanostructured and functional nanostructured materials."

After completing doctoral studies at

Stanford University and postdoctoral research at the California Institute of Technology, Lieber moved in 1987 to the East Coast to assume an assistant professor position at Columbia University. He moved to Harvard University in 1991 and now holds a joint appointment in the Department of Chemistry and Chemical Biology, where he is the Mark Hyman Professor of Chemistry, and the Division of Engineering and Applied Sciences. At Harvard Lieber has pioneered the synthesis of a broad range of nanoscale materials. In his spare time, Lieber recently founded a nanotechnology company, NanoSys, Inc., with the modest goal of revolutionizing commercial applications in chemical and biological sensing, computing, photonics, and information storage.



#### 2003 LARS ONSAGER PRIZE

**Pierre C. Hohenberg**  
Yale University

Citation: "For contributions to a wide range of topics in statistical and condensed matter physics; including the theory of dynamic scaling close to critical points, the theory of pattern formation in nonequilibrium systems, and density functional theory."

Hohenberg received his PhD (1962) in physics from Harvard University. After postdoctoral study at the Institute for Physical Problems in Moscow and the Ecole Normale Supérieure in Paris, he joined AT&T Bell Laboratories, where he was a Member of Technical Staff from



1964 to 1995. In 1995 he moved to Yale University as Deputy Provost for Science and Technology, a position he currently occupies. His research prior to 1995 was in low-temperature and condensed matter theory, and statistical physics. In his current position he oversees the science and engineering departments of the Yale's Faculty of Arts and Sciences and is the senior research officer of the University.

#### 2003 GEORGE E. PAKE PRIZE

**C. Paul Robinson**  
Sandia National Laboratories

Citation: "For his leadership roles as Director of the Sandia National Laboratories and as Head of the US Delegation to the US/USSR arms control talks in Geneva, and for his pioneering contributions to the development of high explosives lasers, e-beam initiated chemical lasers, and molecular laser isotope separation methods."

Robinson is president of Sandia Corp. and director of Sandia National Laboratories. He is a member since 1991 of the Strategic Advisory Group for the Commander, U.S. Strategic Command. Since 1998, he has served on Department of Defense's Threat Reduction Advisory Committee. Appointed by Presidents Ronald Reagan and George Bush, Ambassador Robinson served as Chief Negotiator (1988-90) and headed the U.S. Delegation to the US/USSR Nuclear Testing Talks in Geneva, which produced: "Protocols to the Threshold Test Ban" Treaty and the "Peaceful Nuclear Explosions" Treaty. He was senior vice president, principal scientist, and board member of Ebasco Services Inc., a N.Y.-based engineering/construction firm. He led defense programs at Los Alamos National Laboratory and has testified over



60 times before Congress. He has a BS in physics and honorary doctorate from Christian Brothers College, and a PhD in physics from Florida State University.

#### 2003 W.K.H. PANOFSKY PRIZE

**William Willis**  
Columbia University

Citation: "For his leading role in the development and exploitation of innovative techniques now widely adopted in particle physics, including liquid argon calorimetry, electron identification by detection of transition radiation, and hyperon beams."

Willis studied physics at Yale University. His thesis work centered on the development of hydrogen bubble chambers, earning him a PhD in 1958. He then joined Brookhaven Laboratory, continuing bubble chamber studies, particularly on the weak decays of kaons and hyperons. He spent 1961-2 at CERN, participating in the measurement of the S-L parity. In 1966 he moved to Yale, where he measured the correlations of the spins charged hyperons and neutrons from their decay. He joined CERN in 1973, where a result of his series of experiments was the discovery of direct production of single photons in 1979. In 1990 he moved to Columbia University, where he continued to work on heavy ion collisions. He is currently Project Manager for the US ATLAS Collaboration, working with the ATLAS experiment at the CERN Large Hadron Collider.



#### 2003 EARLE K. PLYLER PRIZE

**Kevin Lehmann**  
Giacinto Scoles  
Princeton University

Citation: "For their collaborative contributions to our understanding of intramolecular dynamics by high resolution spectroscopy and to atomic and molecular spectroscopy in liquid He nanodroplets, through the experimental and theoretical development of molecular and cluster beam spectroscopy."

Lehmann was awarded a PhD in chemical physics from Harvard University in 1983, and was a Junior Fellow in the Harvard Society of Fellows from 1983-86. He joined the Chemistry Department of Princeton University in late 1985, was promoted to associate professor in 1991 and to full professor in 1995. Lehmann's early research focused on using high resolution molecular spectroscopy to study Intramolecular Vibrational energy Redistribution (IVR) in small polyatomic molecules. In 1987, he and Giacinto Scoles used single and double resonance molecular beam spectroscopy to study IVR in medium to large polyatomic molecules. More recently, they have used these methods to study the dynamics of atoms and molecules dissolved in or attached to superfluid helium nanodroplets.



Scoles graduated from the University of Genova (Italy) in 1959 with a chemistry degree. He did postdoctoral work at the Kamerlingh-Onnes Laboratorium of the University of Leiden in The Netherlands from 1961 to 1964. He was assistant and,



later, associate professor of physics at the University of Genova from 1964 to 1971, when he moved to the University of Waterloo in Canada. Since 1986 he has been the Donner Professor of Science at Princeton University. Scoles is a pioneer of modern molecular beam techniques that he has applied to the study of atomic and molecular interactions both in the gas phase and at the gas-surface interface. More recently, in collaboration with Lehmann, he has carried out spectroscopic studies of energy redistribution in polyatomic molecules.

#### 2003 POLYMER PHYSICS PRIZE

**Andrew J. Lovinger**  
National Science Foundation and Bell Laboratories, Lucent Technologies

Citation: "For his contributions to fundamental understanding of structure, morphology and properties in technologically important polymers."

Lovinger received his PhD in 1976, all in chemical engineering and applied chemistry from Columbia University. In 1977 he joined the Technical Staff at Bell Laboratories. In 1995 he moved to the National Science Foundation, but continued part-time research at Bell Laboratories until his retirement in 2001. At the NSF, Lovinger has been serving as director of the Polymers Program in the Division of Materials Research since 1995. His research has focused on correlation between structure, morphology, and properties of polymeric and organic materials. His most recent contributions have been on polymeric and organic thin-film transistor materials for "plastic electronics". Lovinger is a past recipient of the APS Dillon Medal (1985).



#### 2003 I. I. RABI PRIZE

**Mark Kasevich**  
Stanford University

Citation: "For developing atom interferometer inertial sensors with unprecedented precision, and for pioneering studies of Bose-Einstein condensates, especially the achievement of non-classical spin states and the demonstration of a mode-locked atom laser."

Kasevich is a professor of physics at Stanford University. His research interests include atom optics and dilute, ultra-cold quantum fluids. He graduated from Dartmouth College in 1985 with a BA in physics. He received his PhD from Stanford University, Department of Applied Physics, in 1992, and was a member of the Stanford physics department faculty from 1992-7. From 1997-2002 he was a member of the Yale University physics department faculty.



#### 2003 ANNESUR RAHMAN PRIZE

**Steven R. White**  
University of California, Irvine

Citation: "For his development, application, and dissemination of the numerical density matrix renormalization group (DMRG) method."

White is a professor of physics at the University of California at Irvine. He completed his PhD degree in physics from Cornell University in 1987. Subsequently he was a post doc at UC Santa Barbara, and then joined the faculty at UC Irvine in 1989. His research throughout his career has focused on computational methods



for studying quantum systems. He developed and applied quantum Monte Carlo methods to strongly correlated systems, including the high temperature super-conductors and invented the density matrix renormalization group. He is currently serving as Councillor for the Division of Computational Physics of the APS.



#### 2003 J. J. SAKURAI PRIZE

**Alfred Mueller**  
Columbia University

**George Serman**  
State University of New York  
at Stony Brook

Citation: "For developing concepts and techniques in QCD, such as infrared safety and factorization in hard processes, which permitted precise quantitative predictions and experimental tests, and thereby helped to establish QCD as the theory of the strong interactions."

Mueller received a PhD in physics from MIT in 1965. The years 1965-1971 were spent at Brookhaven National Laboratory, and he has been at Columbia since 1972. In the past Mueller has worked on the theory and phenomenology of high-energy hadronic reactions, on the short distance behavior of QCD, on properties of the large order perturbative series in QCD and on testing and understanding QCD using hard reactions in hadrons and nuclei. His current research focuses on high field strength and high-density QCD systems.



Serman received his PhD from the University of Maryland in 1974. He held research associate positions at the University of Illinois (1974-1976), Stony Brook University (1976-1978), and the Institute for Advanced Study (1978-1979), before joining the faculty of the C.N. Yang Institute for Theoretical Physics at Stony Brook in 1979. He became director of the Institute in 2001. His research interests are centered on how the complex outcomes observed in collision experiments arise in quantum field theories. In recent years he has developed ideas on the summation of large corrections to all orders in perturbation theory.



#### 2002 ARTHUR L. SCHAWLOW PRIZE

**David E. Pritchard**  
MIT

Citation: "For groundbreaking studies of coherent atom optics and pioneering work on laser cooling and trapping of atomic gases."

Pritchard graduated from Caltech (BS 1962) and Harvard (PhD 1968), and has been employed at MIT since 1966. He has studied van der Waals molecules two-photon spectroscopy, line broadening, and atom-molecule collisions. His pioneering observation of the Kapitza-Dirac effect and Bragg scattering of atoms opened the field of atom optics, and led to his group's development of nanofabricated diffraction gratings for atoms. His group also does



interferometry experiments with BEC's. His group invented the widely used magneto-optical laser trap and the Dark Spot MOT, and operates the world's most accurate mass spectrometer.

#### 2003 FACULTY MEMBER FOR RESEARCH IN AN UNDERGRADUATE INSTITUTION PRIZE

**Dhiraj Sardar**

University of Texas at San Antonio

Citation: "For his outstanding research on the interaction of laser light with matter, particularly the spectroscopic characterization of new solid-state media, for his involvement and support of undergraduates in his research, and for his dedication to minority student education."

