

# Spring 2007 Prizes & Awards

## APS Announces Spring 2007 Prize and Award Recipients

Thirty-nine prizes and awards will be presented during special sessions at three spring meetings of the Society: the 2007 March Meeting, March 5-9, in Denver, CO, the 2007 April Meeting, April 14-17, in Jacksonville, FL, and the 2007 Atomic, Molecular and Optical Physics Meeting, June 5-9, in Calgary, Alberta, Canada.

Citations and biographical information for each recipient follow. The Apker Award recipients appeared in the December 2006 issue of *APS News* (<http://www.aps.org/programs/honors/awards/apker.cfm>).

Additional biographical information and appropriate web links can be found at the APS web site and can be found at <http://www.aps.org/programs/honors/index.cfm/>. Nominations for most of next year's prizes and awards are now being accepted. For details, see page 8 of this insert.

### 2007 PRIZES AND AWARDS

#### Hans A. Bethe Prize

**James R. Wilson**

*Lawrence Livermore National Laboratory*

**Citation:** "For his work in nuclear astrophysics and numerical work on supernovae core collapse, neutrino transport, and shock propagation. His codes reenergized supernovae shocks, launched numerical relativity and magnetically driven jets."

After a stint at Los Alamos National Laboratory from 1944-1946, Wilson received his PhD in physics from the University of California, Berkeley in 1952. He spent a year at Sandia National Laboratories before joining Lawrence Livermore National Laboratory, where he has worked ever since. He has worked on various aspects of supernova modeling and numerical relativity, and modeled heavy-ion nuclear collisions and used data to make a high density nuclear equation of state. His current research is focused on developing a better supernova model for r-process calculations, has well as attempting to model the "dark energy" induced expansion of universe by the decay of sterile neutrinos.



#### Tom W. Bonner Prize In Nuclear Physics

**Stuart J. Freedman**

*University of California, Berkeley*

**Citation:** "For his contributions to Neutrino Physics and the study of Weak Interactions, in particular for his leading role in the KAMLAND experiment, as well as for his work on precision measurements of the beta decay of the neutron."

Biography unavailable at press time

#### Herbert P. Broida Prize

**James C. Bergquist**

*National Institute of Science and Technology, Boulder*

**Citation:** "For seminal contributions to ultra-high-resolution laser spectroscopy and the realization of accurate optical frequency standards."

Biography unavailable at press time

#### Oliver E. Buckley Condensed Matter Physics Prize

**James P. Eisenstein**

*California Institute of Technology*

**Steven M. Girvin**

*Yale University*

**Allan H. MacDonald**

*University of Texas, Austin*

**Citation:** "For fundamental experimental and

*theoretical research on correlated many-electron states in low dimensional systems."*

Eisenstein received his PhD in physics from the University of California, Berkeley, in 1980. After a brief stint as an assistant professor of physics at Williams College, he moved to Bell Laboratories in 1983, becoming a Distinguished Member of Technical Staff in 1993. In 1996 Eisenstein moved to Caltech where he is now the Frank J. Roshek Professor of Physics and Applied Physics. His research is focused on the collective behavior of two-dimensional electron systems in semiconductor heterostructures at low temperatures and high magnetic fields. He is especially interested in double layer 2D systems. He is currently a Member-at-Large of the DCMP Executive Committee. Eisenstein is member and Fellow of the APS and was elected to the National Academy of Sciences in 2005.



Girvin earned his PhD in physics from Princeton University in 1977. He did his postdoctoral research at Indiana University and the Chalmers University in Göteborg, Sweden. After serving at the National Bureau of Standards (now NIST) from 1970 to 1987, he joined the faculty of Indiana University. Girvin came to Yale in 2002 where he is now Eugene Higgins Professor of Physics and Professor of Applied Physics. Girvin's research has focused on strongly correlated quantum states of matter and the quantum phase transitions which separate them. He is currently working on developing circuit QED, the quantum optics of superconducting electrical circuits.



MacDonald received his Ph.D. from the University of Toronto in 1978. He joined the research staff of the Ottawa laboratory of the National Research Council of Canada in 1981 after a period of postdoctoral research at the same institution. He was a member of the faculty of Indiana University from 1987 until 2000, when he joined the faculty of the University of Texas at Austin. MacDonald's research has mainly been concerned with the influence of interactions on the electronic properties of condensed matter. Recently he has focused on spintronics, including contributions to the theory of magnetic semiconductors, the spin Hall effect, and the influence of transport currents on magnetic order parameters.



#### Davison-Germer Prize In Atomic or Surface Physics

**Franz Himpfel**

*University of Wisconsin*

**Citation:** "For pioneering investigations of the electronic structure of surfaces, interfaces, adsorbates, and nanostructures."

Himpfel received a diploma at the University of Munich with a thesis in quantum electrodynamics under Fritz Bopp. After a summer at CERN he went to Munich for a PhD in condensed matter physics with Wulf Steinmann. As a postdoc, he joined Dean Eastman at IBM Research in Yorktown Heights in 1977 to work on surface spectroscopy with synchrotron radiation. He became staff member and was senior manager of the Surface Physics Department. In 1995 he joined UW-Madison as professor of physics. In his scientific work, he used



spectroscopy with synchrotron radiation to reveal the often surprising electronic states at semiconductor surfaces and interfaces. His current interests are self-assembled nanostructures at surfaces, such as magnetic quantum wells, atomic chains for the study of low-dimensional electrons, an atomic scale memory for testing the limits of data storage, and the attachment of bio-molecules to surfaces. His more than 400 publications place him among the 100 most-cited physicists.

#### Einstein Prize

**Ronald Drever**

*California Institute of Technology*

**Rainer Weiss**

*Massachusetts Institute of Technology*

**Citation:** "For fundamental contributions to the development of gravitational wave detectors based on optical interferometry, leading to the successful operation of the Laser Interferometer Gravitational Wave Observatory."

Drever is a Professor of Physics Emeritus at the California Institute of Technology. He earned his Ph.D. in natural philosophy from the University of Glasgow in 1958. He has conceived and carried out original experiments in several fields, including an early high-precision experiment on anisotropy of inertial mass, using a unique earth's-field nuclear precession technique to set a sensitive limit to space anisotropy. Since 1972, his main research work has related to the detection of gravitational radiation. In 1979, he was invited to Caltech to initiate an experimental effort on gravitation. He developed an exceptionally sensitive interferometer. This, together with a number of other original ideas, were key steps to the realization of the LIGO Project for a gravity-wave observatory, now fully operational.

Weiss biography unavailable at press time



#### Dannie Heineman Prize for Mathematical Physics

**Juan Maldacena**

*Institute for Advanced Study*

**Joseph Polchinski**

*University of California, Santa Barbara*

**Citation:** "For profound developments in Mathematical Physics that have illuminated interconnections and launched major research areas in Quantum Field Theory, String Theory, and Gravity."

Maldacena was born in Argentina. He earned his "Licenciatura" in 1991 from Instituto Balseiro, Universidad de Cuyo, Argentina, and went on to receive a PhD in 1996 from Princeton University. After a postdoctoral appointment at Rutgers University, he joined the faculty of Harvard University. Since 2001, he has been a professor at the Institute for Advanced Study in Princeton, New Jersey. He works on the relationship between quantum field theories and gravity, and explores the connection between strings and large gauge theories with a large number of colors. He has also been honored with the 2004 APS Edward A. Bouchet award.



Polchinski received his Ph.D. in physics from University of California, Berkeley in 1980. After postdocs at SLAC and Harvard, he joined the faculty at the University of Texas at Austin from 1984 to



1992. Since 1992 he has been a Permanent Member at the Kavli Institute for Theoretical Physics and Professor at the University of California at Santa Barbara. Polchinski's interests span quantum field theory and string theory. In string theory, he discovered the existence of a certain form of extended structure, the D-brane, which has been important in the nonperturbative formulation of the theory. His current interests include the phenomenology of cosmic strings and various aspects of the duality between gauge theory and gravity. Polchinski has also written a widely-used two-volume textbook on string theory.

#### Irving Langmuir Prize

**Gabor A. Somorjai**

*University of California, Berkeley*

**Citation:** "For his pioneering research in surface chemistry and delineation of catalytic mechanisms."

Somorjai was born in Budapest, Hungary. He received his PhD in chemistry from the University of California, Berkeley in 1960. After graduation, he joined the IBM research staff in Yorktown Heights, New York, where he remained until 1964, when he joined the faculty of the University of California, Berkeley. He is also a Faculty Senior Scientist in the Materials Sciences Division, and Director of the Surface Science and Catalysis Program at the Center for Advanced Materials at the Lawrence Berkeley National Laboratory. He was awarded the National Medal of Science in 2002. His present research in the fields of catalysis and surface chemistry include studies of structure and bonding at surfaces; metal nanoparticle synthesis, characterization and catalytic reaction studies; surface science of heterogeneous catalysis; molecular studies of polymer surfaces and adsorbed peptides.