Sardar received his PhD in physics from Oklahoma State University in 1980. Following two years of postdoctoral work and a one-year visiting faculty position at Oklahoma State University, he taught physics at Indiana-Purdue University at Fort Wayne. In 1984, he moved to the University of Texas at San Antonio as an assistant professor of physics and became a professor of physics in 1995. His current research interests are: (1) spectroscopic and laser properties of rare earth ions doped in crystalline solids and (2) optical characterization of biological tissues and studies on laser-tissue interactions. His research in spectroscopy of new laser materials has involved over thirty undergraduate students. Six of his research students have received seven awards for outstanding presentations at the Texas Section of the APS Conferences.



#### 2003 ROBERT R. WILSON PRIZE

**Helen T. Edwards**

Fermi National Accelerator Laboratory

Citation: "For her pivotal achievement and critical contribution as the leader in the design, construction, commissioning and operation of the Tevatron and for her continued contributions to the development of high gradient superconducting linear accelerators as well as bright and intense electron sources."

Edwards attended Cornell University, where she received her PhD in 1966. She served as a research associate at Cornell from 1966 through 1969 and worked on the commissioning of the 10 GeV electron synchrotron and on resonant beam extraction. She joined the Fermilab staff in late 1969 where she led the effort which brought the Fermilab 8 GeV Booster into operation. She was instrumental in commissioning the 400 GeV Main Accelerator. In the late 70's and 80's she was a co-leader in the construction of the Tevatron and served as Head (1987) of the Accelerator Division. From 1989 to early 1991, she served as technical director at the SSC then joined DESY in Hamburg Germany and became interested in RF superconductivity. She presently has joint appointments at DESY and Fermilab.



#### AWARDS, MEDALS AND LECTURESHIPS

##### 2003 DAVID ADLER LECTURESHIP AWARD

**Ivan Schuller**

University of California, San Diego

Citation: "For research in metallic

heterostructures and superlattices, communicated with unusual enthusiasm and eloquence."

Schuller received PhD (1976) from Northwestern University. From 1978-1987 he was a senior physicist and group leader at Argonne National Laboratory. Since 1987 he has been a professor of physics at the University of California, San Diego, and presently is Layer Leader, Materials and Devices of CAL-(IT)2 Institute, and Director of AFOSR-MURI at UCSD. Current scientific interests include the preparation, characterization and study of metallic superlattices, heterostructures and nanostructures. Schuller has also dedicated considerable effort to popularizing physics through public lectures and educational T.V.



#### 2003 EDWARD A. BOUCHET AWARD

**Homer Neal**

University of Michigan

Citation: "For his significant contributions to experimental high energy physics, for his important role in formulating governmental science policy, for his service as a university administrator at several universities, and for his advocacy of diversity and educational opportunity at all levels."

Neal is the Samuel A. Goudsmit Professor of Physics at the University of Michigan. He received his PhD in physics from the University of Michigan in 1966. He has served as Provost at the State University of New York at Stony Brook (1981-86), as dean for research and graduate development at Indiana University (1976-81), and at the University of Michigan as physics department chair, vice president for research and interim president. His research area is experimental high energy physics and he is currently conducting research at the European Laboratory for Particle Physics. Neal also participates in the DZERO collaboration that in 1995 announced the discovery of the top quark.



#### 2003 JOSEPH A. BURTON FORUM AWARD

**Melba Newell Phillips**

University of Chicago, retired

Citation: "For tireless efforts in physics education, for continued work in preserving the history of physics as well as other service to the physics community, for her role in founding the Federation of American Scientists, and as a model of a principled scientist."

Phillips earned a PhD in Physics from the University of California at Berkeley in 1933. She did research in atomic and molecular physics, and has held faculty positions or fellowships at the University of California-Berkeley, Bryn Mawr College, the Institute for Advanced Study, Connecticut College, Brooklyn College, the University of Minnesota, Washington University St. Louis, University of Chicago, and the State University of New York at Stony Brook. She has authored two much-used textbooks: *Principles of Physical Science* with Francis Bonner, and *Classical Electricity and Magnetism* with W.K.H. Panofsky. Phillips



served as AAPT President 1966-67 and as Executive Officer in 1975-77. She involved herself in essentially all aspects of AAPT's activities. In 1985 she and Spencer R. Weart edited *History of Physics: Readings from Physics Today*.

#### 2003 JOHN H. DILLON MEDAL

**Helmut Strey**

University of Massachusetts, Amherst

Citation: "For contributing significantly to our understanding of the physics of biopolymers and polyelectrolytes."

Strey is an assistant professor of polymer science and engineering at the University of Massachusetts, Amherst, a position he has held since 1998. He received his PhD in physics in 1993 from the Technical University, Munich, and joined the National Institutes of Health the following year. His research focuses on nature's ability to assemble simple molecular building blocks into highly ordered materials, such as those found in cell membranes, cell nuclei, cytoskeletons, cartilage or bone. He is using aqueous self-assembly to create micro- and nano-structures for the next generation of controlled drug delivery, chiral separation and DNA sequencing applications.



#### 2003 JOSEPH F. KEITHLEY AWARD

**Arthur Ashkin**

Bell Laboratories

Citation: "For theoretical and experimental contributions to the understanding of laser cooling and trapping of atoms and particles, for demonstrating the optical gradient forces on atoms and the trapping of atoms with light, and for inventing optical tweezers and showing how they can be used to measure the physical forces generated by biological molecular motors."

Ashkin received a PhD in nuclear physics from Cornell University in 1952. He worked at the Columbia Radiation Lab (1942-1945) while in the army, and at AT&T Bell Laboratories (1952-1991). At Bell Laboratories he did research on micro-waves, nonlinear optics, and laser trapping. He discovered optical trapping of dielectric particles and proposed stable optical trapping of atoms. He made the first observation of optical gradient forces on atoms and the first observation of molasses and optical trapping of atoms.



#### 2003 MARIA GOEPPERT MAYER AWARD

**Chung-Pei Michele Ma**

University of California, Berkeley

Citation: "For her important contributions to theoretical astrophysics, particularly in the areas of relativistic evolution of density perturbations, testing of structure formation models with massive neutrinos, and the clustering and dynamics of dark matter halos around galaxies."

Ma received both her undergraduate and PhD degrees in physics from MIT (1987, 1993). While studying particle physics and theoretical cosmology at MIT, she was enrolled in the New England Conservatory of Music in Boston for violin performance classes. She was a prize fellow





at the California Institute of Technology (1993-1996) and an assistant and associate professor of Physics and Astronomy at the University of Pennsylvania (1996-2001). She recently joined the astronomy faculty at the University of California at Berkeley. Ma's primary research interests are dark matter, the cosmic microwave background, and the large-scale structure of the universe.

#### 2002 NICHOLSON MEDAL FOR HUMANITARIAN SERVICE

**Ramon E. Lopez**

*University of Texas at El Pasos*

Citation: "For accomplishments in improving the quality of science education for all Americans. For contributions as founder of the Teacher Scientist Alliance Institutes which introduced K-12 students to the excitement of scientific discovery. For increasing participation of underrepresented minorities in physics."

Lopez is currently the C. Sharp Cook Distinguished Professor of Physics at the University of Texas at El Paso. He received his PhD in space physics from Rice University in 1986. His research area is space plasmas, and his current interests center on space weather and global magnetohydrodynamic simulations of the magnetosphere. He has served on a variety of education and outreach committees and in elected positions in the APS, AGU, and the Society for the Advancement of Chicanos and Native Americans. From 1994-1999 he was the APS Director of Education where he established the Teacher-Scientist Alliance Institutes. Lopez also the co-producer of Electric Space, a 4000 square-foot traveling museum exhibit on the space environment, and he is the co-author of *Storms from the Sun*, a popular science book about space weather.



Hessels is a professor and Canada Research Chair in the Department of Physics and Astronomy at York University in Toronto, Canada. He received his undergraduate degree at Calvin College in Grand Rapids, Michigan in 1984 and received his PhD at Notre Dame University in 1991. Since 1992, he has been a faculty member at York University. His current research includes precision measurements of the  $n=2$  triplet P fine structure of helium, which will lead to a precise determination of the fine-structure constant, as well as antihydrogen physics within the ATRAP collaboration.



#### 2003 LEO SZILARD LECTURESHIP AWARD

**Robert Socolow**

*Princeton University*

Citation: "For leadership in establishing energy and environmental problems as legitimate research fields for physicists, and for demonstrating that these broadly-defined problems can be addressed with the highest scientific standards."

Socolow is a professor of mechanical and aerospace engineering at Princeton, where he has been on the faculty since 1971. He was the director of the Center for Energy and Environmental Studies, 1979-1997. He teaches in the School of Engineering and Applied Science and in the Woodrow Wilson School of Public and International Affairs. Socolow's current research focuses on global carbon management, the hydrogen economy, and fossil-carbon sequestration. He is the co-principal investigator (with ecologist, Stephen Pacala) of Princeton's new multi-disciplinary Carbon Mitigation Initiative (CMI). Socolow earned a PhD in 1964 from Harvard University in theoretical high energy physics. He was an assistant professor of physics at Yale University from 1966 to 1971. Socolow co-edited *Patient Earth* (1971), one of the first college textbooks in environmental studies.



#### 2003 JOHN WHEATLEY AWARD

**Kennedy Reed**

*Lawrence Livermore National Laboratory*

Citation: "For multifaceted contributions to the promotion of physics research and education in Africa, for developing agreements for exchange of faculty and students between American and African institutions, for organizing and conducting international workshops and conferences on physics in Africa, and for advocating increased American and international involvement with physics in Africa."

Reed earned a PhD in physics at University of Nebraska. He is a theoretical physicist at Lawrence Livermore National Laboratory, working in research on atomic collisions in high temperature plasmas. He has contributed to the understanding of indirect processes in electron-impact excitation and ionization of highly charged ions. He is also director of the LLNL Research Collaborations Program for HBCUs. He has been active in programs of the International Center for Theoretical Physics in Trieste, Italy; has served as Vice Chair of the APS Committee on International Scientific Affairs; and was elected to the International Union of Pure and Applied Physics, Commission on Physics for Development.



achieved unprecedented precision for a neutrino-nucleon scattering experiment. She is currently a collaborator on the Booster Neutrino Experiment (MiniBooNE) at Fermilab and a postdoc at Columbia University.