#### Julius Edgar Lilienfeld Prize

**Lisa Randall**

*Harvard University*

**Citation:** "For her pioneering work on particle physics and cosmology, and her tireless efforts to inspire and engage both specialist and non-specialist, by allegory and fact through publications and presentations."

Randall studies particle physics and cosmology at Harvard University, where she is professor of theoretical physics. Her research concerns elementary particles and fundamental forces, and has involved the study of a wide variety of models, the most recent involving extra dimensions of space. She is currently working out the implications of extra-dimensional models for experiments, particularly those that will take place at the Large Hadron Collider (LHC). She recently completed a book entitled *Warped Passages: Unraveling the Mysteries of the Universe's Hidden Dimensions*, which was included in the *New York Times*' list of 100 notable books of 2005. Randall



### Table of Contents

- 1 **Prize and Award Recipients**
- 4 **New APS Fellows**
- 8 **Nominations for 2008 Prizes and Awards**



earned her Ph.D. in particle physics in 1987 from Harvard University. She held professorships at MIT and Princeton University before returning to Harvard in 2001. In autumn 2004, she was the most cited theoretical physicist of the previous five years.

### James C. McGroddy Prize in New Materials

**Arthur J. Epstein**  
Ohio State University

**Joel S. Miller**  
University of Utah

**Citation:** "For discovery and characterization of organic-based magnets, and for observation and study of predictable and previously unknown magnetic phenomena in these fascinating materials leading to fundamentally new science and the demonstrated potential for creative new technologies."

Epstein earned his Ph.D. in 1971 from the University of Pennsylvania. He was a technical staff member at MITRE in 1971-1972, before joining the Xerox Webster Research Center. In 1985 he became professor of physics and professor of chemistry at The Ohio State University, and was appointed Distinguished University Professor in 1997. He presently is the Director of the OSU Institute for Magnetic and Electronic Polymers. His extensive research includes discovery of phenomena that result from organic molecules as the repeat units in magnets. New concepts developed in his labs include fractal magnetism, magnets with multiple photonic responses, and fully spin-polarized room temperature magnetic semiconductors. Epstein is a past recipient of the William Fowler Award of the Ohio Section of the APS for Distinguished Work in Physics (2003).



Miller received his PhD from UCLA in 1971. After a postdoctoral fellowship at Stanford University, and several positions in industry including the Xerox Corporation and Du Pont, he joined the University of Utah in 1993, where he is a Distinguished Professor in the Department of Chemistry. He has been a Visiting Scientist at the Weizmann Institute and a Visiting Professor of Chemistry at the University of Pennsylvania, University of Barcelona, and Professeur Invité, Institut de Science et d'Ingénierie Supramoléculaires (ISIS), Université Louis Pasteur among other institutions. He is on the advisory boards of *Advanced Materials*, *Chemistry—a European Journal*, and is a member of the Inorganic Synthesis Corporation. He also has been a Guest Editor for the *Electrochemical Society's Interface*, and the *MRS Bulletin*, edited seventeen monographs, and published over 450 papers.



### Lars Onsager Prize

**A. Brooks Harris**  
University of Pennsylvania

**Citation:** "For his many contributions to the statistical physics of random systems, including the formulation of the Harris criterion, which has led to numerous insights into a variety of disordered systems."

Harris obtained his PhD in experimental physics from Harvard University in 1962. He then retrained himself as a theorist for the next three years at Duke University, followed by a year at Harwell in the UK. He then joined the faculty at the University of Pennsylvania, where he has been ever since. He was a Sloan fellow (1967-1969) and a Guggenheim fellow (1972-1973). His research interests have included orientational ordering in solid molecular hydrogen, critical properties of numerous random systems, the crystal structure and dynamics of fullerenes, spin dynamics of frustrated magnets and the symmetry properties of frustrated magnets which exhibit simultaneous magnetic and ferroelectric ordering. The "Harris" criterion was developed during a 1973 visit to Oxford.



### Abraham Pais Prize on History of Physics

**Max Jammer** (retired)

**Citation:** "For his groundbreaking historical studies of fundamental concepts in physics, including his comprehensive account of the development of quantum mechanics."