Zeller's dissertation made use of the high statistics samples of neutrino and antineutrino data collected at the NuTeV experiment to greatly minimize systematic uncertainties. As a result of this strategy, her thesis represents the most precise neutrino measurement to date of the fundamental constant which relates the W and Z boson masses in the standard model of particle physics. This now-published result shows a deviation with respect to the standard model expectation that is significant at the level of three standard deviations. The result has thus sparked much interest in the international particle physics community. More recently, Zeller has been working on measuring and modeling low energy neutrino interaction cross sections at MiniBooNE. She looks forward to results from this new experiment.



#### 2003 DISSERTATION IN NUCLEAR PHYSICS AWARD

**Karsten Heeger**

*Lawrence Berkeley National Laboratory*

Citation: "For his role in the generation and analysis of the data from the Sudbury Neutrino Observatory, and the resulting resolution of the solar neutrino problem."

Heeger received his PhD in August 2002 from the University of Washington. Where he worked on a model-independent measurement of the solar 8B neutrino flux in the Sudbury Neutrino Observatory (SNO). He graduated from Oxford University in 1995. He is currently a Chamberlain Fellow in the Physics Division at Lawrence Berkeley National Laboratory and a member of the KamLAND experiment, which recently confirmed the hypothesis of solar neutrino oscillation using terrestrial neutrinos. His current research interests include neutrino physics and weak interactions. Karsten is the 2003 Chair of the APS Forum on Graduate Student Affairs (FGSA).



#### DISSERTATION AWARDS

#### 2003 TANAKA DISSERTATION AWARD

**Geralyn P. "Sam" Zeller**

*Northwestern University*

Citation: "For her contributions to the precision measurement of the weak mixing angle in neutrino-nucleon interactions. This work provides the most accurate measurement to date of the weak mixing angle using this technique. The value lies three standard deviations away from global electroweak fits, suggesting the existence of physics contributions from beyond the standard model."

Zeller graduated from Northwestern University with a PhD in 2002. Her dissertation, entitled "A Precise Measurement of the Weak Mixing Angle in Neutrino-Nucleon Scattering,"

#### 2003 FRANCIS M. PIPKIN AWARD

**Eric Hessels**

*York University*

Citation: "For a wide range of high precision measurements to test fundamental interactions in atomic physics, especially fine structure splittings in helium as a measure of the fine structure constant, and for an innovative experimental technique to create atoms of antihydrogen."

## APS Council Announces 2002 APS Fellows

The APS Council elected 6 Members as Fellows of the Society at its November 2002 meeting. The names and citations of the new APS fellows are listed below. Nominations for fellowship are received by the APS headquarters throughout the year, and are forwarded for review to the appropriate division or topical group fellowship committees. These, in turn, forward their recommendations to the APS Fellowship Committee, chaired in 2002 by APS Vice President William Brinkman.

Fellowship nomination forms may be obtained by writing to the APS Fellowship Office, One Physics Ellipse, College Park, MD, 20740-3844, by accessing the APS URL (<http://www.aps.org>), or by sending an email message to [honors@aps.org](mailto:honors@aps.org). Deadlines for fellowship nominations in 2003 can be found on page 8 of this insert.

### 2002 Fellows

**Affleck, Ian Keith**

*Boston University*

**DCMP (Condensed Matter)**

For important theoretical contributions to quantum magnetism and quantum impurities, and for the prediction of possible flux phases in the high temperature superconductors.

**Agarwal, Ramesh K.**

*Wichita State University*

**Fluid Dynamics**

For pioneering development of Computational Fluid Dynamics methods and codes for the aerodynamic analysis and design of all categories of aerospace vehicles and outstanding contributions to aeroacoustics, magnetohydrodynamics and rarefied gas dynamics.

**Barwick, Steven W.**

*University of California, Irvine*

**Astrophysics**

For contributions to non-accelerator, experimental particle physics, especially as co-spokesperson of the Antarctic Muon and Neutrino Detector Array, charged with oversight of detector operations and management of scientific output.

**Baskerville-Bridges, Frank George**

*University of California, Santa Cruz*

**DCMP (Condensed Matter)**

For important innovations in EXAFS techniques leading to improved understanding of local structure and correlated atomic displacements.

**Beck, Douglas H.**

*University of Illinois at Urbana-Champaign*

**Nuclear Physics**

For pioneering work in the use of parity-violating electron scattering to elucidate the quark structure of the nucleon.

**Ben-Itzhak, Itzik**

*Kansas State University*

**DAMOP (Atomic, Molecular, Optical)**

For his creative experimental studies of molecular dissociation dynamics via fragment coincidence and 3D imaging techniques; and for his studies of the creation and decay of long-lived metastable molecular ions.

### Recommended 2002 Fellows (Alphabetical by Unit)

**Benka, Stephen G.**

*American Institute of Physics, Maryland*

**Forum on Physics & Society**

For his leadership at Physics Today magazine, unwavering commitment — scientific, social, educational, and political — and consistently high standards of journalism on behalf of the physics community.

**Benson, Stephen Vincent**

*Thomas Jefferson National Accelerator Facility*

**Physics of Beams**

For critical contributions to the development of free-electron lasers, including the first demonstration of lasing at harmonics and of multi-kilowatt lasing with an energy recovered linac.

**Berman, Gennady P.**

*Los Alamos National Laboratory*

**Computational Physics**

For his internationally recognized expertise in the areas of classical and quantum dynamical systems, dynamical chaos, dynamics of quantum computation, and modeling of nano-devices.

**Bilger, Robert William**

*University of Sydney, Australia*

**Fluid Dynamics**

For outstanding contributions to knowledge of turbulent reactive flows through insightful experiments, theory and modelling, especially for elucidating the fundamental processes in turbulent combustion and for the development of the conditional moment closure.

**Borchers, Julie Ann**

*National Institute of Standards and Technology*

**Magnetism & Its Application**

For her insightful neutron investigations into interlayer exchange interaction phenomena in magnetic thin films and superlattices.

**Bunce, Gerry M.**

*Brookhaven National Laboratory*

**Nuclear Physics**

For work in spin physics, including the muon 'g-2' experiment, contributions and leadership in the RHIC spin program and the discovery of lambda polarization in production at high energy.

**Butler, Laurie Jeanne**

*University of Chicago*

**Chemical Physics**

For fundamental and pioneering contributions to the understanding of non-adiabatic effects in molecular photophysics and photoreactivity.

**Carena, Marcela**

*Fermi National Accelerator Laboratory*

**Particles & Fields**

For her outstanding contributions to the physics of Higgs bosons and Supersymmetry.



**Chen, Yu-Jiuan**

Lawrence Livermore National Laboratory

**Physics of Beams**

For revolutionizing the achievable beam quality of linear induction accelerators and advancing the state-of-the-art of flash x-ray radiographic technology.

**Chou, Mel-Yin**

Georgia Institute of Technology

**DCMP (Condensed Matter)**

For seminal contributions to the development and application of electronic structure techniques, applied successfully to studies of structural and electronic properties of materials.

**Clark, W. Gilbert**

University of California, Los Angeles

**Inst. & Measurements Topical Group**

For developing magnetic resonance instrumentation and methods, widely disseminating their application, and using them to investigate semiconductors, superconductors, organic conductors, low-dimensional magnets, heavy fermions, and charge and spin density waves.

**Clary, David C.**

University College London

**Chemical Physics**

For his elegant and pioneering theoretical contributions to the fields of intermolecular interactions, collisional energy transfer, cluster spectroscopy, and chemical reaction dynamics at the quantum state-to-state level.

**Cohen, Ronald Elliott**

Carnegie Institution of Washington

**Computational Physics**

For contributions to the understanding of the physics of ferroelectrics, and for developments of methods and understanding of high pressure and temperature materials properties.

**Cohn, Daniel R.**

Massachusetts Institute of Technology

**Plasma Physics**

For pioneering the use of plasma processing for environmental, hydrogen production and hydrocarbon fuel efficiency applications. Also, for innovative concepts for high field tokamak fusion reactor design and operation.

**Coltrin, Michael E.**

Sandia National Laboratory

**Forum on Industrial and Applied Physics**

For contributions to the fundamental understanding of the gas-phase and surface chemical processes in the chemical vapor deposition of semiconductor materials.

**Composto, Russell J.**

University of Pennsylvania

**Polymer Physics**

For his excellent contributions in the diffusion and surface/interface phenomena in polymer physics through innovative experimental studies.

**Conrad, Janet Marie**

Columbia University

**Particles & Fields**

For her leadership in experimental neutrino physics, particularly for initiating and leading the NuTeV decay channel experiment and the Mini-BooNe neutrino oscillations experiment.

**Conradi, Mark S.**

Washington University, Missouri

**DCMP (Condensed Matter)**

For innovation of sensitive nuclear magnetic resonance methodologies applicable at high pressures in diamond anvil cells.

**Copel, Matthew Warren**

TJ Watson Research Laboratory

**Forum on Industrial and Applied Physics**

For contributions to the development of ion beam analytical methods and to the fundamental understanding of the structure, properties and reactions of electronic materials.

**Cubaynes, Denis**

Paris-Sud University, LURE Laboratory

**DAMOP (Atomic, Molecular, Optical)**

For his achievements in the field of atomic photoionization of laser-excited atoms and for having brought new insights into the creation and the properties of hollow atoms.

**Das, Ashok Kumar**

University of Rochester

**Particles & Fields**

For contributions in the areas of supergravity, integrable models and finite temperature field theory.

**Davies, Paul Brett**

University of Cambridge

**Chemical Physics**

For innovative high resolution infrared laser spectroscopy of free radicals, ions and other transient molecules and for infrared-visible sum frequency spectroscopy of surfactants at interfaces.

**Debevec, Paul Timothy**

University of Illinois at Urbana-Champaign

**Nuclear Physics**

For novel development of instrumentation and deep intellectual contributions to a broad range of photo-nuclear experiments, hadron spectroscopy, and precision muon physics.

**DePaola, Brett David**

Kansas State University

**DAMOP (Atomic, Molecular, Optical)**

For developing and applying technologically advanced experimental methods for studying basic atomic collision processes.

**Diaz de la Rubia, Tomas**

Lawrence Livermore National Laboratory

**Computational Physics**

For his contributions to multi-scale modeling of materials and seminal research on defect processes in solids under irradiation or high strain-rate conditions.

**DickInson, J. Thomas**

Washington State University

**Materials Physics**

For his pioneering and innovative work in basic bond breaking mechanisms, and the forces on particles at solid surfaces during mechanical or radiative stimulation.

**Doe, Peter John**

University of Washington

**Nuclear Physics**

For experimental neutrino physics including the demonstration of destructive interference in the charged- and neutral-current scattering of electron neutrinos, and the observation of solar neutrinos in the Sudbury Neutrino Observatory.

**Dorsey, Alan Thomas**

University of Florida

**DCMP (Condensed Matter)**

For seminal contributions to the theory of magnetic flux dynamics and non-equilibrium pattern formation in superconductors.

**Escudero, Roberto Derat**

Universidad Nacional Autonoma de Mexico

**Forum on International Physics**

For outstanding contributions to the development of physics in Latin America and forefront research in electron tunneling and point contact spectroscopy in superconducting and magnetic materials.

**Evans, James William**

Iowa State University

**DCMP (Condensed Matter)**

For the development and application of models of the non-equilibrium processes of epitaxy, chemisorption and catalytic reactions at surfaces.

**Falk, Adam Frederick**

Johns Hopkins University

**Particles & Fields**

For his contributions to the theoretical understanding of hadrons containing bottom and charm quarks.

**Federman, Steven Robert**

University of Toledo

**Astrophysics**

For high quality spectroscopic observations of interstellar species, especially those relevant to light element synthesis and chemical fractionation, and for measurements of oscillator strengths needed to interpret the data.

**Flinn, Lee Samuel**

Penn State University

**Computational Physics**

For innovative contributions to the computational infrastructure for gravitational wave detection, detector modeling, data analysis and source simulations.

**Fiorito, Ralph Bruno**

Catholic University of America

**Physics of Beams**

For pioneering contributions to the understanding and application of transition radiation, diffraction radiation and parametric x-radiation.

**Fortov, Vladimir E.**

Russian Academy of Sciences

**Shock Compression Topical Group**

For pioneering work on the physical properties of hot dense plasmas at multimegabar pressures and very high temperatures achieved with shock compression.

**Fourkas, John T.**

Boston College

**Chemical Physics**

For his experimental and theoretical contributions in the use of nonlinear optical techniques to study dynamics in condensed phases.

**Gagliardi, Carl Albert**

Texas A&M Univesity

**Nuclear Physics**

For his leadership role in measuring the ratio of the anti-down to anti-up sea quark content in the proton and in the development of new indirect techniques for nuclear astrophysics.

**Galik, Richard S.**

Cornell University

**Particles & Fields**

For his many contributions to our understanding of the tau lepton, his insightful two-photon work, and his leadership in understanding and explaining the potential of the Upsilon resonances to probe meson structure and test QCD.

**Galloway, Kenneth Franklin**

Vanderbilt University

**Forum on Industrial and Applied Physics**

For extensive and substantive contributions in applied physics and engineering science that have yielded an improved understanding of radiation effects in solid-state devices.

**Gammon, Daniel**

Naval Research Laboratory, Washington

**DCMP (Condensed Matter)**

For advances in the optical spectroscopy of single semiconductor quantum dots using ultrahigh spatial and spectral resolution.

**Gauthier, Daniel Joseph**

Duke University

**DAMOP (Atomic, Molecular, Optical)**

For fundamental studies in nonlinear and quantum op-

tics, including the development of the Raman two-photon laser and the investigation of multiphoton optical amplification processes in laser-driven atomic vapors.

**Goldstein, Raymond E.**

University of Arizona

**Biological Physics**

For his outstanding contributions to theoretical and experimental studies of nonlinear dynamics and pattern formation in physical and biological systems.

**Grobe, Rainer**

Illinois State University

**Laser Science**

For pioneering theoretical contributions to the understanding of one- and two-electron systems in intense, short-pulse laser fields and propagation of coupled laser pulses in multi-level dielectric material.

**Grotberg, James Bernard**

University of Michigan

**Fluid Dynamics**

For the identification and quantification of physical mechanisms in pulmonary fluid mechanics including wheezes, high-frequency ventilation, and surfactant transport.

**Gruebele, Martin**

University of Illinois at Urbana-Champaign

**Biological Physics**

For pioneering the field of the study of the early events in protein folding using laser temperature jump initiation and fluorescence lifetime detection.

**Gschneider Jr., Karl A.**

Iowa State University

**Magnetism & Its Application**

For contributions to the scientific understanding and applications of rare earth elements, their alloys and compounds.

**Hale, Gerald M.**

Los Alamos National Laboratory

**Few Body Systems Topical Group**

For phenomenological studies of light nuclear systems leading to detailed knowledge of their scattering amplitudes and resonances, and to refined predictions of nuclear data used in a variety of applications.

**Hammer, Philip W.**

The Franklin Institute - Philadelphia, PA

**Forum on Physics & Society**

For dedicated efforts to forge strong links within the physics community and for creative and effective contributions to help the physics community meet its future institutional, social, and educational challenges.

**Hansen, P. Gregers**

Michigan State University

**Nuclear Physics**

For his many contributions to nuclear physics, and in particular to our understanding of halo nuclei and the structure and decays of nuclei far from stability.

**Hardy, Christopher J.**

GE Corporate Research and Development, New

**Forum on Industrial and Applied Physics**

For contributions to the science and technology of magnetic resonance imaging, particularly methods for the noninvasive visualization of cardiac anatomy, function, and metabolism, and for the MRI selective pulse design.

**Hardy, Walter Newbold**

University of British Columbia

**DCMP (Condensed Matter)**

For seminal contributions to high Tc superconductivity, and for pioneering spectroscopic studies of hydrogen using NMR, microwave and Raman techniques.

**Harris, Vincent G.**

Naval Research Laboratory, Washington

**Magnetism & Its Application**

For contributions to magnetism in revealing the role of atomic structure in local magnetic phenomena, including the discovery of the structural origins of magnetic anisotropy in rare earth-based amorphous alloys.

**Hastie, Robert James**

UKAEA Fusion Culham Science Center,

**Plasma Physics**

For recognition of his numerous and seminal contributions to theoretical plasma physics; particularly his key role in the development of the modern theory of stability in confined plasmas.

**Hayes, Anna C.**

Los Alamos National Laboratory

**Nuclear Physics**

For her contributions to studies of the weak interaction in nuclei, in particular providing the nuclear-structure calculations of the underlying weak matrix elements.

**Hibbert, Alan**

Queen's University, United Kingdom

**DAMOP (Atomic, Molecular, Optical)**

For important contributions to atomic structure physics via the development of widely-used configuration interaction codes, definitive calculations of atomic transitions, and pioneering atomic collisions calculations.

**Hill, John P.**

Brookhaven National Laboratory

**DCMP (Condensed Matter)**

For novel x-ray scattering studies of cuprate, man-ganite and other correlated electronic systems.

**Hoagland, David Alan**

University of Massachusetts, Amherst

**Polymer Physics**

For his pioneering efforts in the dynamics and transport of charged polymers.

**Hollan, Brad Lee**

Los Alamos National Laboratory

**Shock Compression Topical Group**

For pioneering use of large-scale atomistic computer simulations (massively parallel nonequilibrium molecular dynamics) in studying shock waves in condensed matter.

**Hsiao, Benjamin S.**

State University of NY at Stony Brook

**Polymer Physics**

For insightful experiments to elucidate the early stages of crystallization of polymers, particularly through development of powerful synchrotron X-ray techniques.

**Hubbell, John Howard**

National Institute of Standards and Technology

**Forum on International Physics**

For constructive syntheses of data on photon interactions in compilations used around the world in a wide range of disciplines, and for his effective promotion of radiation physics in developed and developing countries.

**Hull, Robert**

University of Virginia

**Forum on Industrial and Applied Physics**

For the development of pioneering in-situ electron microscopy techniques for elucidating dislocation physics in semiconductors and in strained layer epitaxial systems.

**Hunt, Julian C. R.**

University College London

**Forum on International Physics**

For his long-lasting contributions to the understanding and modeling of various fluid flow phenomena in nature and in engineering practice as well as for extensive services to the fluid mechanics community.

**Imamoglu, Atac**

University of California, Santa Barbara

**DAMOP (Atomic, Molecular, Optical)**

For major innovation in quantum optics and mesoscopic physics.

**Jackson, Alan**

Lawrence Berkeley National Laboratory

**Physics of Beams**

For pioneering work in the development and construction of 3rd generation synchrotron radiation sources.

**Jacobs, Donald T.**

The College of Wooster, Ohio

**Chemical Physics**

For contributions to the understanding of critical phenomena in liquids, and for sustained mentoring of undergraduate students engaged in research.

**Jaeger, Heinrich Martin**

University of Chicago

**DCMP (Condensed Matter)**

For fundamental contributions to the study of granular systems, mesoscopic self assembly, and flux flow in superconductors.

**Jiang, HongWen**

University of California, Los Angeles

**DCMP (Condensed Matter)**

For fundamental experimental studies of the ground-state phases of the two dimensional electron gas, including the first identification of the Hall metal state in a half-filled Landau level.

**John, Sajeev**

University of Toronto

**DCMP (Condensed Matter)**

For pioneering contributions to studies of classical wave localization in disordered systems and to the theory of photonic band gap systems.

**Jones, Barbara A.**

IBM Almaden Research Center

**DCMP (Condensed Matter)**

For outstanding contributions to theories of impurity magnetism and spin transport in magnetic nanostructures.

**Jung, Chang Kee**

State University of New York at Stony Brook

**Particles & Fields**

For leadership in experiments to understand the nature of neutrino oscillations and proton decay.

**Kagan, Morton R.**

IBM and Florida Atlantic University

**Forum on Education**

For leveraging his IBM research leadership into undergraduate physics education reform incorporating technology and pedagogy, and for later work (after retirement) to strengthen undergraduate physics instruction at several universities.

**Kagan, Harris P.**

The Ohio State University

**Particles & Fields**

For his contributions to the early B-meson and tau-lepton physics, and the development of high resolution and radiation hard charged particle tracking detectors.

**Kahn, Antoine**

Princeton University

**Materials Physics**

For pioneering work on the atomic and electronic structure of surfaces and interfaces of organic and inorganic semiconductors.

**Kaufman, James H.**

IBM Almaden Research Center

**Forum on Industrial and Applied Physics**

For his invention of nitrogenated diamond-like carbon that has become a standard protective overcoat in the disk storage industry.

**Kaye, Stanley Martin**

Princeton University

**Plasma Physics**



For pioneering investigation of confinement characteristics of strongly heated tokamak plasmas that serves as a foundation for predictions of confinement trends of modern tokamak and spherical torus plasmas.

**Kennedy, Lawrence A.**

University of Illinois at Chicago  
**Fluid Dynamics**

For significant and sustained contributions to the fluid dynamics of diverse chemically reacting systems and for engineering applications of that work.

**Kerr, Donald M.**

Central Intelligence Agency  
**Forum on Physics & Society**

For outstanding talent, public service and scientific leadership that have made significant contributions to the national security of the United States.

**Khokhlov, Alexei M.**

Naval Research Laboratory, Washington  
**Computational Physics**

For the development of innovative computational techniques and their successful application to critical problems in astrophysics and combustion science.

**Koshiba, Masatoshi**

University of Tokyo, Japan  
**Particles & Fields**

For creating the Kamioka neutrino observatory, detecting neutrinos from Supernova 1987A and from the Sun, and for the discovery of neutrino oscillations through the interactions of atmospheric neutrinos.

**Krause, Jeffrey L.**

University of Florida  
**Few Body Systems Topical Group**

For his fundamental research on the dynamics and control of atomic and molecular states in external fields, including the theoretical interpretation of experimental results and the prediction of novel phenomena.

**Kronfeld, Andreas S.**

Fermi National Accelerator Laboratory  
**Particles & Fields**

For his contributions to lattice quantum chromo dynamics and its application to the phenomenology of the standard model.

**Krueger, Susan Takacs**

National Institute of Standards and Technology  
**Biological Physics**

For significant contributions to the advancement of biological physics in determining the structures of important biomolecular complexes and biomimetic membranes through innovative use of neutron small angle scattering and reflectometry.

**Kryder, Mark Howard**

Seagate Technology LLC, Pennsylvania  
**Forum on Industrial and Applied Physics**

For outstanding contributions to the understanding of magnetic domain behavior, and leadership in the technologies of information storage.

**Kurizki, Gershon**

The Weizmann Institute of Science, Israel  
**DAMOP (Atomic, Molecular, Optical)**

For discovering innovative approaches to the control of the quantum properties of electromagnetic fields interacting with atomic, molecular, and condensed media.

**Lambrecht, Walter R. L.**

Case Western Reserve University  
**Materials Physics**

For his seminal contributions to a better understanding of the electronic structure and linear and nonlinear optical properties of semiconductors, in particular wide band gap semiconductors, chalcopyrites and rare-earth pnictides.

**Landen, Otto Lamotte**

Lawrence Livermore National Laboratory  
**Plasma Physics**

For pioneering work in the fields of picosecond laser-plasma interactions, advanced diagnostics, x-ray driven ICF implosions and time-dependent hohlraum symmetry control.

**Lasinski, Barbara F.**

Lawrence Livermore National Laboratory  
**Plasma Physics**

For development and application of particle-in-cell codes for laser-plasma interaction physics, and a long series of contributions to the understanding of the physics of targets for high-power laser experiments.

**Lerch, Irving A.**

American Physical Society, Maryland  
**Forum on International Physics**

For his tireless efforts to improve the climate for international cooperation in science, and his extraordinary ability to harness resources in support of international science, particularly in underdeveloped regions and regions in crisis.

**Lewis, George N.**

MIT

**Forum on Physics & Society**

For excellence in the physics of arms control, outstanding analysis of arms control issues, especially ballistic missile defense, and effective contributions to public understanding of these issues.

**Lin, Shawn-Yu**

Sandia National Laboratory

**Forum on Industrial and Applied Physics**

For pioneering contributions to the development of two- and three-dimensional photonic crystals for 1.55 micron optical communication applications

**Lindblom, Lee A.**

California Institute of Technology  
**Gravitational Topical Group**

For his fundamental, groundbreaking analyses of many microscopic and macroscopic aspects of the equilibria, oscillations, stability, evolution, and gravitational radiation of relativistic rotating stars.

**Lindle, Dennis W.**

University of Nevada, Las Vegas  
**DAMOP (Atomic, Molecular, Optical)**

For seminal contributions to the understanding of the breakdown of fundamental approximations in atomic and molecular photoionization and the polarization of x-rays induced by photoionization of atoms and molecules.

**Lipschultz, Bruce**

Massachusetts Institute of Technology  
**Plasma Physics**

For fundamental contributions to the physics understanding of low temperature plasmas characteristic of the edge of fusion devices, including radiation induced condensation, volume recombination, and cross-field particle transport.

**Lohse, Detlef**

University of Twente, Netherlands  
**Fluid Dynamics**

For his decisive role in unraveling the mystery of single-bubble sonoluminescence and his ingenuity in developing scaling arguments for turbulent thermal convection.

**Lovelace, Richard V. E.**

Cornell University  
**Plasma Astrophysics**

For pioneering contributions to the physics of astrophysical jets and disks, the discovery of the period of the Crab Nebula pulsar, and the study of turbulence in the interplanetary medium.

**Lyons, Peter B.**

Science And Technology Advisor to Senator  
**Forum on Physics & Society**

For outstanding contributions to science policy in the United States, exemplary leadership in management of research and development at Los Alamos National Laboratory, and significant wide-ranging research on optical fibers.

**Manousakis, Efstratios**

Florida State University  
**Computational Physics**

For innovative and original computational studies in the many-body problem including development of novel algorithms to tackle the many-fermion problem with very important applications to condensed-matter physics.

**Mazumdar, Sumitendra**

University of Arizona  
**DCMP (Condensed Matter)**

For pioneeing numerical work treating electronic correlations, ground state broken symmetries, photophysics and nonlinear spectroscopy.

**McMahan, Margaret A. Norris**

Lawrence Berkeley National Laboratory  
**Forum on Education**

For her creative leadership and initiative in bringing nuclear science to students, teachers, and the public.

**McMahan, Andrew K.**

Lawrence Livermore National Laboratory  
**Computational Physics**

For pioneering work on the computation of effective Hamiltonian parameters for superconducting oxides and phase transitions of materials under high pressure, and the subsequent solution of the associated models.

**Melia, Fulvio**

University of Arizona  
**Astrophysics**

For his fundamental work elucidating the physics of compact astrophysical objects, particularly the supermassive black hole at the Galactic Center, and the multi-phased environment within which it is embedded.

**Merlino, Robert Louis**

University of Iowa  
**Plasma Physics**

For seminal experiments investigating fundamental plasma properties with wide ranging implications to space and dusty plasmas.

**Meyerhofer, David Dietrich**

University of Rochester  
**Plasma Physics**

For his significant contributions and leadership in the areas of direct-drive inertial confinement fusion and high-intensity laser-matter interactions, including the observation of photon-photon pair production.

**Meyers, Peter Daniel**

Princeton University  
**Particles & Fields**

For contributions to rare kaon decay experiments, service and leadership in the particle physics community, and for communicating the excitement of the field to expert and non-expert alike.

**Milton, Stephen Val**

Argonne National Laboratory  
**Physics of Beams**

For the development of 3rd and 4th generation light sources including the first demonstration of saturation of self-amplified spontaneous emission (SASE) in the visible and ultraviolet wavelengths.

**Mokhov, Nikolai V.**

Fermi National Accelerator Laboratory  
**Physics of Beams**

For critical contributions to the understanding of the interaction of high energy particle beams with materials.

**Moreo, Adriana**

Florida State University

**DCMP (Condensed Matter)**

For important contributions to computational techniques and their application to the manganites, d-wave superconductors and other correlated electronic systems.

**Morris, Robert Alan**

Air Force Research Laboratory, Hanscom AFB  
**DAMOP (Atomic, Molecular, Optical)**

For fundamental studies of ion and electron interactions with molecules at thermal energies and application to atmospheric and hypersonic plasma problems.

**Nathanson, Gilbert Maker**

University of Wisconsin - Madison  
**Chemical Physics**

For the pioneering use of molecular beam scattering experiments to explore collisions, solvation, and chemical reactions at gas-liquid interfaces.

**Nolte, David D.**

Purdue University  
**Laser Science**

For innovative exploitation of materials science leading to significant discoveries in photorefractive effects and dynamic holography, adaptive interferometry, time-reversal symmetry, and phase conjugate fidelity in magnetic fields.

**Nordlander, Peter**

Rice University  
**Chemical Physics**

For pioneering contributions to the chemical physics of atom-surface interactions, including the development of a many-body theoretical description of charge transfer processes in atom-surface scattering.

**Nori, Franco**

University of Michigan  
**DCMP (Condensed Matter)**

For innovative theoretical contributions to the study of vortex dynamics in superconductors, dynamical instabilities, Josephson junction arrays and quantum interference.

**Olmstead, Marjorie Ann**

University of Washington  
**Forum on Industrial and Applied Physics**

For innovative studies of interface formation between dissimilar materials, especially the competition between thermodynamic and kinetic constraints in controlling morphologies and properties of heterostructures.

**Orlando, Thomas Michael**

Georgia Institute of Technology  
**DAMOP (Atomic, Molecular, Optical)**

For innovative studies of electron interactions with complex targets and for applying fundamental atomic and molecular physics to investigations of non-thermal processes at interfaces and surfaces.

**Pecora, Louis M.**

Naval Research Laboratory, Washington  
**Statistical & Nonlinear Physics**

For stimulating research in analysis and application of nonlinear and chaotic systems regarding synchronization of oscillators, applications of chaos to communication systems, and data analysis using state space reconstructions.

**Perdrisat, Charles F.**

College of William and Mary  
**Nuclear Physics**

For his leadership of studies of the electromagnetic structure of the proton through polarization transfer, which have shown large differences between the distributions of charge and magnetization.

**Petek, Hrvoje**

University of Pittsburgh  
**Laser Science**

For development and application of interferometric time-resolved photoemission to studies of ultrafast electron and nuclear dynamics at metal surfaces.

**Phillips, Philip W.**

University of Illinois Urbana-Champaign  
**DCMP (Condensed Matter)**

For creative theoretical contributions to the studies of strongly correlated electronic systems, including the random dimer model and superconducting-insulator transitions.

**Plomell, Ugo**

University of Maryland  
**Fluid Dynamics**

For important and insightful contributions to the development of large eddy simulation techniques and to the understanding of wall-bounded turbulent flows.

**Ponce, Fernando A.**

Arizona State University  
**Forum on Industrial and Applied Physics**

For novel applications of electron microscopy for measurement of semiconductor interface atomic arrangement and the effect of atomic structures on the electronic and optoelectronic properties of materials.

**Procaccia, Itamar**

Weizmann Institute of Science, Israel  
**Statistical & Nonlinear Physics**

For major contributions to non-equilibrium physics, chaotic dynamics, turbulence and transport processes.

**Prosnitz, Donald**

United States Department of Justice  
**Forum on Physics & Society**

For major contributions to physics and society spanning fundamental physics research to national security and law enforcement technologies, including pioneering technical contributions to the development of Free Electron Lasers.

**Prosper, Harrison Bertrand**

Florida State University  
**Particles & Fields**

For leadership in developing Bayesian and other analysis techniques in particle physics, especially as applied to measurements of the mass and cross section of the top quark, and particle searches.

**Pullin, Jorge**

Pennsylvania State University  
**Gravitational Topical Group**

For his outstanding contributions to black hole physics and quantum gravity.

**Rabe, Karin M.**

Rutgers University  
**Materials Physics**

For fundamental contributions to the development and application of theoretical and computational methods for the study of structural phase transitions in solids.

**Ratcliff, Blair Norman**

Stanford Linear Accelerator Center  
**Particles & Fields**

For broad contributions to experimental particle physics, especially studies of the B meson system, and for the invention of the DIRC, a novel Cherenkov detector for particle identification.

**Ratra, Bharat**

Kansas State University  
**Astrophysics**

For his contributions to a range of topics in early Universe cosmology, including the quantum mechanics of inflation and the cosmological constant problem.

**Reed, Mark Arthur**

Yale University  
**DCMP (Condensed Matter)**

For pioneering contributions to the investigation of electronic transport in quantum confined heterojunction devices, nanostructures and molecular scale systems.

**Reinhold, Carlos O.**

Oak Ridge National Laboratory  
**DAMOP (Atomic, Molecular, Optical)**

For pioneering contributions to the understanding of classical-quantum correspondence in time-dependent interactions of atoms with ions, solids and electromagnetic pulses.

**Richter, Achim**

Technische Universitaet Darmstadt, Germany  
**Forum on International Physics**

For his many contributions to nuclear science — in particular for the discovery of the scissors mode of elementary magnetic excitation.

**Rogers, Forrest James**

Lawrence Livermore National Laboratory  
**Plasma Physics**

For developing the ACTEX equation of state and OPAL opacity models and successfully applying them to important astrophysical and laboratory plasma problems including helioseismology, variable stars, and laser shock experiments.

**Sackmann, Erich**

Technical University of Munich  
**Biological Physics**

For distinguished contributions to understanding the physics of biological membranes, macromolecular networks, and the actin-based cytoskeleton as well as for developing techniques to measure viscoelasticity and adhesion forces.

**Savage, Martin John**

University of Washington  
**Nuclear Physics**

For development of effective field theories for the nucleon and deuteron, for work on parity and CP violation, and for partially quenched chiral perturbation theory in lattice QCD.

**Savard, Guy**

Argonne National Laboratory  
**Nuclear Physics**

For his work in precision experiments on weak interactions and for developing techniques to stop and manipulate ions of short-lived nuclei for measurements in ion traps.

**Schiavilla, Rocco**

Thomas Jefferson National Accelerator Facility  
**Nuclear Physics**

For advancing the theory of nuclei as systems of nucleons bound together by two- and three-body forces, and particularly for studies of their electroweak interactions.

**Scuseria, Gustavo E.**

Rice University  
**Chemical Physics**

For his original contributions to the development of fast and accurate electronic structure methods and their applications to fullerenes and other large systems.

**Sethian, John Dasho**

Naval Research Laboratory, Washington  
**Plasma Physics**

For major contributions to plasma physics and development of associated technologies in the fields of electron beams, Z-pinches, laser plasma interactions, hydrodynamics, and inertial energy.

**Shalaev, Vladimir M.**

Purdue University  
**Laser Science**

For important research on the optical properties of novel plasmonic nanomaterials and their application in photonics, spectroscopy and laser physics.



**Shipsey, Ian Peter Joseph**

Purdue University  
**Particles & Fields**

For contributions to heavy quark physics, especially measurements of semileptonic decays, CKM couplings, parity and CP violation, and the development and construction of the detectors used for these measurements.

**Shull, Kenneth R.**

Northwestern University  
**Polymer Physics**

For theoretical and experimental contributions leading to an enhanced understanding of polymer interfaces.

**Simmons, Elizabeth H.**

Boston University  
**Particles & Fields**

For contributions to the study of electroweak and flavor symmetry breaking, especially the origin of the top-quark mass, and for suggesting incisive tests of physics beyond the standard model.

**Simmons Jr., Jerry Alvon**

Sandia National Laboratories  
**DCMP (Condensed Matter)**

For outstanding contributions to the physics of tunneling in two dimensional electronic materials, including fractional quantum Hall and double quantum well systems.

**Singer, Kenneth David**

Case Western Reserve University  
**Laser Science**

For outstanding contributions to the understanding, measurement, and development of organic nonlinear optical materials.

**Sipe, John Edward**

University of Toronto  
**Laser Science**

For pioneering theoretical work on linear and nonlinear optical properties of solid surfaces, bulk or quantum well semiconductors, and soliton propagation in periodic media.

**Smith, David John**

Arizona State University  
**Materials Physics**

For outstanding contributions to the development of atomic-resolution electron microscopy and ongoing applications to oxides, semiconductor heterostructures, and magnetic materials.

**Sokolosky, Pierre**

University of Utah  
**Particles & Fields**

For his discovery of the highest energy cosmic ray events that have challenged current understanding of cosmic ray sources and for his leadership of the Utah Fly's Eye and HiRes experiments.

**Sparke, Linda Siobhan**

University of Wisconsin-Madison  
**Astrophysics**

For studies of the structure and dynamics of galaxies, using orbital motions to probe both time-steady and time-varying gravitational potentials, and the distribution of dark matter.

**Spivak, Boris Z.**

University of Washington  
**DCMP (Condensed Matter)**

For seminal contributions to studies of quantum interference effects in mesoscopic systems and of weak localization in disordered materials.

**Stangeby, Peter Christian**

University of Toronto  
**Plasma Physics**

For major contributions to the understanding of physical processes in the edge of magnetic confinement plasma devices, including the physics of plasma wall interaction and particle, energy, and impurity transport.

**Stein, Fredrick M.**

American Physical Society, Maryland  
**Forum on Education**

For his creative leadership of programs to enhance the effectiveness of science and mathematics instruction and his advocacy on behalf of improving physics education at all levels.

**Stroscio, Joseph Anthony**

National Institute of Standards and Technology  
**Inst. & Measurements Topical Group**

For advancing our fundamental knowledge of semiconductor and metal surfaces and the innovative development, application, and dissemination of advanced methods of scanning tunneling microscopy and spectroscopy.

**Suhir, Ephraim**

Iolon, Inc., California  
**Forum on Industrial and Applied Physics**

For distinguished contributions to the field of analytical modeling of the physical behavior and reliability of microelectronic and photonic materials and systems.

**Swartzentruber, Brian S.**

Sandia National Laboratories  
**Materials Physics**

For pioneering studies of atomic-scale, kinetic and thermodynamic aspects of the morphology of Si surfaces, and significant innovations in scanning tunneling microscopy.

**Taillefer, Louis**

University of Toronto  
**DCMP (Condensed Matter)**

For pioneering experimental studies of magneto- and thermal transport in heavy fermion and high Tc superconductors.

**Tanner, Carol Elizabeth**

University of Notre Dame  
**Fundamental Const. Topical Group**

For her contributions to the understanding of atomic structure through precision measurements of atomic lifetimes and transition amplitudes.

**Taylor, Cyrus Cooper**

Case Western Reserve University  
**Forum on Education**

For providing a new paradigm for graduate education in Physics through the creation of an innovative Physics Entrepreneurship Master's Program.

**Thundat, Thomas George**

Oak Ridge National Laboratory  
**Biological Physics**

For his pioneering work in developing micromechanical sensor platform for biomolecular detection and the elucidation of the fundamental physical principles underlying the adsorption-induced forces.

**Tselik, Alexei Mikhail**

Brookhaven National Laboratory  
**DCMP (Condensed Matter)**

For seminal contributions to quantum magnetism and for the exact solutions of important integrable models.

**Tsybeskov, Leonid**

New Jersey Institute of Technology  
**Forum on Industrial and Applied Physics**

For the discovery of a method to stabilize porous silicon and for innovative contributions to the development and studies of silicon-based, self-organized nanostructures.

**Tu, Charles Wuching**

University of California, San Diego  
**Materials Physics**

For contributions in molecular beam epitaxy of novel III-V semiconductors.

**Tuckerman, Laurette Stephanie**

CNRS, France  
**Fluid Dynamics**

For applying dynamical systems theory to hydrodynamic instabilities, especially to Couette flows, thermal convection, and Faraday and Eckhaus instabilities, and for developing numerical methods that make bifurcation-theoretic computations feasible.

**Tueller, Jack**

NASA/Goddard Space Flight Center  
**Astrophysics**

For leading the development and flight of new technology instruments for gamma-ray astronomy and performing ground breaking observations of gamma-ray sources.

**Turnbull, Alan D.**

General Atomics - San Diego, California  
**Plasma Physics**

For pioneering theory demonstrating the importance of shape, profiles, and conducting wall on tokamak stability, leading to validation of beta limit improvements in experiments and to innovative advanced tokamak concepts.

**Vachaspati, Tanmay**

Case Western Reserve University  
**Astrophysics**

For his seminal contributions to our understanding of the possible role of topological defects in the early Universe, from gravitational wave generation to primordial magnetic fields and baryogenesis.

**Venables, John A.**

Arizona State University  
**Materials Physics**

For research on surface growth of metals, insulators, and semiconductors, leading to a fundamental understanding of interatomic interactions and atomic processes, particularly nucleation and growth.

**Vuskovic, Lepasava**

Old Dominion University  
**DAMOP (Atomic, Molecular, Optical)**

For important and sustained work on electron collisions with ground state and excited atoms by creating a number of remarkable experimental techniques.

**Wang, Xin-Nian**

Lawrence Berkeley National Laboratory  
**Nuclear Physics**

For his contributions to the understanding of perturbative hard QCD processes in nuclear collisions at very high energies, especially the roles of gluon shadowing, multiple interactions and jet quenching.

**Weiler, Thomas Joseph**

Vanderbilt University  
**Particles & Fields**

For important calculations that helped establish QCD and the Electroweak interaction as the Standard model, and for pioneering contributions to neutrino physics and particle astrophysics.

**Weinert, Michael Theodor Alfred**

University of Wisconsin-Milwaukee  
**Computational Physics**

For his seminal contributions to the understanding of the electronic and magnetic properties of surfaces and bulk materials through the application and the development of first-principles methods.

**Weiss, Paul Storch**

The Pennsylvania State University  
**Chemical Physics**

For fundamental contributions to nanoscale science and technology by developing and applying tools to control and to measure functional properties and interactions of materials at the atomic scale.

**Wellstood, Frederick Charles**

University of Maryland  
**Inst. & Measurements Topical Group**

For development of the scanning SQUID microscope, and its commercialization and application to scientific and industrial problems.

**Wen, Xiao-Gang**

Massachusetts Institute of Technology  
**DCMP (Condensed Matter)**

For fundamental contributions to the physics of the fractional quantum Hall effect, and for novel insights into quantum magnetism and high temperature superconductivity.

**Whaley, K. Birgitta**

University of California, Berkeley  
**Computational Physics**

For her contributions to theoretical understanding of quantum nanoscale phenomena, especially in superfluid helium droplets, and to control of decoherence in quantum information processing.

**Whitcomb, Stanley E.**

California Institute of Technology  
**Gravitational Topical Group**

For his outstanding contributions to metrology and to

the development and implementation of interferometers for the detection of gravitational radiation.

**Williams, Anthony G.**

Adelaide University, Australia  
**Hadronic Physics**

For pioneering studies of the nonperturbative behavior of quarks and gluons using Dyson-Schwinger equations, phenomenological quark models, and lattice gauge calculations.

**Williams, Forman A.**

University of California, San Diego  
**Fluid Dynamics**

For his groundbreaking contributions to advances in the theory of chemically reacting flows and combustion.

**Winful, Herbert Graves**

University of Michigan  
**Laser Science**

For fundamental contributions to the understanding of nonlinear propagation in periodic structures, nonlinear dynamics of laser arrays, and polarization instabilities in birefringent optical fibers.

**Winter, Thomas G.**

Pennsylvania State University  
**DAMOP (Atomic, Molecular, Optical)**

For advancing the understanding of the physics of heavy-particle collisions via highly accurate coupled-state calculations based on novel physical insight.

**Witt, Gerald Lee**

Air Force Office of Scientific Research, Virginia  
**Forum on Industrial and Applied Physics**

For exemplary leadership of national interdisciplinary research efforts in the fields of quantum-effect devices, low-temperature GaAs, optoelectronic measurement techniques, radiation effects, and defects in wide bandgap semiconductors.

**Womersley, William John**

Fermi National Accelerator Laboratory  
**Particles & Fields**

For his leadership of the D0 experiment.

**Woody, Craig L.**

Brookhaven National Laboratory  
**Particles & Fields**

For his world-recognized expertise in the performance and characterization of scintillating crystals, notably in the effects of radiation damage.

**Wright, David C.**

Union of Concerned Scientists  
**Forum on Physics & Society**

For outstanding analysis of arms control issues, especially on ballistic missile defense, and for dedicated scholarship, teaching, and efforts to promote international understanding of these issues.

**Yang, Shin Nan**

National Taiwan University  
**Forum on International Physics**

For his pioneering work on three-nucleon forces, dynamical approach to pion photoproduction, and investigations of strangeness in the nucleon using phi photoproduction.

**Yethiraj, Mohana**

Oak Ridge National Laboratory  
**DCMP (Condensed Matter)**

For important neutron scattering studies of vortex structure, spin and lattice dynamics of high temperature and other superconductors.

**Zhang, Xi-Cheng**

Rensselaer Polytechnic Institute, New York  
**Laser Science**

For pioneering contributions to free-space terahertz optics, particularly the successful development of terahertz wave generation, sensing and imaging.

**Ziff, Robert M.**

University of Michigan  
**Statistical & Nonlinear Physics**

For his sustained contributions to understanding the kinetics of aggregation and fragmentation, nonequilibrium chemical reactions, kinetic phase transitions, and percolation theory.

# 2003 APS Fellowship Nomination Deadlines

For submittal information see: <http://www.aps.org/fellowships>

**DIVISIONS**

Astrophysics .....	05/01/03
Atomic, Molecular, Optical .....	04/01/03
Biological Physics .....	04/01/03
Chemical Physics .....	PAST
Computational Physics .....	04/12/03
Condensed Matter .....	PAST
Fluid Dynamics .....	PAST
Polymer Physics .....	04/15/03
Laser Science .....	04/01/03
Materials Physics .....	PAST
Nuclear Physics .....	04/01/03
Particles & Fields .....	04/01/03

Physics of Beams .....	04/15/03
Plasma Physics .....	04/01/03

**FORUMS**

Physics & Society .....	04/01/03
History of Physics .....	05/15/03
International Physics .....	04/01/03
Industrial and Applied Physics .....	PAST
Education .....	04/15/03

**TOPICAL GROUPS**

Few Body Systems .....	04/01/03
Precision Measurement	
Fund. Const. ....	04/01/03

Instruments and	
Measurement .....	05/17/03
Hadronic Physics .....	05/01/03
Shock Compression .....	04/01/03
Gravitation .....	04/01/03
Magnetism and Its	
Applications .....	04/01/03
Plasma Astrophysics .....	04/01/03
Statistical and Nonlinear	
Physics .....	04/01/03

**APS GENERAL .....** 06/03/03



# Nomination Announcements

## Call for Nominations for 2004 APS Prizes and Awards

The following prizes and awards will be bestowed by the Society in 2004. Members are invited to nominate candidates to the respective committees charged with recommending the recipients. A brief description of each prize and award is given below, along with the addresses of the selection committee chairs to whom nominations should be sent. For complete information regarding rules and eligibility requirements for individual prizes and awards, please refer to the Prize and Awards page on the APS Web site at <http://www.aps.org>.

**NOMINATION DEADLINE IS JULY 1, 2003, UNLESS OTHERWISE INDICATED.**

### PRIZES

#### WILL ALLIS PRIZE FOR THE STUDY OF IONIZED GASES

Send name of proposed candidate and supporting information to: Loucas Christophorou; 220 B344; NIST ; Rte 270 & Quince Orchard Rd; Gaithersburg MD 20899; Phone: (301) 975-2432; Email: [loucas.christophorou@nist.gov](mailto:loucas.christophorou@nist.gov)

#### HANS A. BETHE PRIZE

Send name of proposed candidate and supporting information to: Tom Bowles; P23 H803; LANL; PO Box 1663; Los Alamos NM 87545; Phone: (505) 667-3937; Fax: (505) 665-4121; Email: [TJB@LANL.GOV](mailto:TJB@LANL.GOV)

#### BIOLOGICAL PHYSICS PRIZE

Send name of proposed candidate and supporting information to: Katya Lindenberg (Chair); Dept. of Chem 0340 ; UCSD; 9500 Gilman Dr ; La Jolla CA 92093-0340; Phone: (858) 534-3285; Fax: (858) 534-7244; Email: [klindenberg@ucsd.edu](mailto:klindenberg@ucsd.edu)

#### TOM W. BONNER PRIZE

Send name of proposed candidate and supporting information to: John Hardy; Cyclotron Inst ; Texas A&M Univ; College Station, TX 77843; Phone: (979) 845-1411; Fax: (979) 845-1899; Email: [hardy@comp.tamu.edu](mailto:hardy@comp.tamu.edu)

#### OLIVER E. BUCKLEY CONDENSED MATTER PHYSICS PRIZE

Send name of proposed candidate and supporting information to: Alan Dorsey; Dept of Phys; Univ of Florida; Gainesville, FL 32611-8440; Phone: (352) 392-4031; Fax: (352) 392-0524; Email: [dorsey@phys.ufl.edu](mailto:dorsey@phys.ufl.edu)

#### DAVISSON-GERMER PRIZE

Send name of proposed candidate and supporting information to: Mara Prentiss (Chair)(DAMOP); Dept of Physics; Harvard University; 17 Oxford Street ; Cambridge, MA 02138; Phone: (617)496-1043; Email: [prentiss@physics.harvard.edu](mailto:prentiss@physics.harvard.edu)

#### DANNIE HEINEMAN PRIZE

Send name of proposed candidate and supporting information to: Charles Sommerfield, Yale Univ, Dept. of Phys, PO Box 208120, New Haven, CT 06520-8120, Phone: (203) 432-6924, Fax: (203) 432-5419, Email: [charles.sommerfield@yale.edu](mailto:charles.sommerfield@yale.edu)

#### FRANK ISAKSON PRIZE

Send name of proposed candidate and supporting information to: Al Sievers (Chair); Dept of Phys; Cornell Univ; 517 Clark Hall; Ithaca NY 14853-2501; Phone: (607) 255-6422; Fax: (607) 255-6428; Email: [sievers@msc.cornell.edu](mailto:sievers@msc.cornell.edu)

#### JULIUS EDGAR LILIENFELD PRIZE

Send name of proposed candidate and supporting information to: Daniel Kleppner; Dept of Phys 26-237; MIT; 77 Massachusetts Ave; Cambridge MA 02139; Phone: (617) 253-6811; Fax: (617) 253-4876; Email: [dk@amo.mit.edu](mailto:dk@amo.mit.edu)

#### JAMES CLERK MAXWELL PRIZE

Deadline: April 1, 2003

Send name of proposed candidate and supporting information to: Wallace Manheimer; Code 6707; NRL; 4555 Overlook Ave SW; Washington DC 20375; Phone (202) 767-3128;

Fax (202) 767-1607; Email: [manheimer@ccf.nrl.navy.mil](mailto:manheimer@ccf.nrl.navy.mil)

#### JAMES C. MCGRODDY PRIZE FOR NEW MATERIALS

Send name of proposed candidate and supporting information to: Louis Brus; Chemistry Department; Columbia University; 3000 Broadway MS 3125; New York, NY 10027; Phone: (212) 854-4041; Fax: (212) 932-1289; Email: [brus@chem.columbia.edu](mailto:brus@chem.columbia.edu)

#### LARS ONSAGER PRIZE

Send name of proposed candidate and supporting information to: David Ceperley; NCSA MC 251; University of Illinois; 405 N Mathews St; Urbana IL 61801; Phone (217) 244-2909; Fax (217) 244-2909; Email: [ceperley@uiuc.edu](mailto:ceperley@uiuc.edu)

#### GEORGE E. PAKE PRIZE

Send name of proposed candidate and supporting information to: Robert E. Jones; 11909 Brookwood Circle; Austin TX 78750-2706; Phone (512) 933-7237; Fax (512) 933-6331; Email: [robert.e.jones@motorola.com](mailto:robert.e.jones@motorola.com)

#### W.K.H. PANOFSKY PRIZE

Send name of proposed candidate and supporting information to: Bill Molzon; Dept. of Physics & Astronomy; University of California at Irvine; Irvine, CA 92697-4575; Phone: (949) 824-5987; Fax: (949) 824-2174; Email: [wmolzon@uci.edu](mailto:wmolzon@uci.edu)

#### EARLE K. PLYLER PRIZE FOR MOLECULAR SPECTROSCOPY

Send name of proposed candidate and supporting information to: Mostafa El-Sayed; Georgia Institute of Technology; School of Chemistry & Biochemistry; Atlanta GA 30332-0400; Phone: (404) 894-0292; Fax: (404) 894-0294; Email: [mostafa.el-sayed@chemistry.gatech.edu](mailto:mostafa.el-sayed@chemistry.gatech.edu)

#### POLYMER PHYSICS PRIZE

Send name of proposed candidate and supporting information to: Frank Bates; Dept of Chem Engr & Mater Sci.; Univ of Minnesota 421; Washington Ave SE; Minneapolis MN 55455; Phone: (612) 625-6606; Fax: (612) 626-1686; Email: [bates@cems.umn.edu](mailto:bates@cems.umn.edu)

#### ANEESUR RAHMAN PRIZE FOR COMPUTATIONAL PHYSICS

Send name of proposed candidate and supporting information to: Junko Shigemitsu; Dept of Phys; Ohio State University; 174 W 18th Ave; Columbus OH 43210; Phone: (614) 292-1786; Email: [shige@mps.ohio-state.edu](mailto:shige@mps.ohio-state.edu)

#### J. J. SAKURAI PRIZE FOR THEORETICAL PARTICLE PHYSICS

Send name of proposed candidate and supporting information to: Boris Kayser; MS 106; Fermilab; PO Box 500; Batavia, IL 60510-5435; Phone: (630) 840-8196; Fax: (630) 840-5435; Email: [boris@fnal.gov](mailto:boris@fnal.gov)

#### ARTHUR L. SCHAWLOW PRIZE

Send name of proposed candidate and supporting information to: Robert Boyd; Institute of Optics; Univ of Rochester; Rochester NY 14627-0186; Phone: (716) 275-2329; Fax: (716) 273-1075; Email: [boyd@optics.rochester.edu](mailto:boyd@optics.rochester.edu)

#### PRIZE TO A FACULTY MEMBER FOR RESEARCH IN AN UNDERGRADUATE INSTITUTION

Send name of proposed candidate and sup-

porting information to: Theodore Hodapp; Hamline University; Physics Department; 1536 Hewitt Ave., St. Paul, MN 55104; Phone: (651) 523-2293; Fax: (651) 523-2620; Email: [thodapp@hamline.edu](mailto:thodapp@hamline.edu)

#### GEORGE E. VALLEY, JR. PRIZE

Send name of proposed candidate and supporting information to: Laleña Lancaster ; Attn: George E. Valley Prize ; American Physical Society; One Physics Ellipse, College Park, MD 20740-3844; Email: [lancaste@aps.org](mailto:lancaste@aps.org)

#### ROBERT R. WILSON PRIZE

Send name of proposed candidate and supporting information to: Satoshi Ozaki; Assoc Lab Director for RHIC; Brookhaven National Lab; Bldg 510-F; Upton, NY 11973-5000; Phone: (631) 282-5590; Email: [ozaki@bnl.gov](mailto:ozaki@bnl.gov)

### AWARDS, MEDALS AND LECTURESHIPS

#### DAVID ADLER LECTURESHIP AWARD

Send name of proposed candidate and supporting information to: Karin Rabe; Rutgers University; Physics Department; 136 Frelinghuysen Road; Piscataway, NJ 08854-8019; Phone: (732) 445-4186; FAX: (732) 445-4343; Email: [rabe@physics.rutgers.edu](mailto:rabe@physics.rutgers.edu)

#### LEROY APKER AWARD

Deadline: June 13, 2003

Send name of proposed candidate and supporting information to: Dr. Alan Chodos; American Physical Society; One Physics Ellipse; College Park, MD 20740; Attn: Apker Award Committee; Phone: (301) 209-3233; Fax: (301) 209-0865; Email: [chodos@aps.org](mailto:chodos@aps.org)

#### EDWARD A. BOUCHET AWARD

Send name of proposed candidate and supporting information to: Augustine Smith; Dept of Physics; Morehouse College; 830 Westview Dr. SW; Atlanta GA 30314; Phone: (404) 215-2615; Fax: (404) 614-6032; Email: [asmith@morehouse.edu](mailto:asmith@morehouse.edu)

#### JOSEPH A. BURTON FORUM AWARD

Send name of proposed candidate and supporting information to: Aviva Brecher; DOT/RSPA Volpe National Transportation Systems Center; DTS-30; 55 Broadway; Cambridge, MA 02142-1093; Phone: 617-494-3470; Fax: 617-494-3633; Email: [brecher@volpe.dot.gov](mailto:brecher@volpe.dot.gov)

#### JOHN H. DILLON MEDAL

Send name of proposed candidate and supporting information to: Frank S. Bates; Dept. of Chem. Engr. and Materials Science; University of Minnesota; 421 Washington Ave. SE; Minneapolis, MN 55455; Phone: (612) 624-0839; Fax: (612) 626-1686; Email: [bates@cems.umn.edu](mailto:bates@cems.umn.edu)

#### JOSEPH F. KEITHLEY AWARD FOR ADVANCES IN MEASUREMENT SCIENCE

Send name of proposed candidate and supporting information to: Fred Fickett; 3660 Cloverleaf Dr.; Boulder, CO 80304; Phone: (303) 497-3785; Fax: (303) 497-5030; Email: [ffickett@uswest.net](mailto:ffickett@uswest.net)

#### MARIA GOEPPERT-MAYER AWARD

Send name of proposed candidate and sup-

porting information to: Miriam Cvetic; Dept of Physics and Astronomy; Univ of Pennsylvania; Philadelphia, PA 19104-6396; Phone: (215) 898-8153; Fax: (215) 898-8512; Email: [cvetic@cvetic.hep.upenn.edu](mailto:cvetic@cvetic.hep.upenn.edu)

#### NICHOLSON MEDAL FOR HUMANITARIAN ASSISTANCE

Deadline: April 1, 2003

Send name of proposed candidate and supporting information to: Antonia Herzog; Renewable and Appropriate Energy Laboratory (RAEL); Energy and Resources Group (ERG); University of California, Berkeley; Phone: 510-643-2243; Fax: 510-643-6344; Email: [ahertzog@socrates.berkeley.edu](mailto:ahertzog@socrates.berkeley.edu)

#### AWARD FOR EXCELLENCE IN PLASMA PHYSICS RESEARCH

Deadline: April 1, 2003

Send name of proposed candidate and supporting information to: Y.Y. Lau; Dept of Nuclear Engineering; University of Michigan; 2355 Bonisteel Blvd; Ann Arbor, MI 48109-2104; Phone: (734) 764-5122; Fax: (734) 763-4540; Email: [yllau@umich.edu](mailto:yllau@umich.edu)

#### LEO SZILARD LECTURESHIP AWARD

Send name of proposed candidate and supporting information to: Aviva Brecher; Environment, Safety and Health Office of Environmental Preservation and Systems Modernization, DTS-30; DOT/RSPA Volpe National Transportation Systems Center; 55 Broadway; Cambridge, MA 02142-1093; Phone: 617-494-3470; Fax: 617-494-3633; Email: [brecher@volpe.dot.gov](mailto:brecher@volpe.dot.gov)

### DISSERTATION AWARDS

#### ANDREAS ACRIVOS DISSERTATION AWARD IN FLUID DYNAMICS

Deadline: April 14, 2003

Send name of proposed candidate and supporting information to: To Be Announced!-

#### MITSUYOSHI TANAKA DISSERTATION AWARD IN EXPERIMENTAL PARTICLE PHYSICS

Deadline: June 30, 2003

Send name of proposed candidate and supporting information to: Patricia Rankin; 3097 Edison Court ; Boulder, CO 80301-2264; Phone: (303) 492-1520; Email: [TRICIA@PIZERO.COLORADO.EDU](mailto:TRICIA@PIZERO.COLORADO.EDU)

#### NUCLEAR PHYSICS DISSERTATION AWARD

Send name of proposed candidate and supporting information to: Akif Baha Balantekin (Chair); Dept of Physics; Univ. of Wisconsin; 1150 University Ave.; Madison, WI 53706; Phone: (608) 263-7931; Fax: (608) 262-8628; Email: [baha@nucphys.wisc.edu](mailto:baha@nucphys.wisc.edu)

#### MARSHALL N. ROSENBLUTH OUTSTANDING DOCTORAL THESIS AWARD

Deadline: April 1, 2003

Send name of proposed candidate and supporting information to: Scott Robertson; Dept of Physics; Univ of Colorado; CB 390; Boulder, CO 80309-0390; Phone: (303) 492-6453; Fax: (303) 492-0642; Email: [robertso@stripe.colorado.edu](mailto:robertso@stripe.colorado.edu)