Born in Berlin, Germany, Jammer studied physics, mathematics and philosophy at the University of Vienna and subsequently at Hebrew University in Jerusalem, where he obtained his Ph.D. in 1942. After active service in the British Army he joined the faculty of Hebrew University in 1946 to teach history and philosophy of physics. In 1952 he became a lecturer at Harvard University, where he wrote *Concepts of Space* (Harvard University Press, 1954). In 1956 he joined the faculty of Bar-Ilan University in Israel where he subsequently became President. Having personally interviewed leading physicists, like Bohm, Born, de Broglie, Dirac, Heisenberg and Jordan, Jammer wrote his books on the history and philosophy of quantum mechanics and of fundamental physical concepts, like *Force, Mass* (Princeton Univ. Press, 1999) and, most recently, *Simultaneity* (Johns Hopkins Univ. Press, 2006).



### George E. Pake Prize

**Mark Kryder**  
Seagate Research

**Citation:** "For his leadership and research in high-density magnetic and magneto-optic data and storage."

Kryder is Chief Technical Officer and Senior Vice President, Research at Seagate Technology and University Professor of Electrical and Computer Engineering, Carnegie Mellon University. He has over 35 years of experience working in the field of magnetic memory and storage devices, having previously worked at Caltech, the University of Regensburg, IBM T.J. Watson Research Center and Carnegie Mellon University. Kryder received his BSEE degree from Stanford University in 1965 and his MSEE from the California Institute of Technology in 1966. He received his PhD in Electrical Engineering and Physics from Caltech in 1970. He has over 350 publications and 23 patents in the field of magnetic memory and storage technology.



### W.K.H. Panofsky Prize in Experimental Particle Physics

**Italo Mannelli**  
University of Pisa

**Bruce Winstein**  
University of Chicago

**Heinrich Wahl**  
University of Ferrara/CERN

**Citation:** "For leadership in the series of experiments that resulted in a multitude of precision measurements of properties of neutral K mesons, most notably the discovery of direct CP violation."

Mannelli was born in Florence, Italy. He obtained the Laurea in Physics at the University of Pisa in 1957 and the Diploma of the Scuola Normale in 1958. He was awarded the Libera Docenza in Physics in 1964. After teaching as lecturer and assistant professor he was nominated in 1968 to be full professor with the Chair of Elementary Particle Physics at the University of Pisa. During 1975-1998 he worked as senior physicist on the staff of CERN. He returned to Pisa in 1987 to join the faculty of the Scuola Normale Superiore, where he is at present. He worked on the NA31 experiment, which produced in 1987 the first evidence of Direct CP violation in two-pion neutral Kaon decays. Work is now in progress at CERN on charged Kaon decays to three pions and other more rare modes. Mannelli has been Vice-President of INFN, Research Director at CERN, Chairman of the CERN Scientific Policy Committee and member of the ERC review Committee on LHC. He has also served, in various capacities, in several national and international scientific bodies.



Winstein is the Samuel K. Allison Distinguished Service Professor in the Department of Physics and the Enrico Fermi Institute, University of Chicago. His undergraduate degree was from UCLA (1965)

and graduate degree from Caltech (1970). After 2 years at MPI, Munich/CERN, he moved to Chicago. His research focused on experiments in elementary particle physics, particularly those aimed at elucidating symmetry violations in nature. Winstein has served on advisory panels for Fermilab, SLAC, the NSF and the DOE. He has held visiting positions at Stanford and Princeton, the latter turning him into an observational cosmologist. After founding Chicago's NSF Physics Frontier Center for Cosmological Physics, he's back to full-time research, currently PI on the NSF funded QUIET project to study the polarization of the cosmic microwave background radiation.



Wahl is a professor of physics at the University of Ferrara. He studied physics at the University of München, the Swiss Technical Highschool (ETH) in Zürich, and at the University of Hamburg, where he earned his PhD in 1967 with his work on nuclear resonance fluorescence in Li-6. He also conducted experiments on high energy photoproduction of mesons at the German Electron-Synchrotron Laboratory DESY in Hamburg. Since 1969 he has been a member of the research staff at the European Laboratory for Particle Physics CERN in Geneva. His research has included experiments on CP violation at the CERN SPS accelerator, primarily to search for direct CP violation in neutral kaon decays and to determine its strength. This led to the first observation and measurement of direct CP violation.



### Earle K. Plyler Prize for Molecular Spectroscopy

**Timothy S. Zwier**  
Purdue University

**Citation:** "For the design and implementation of multiple resonance methods that elucidate the potential energy landscapes of flexible biomimetic molecules and their hydrates by optical control of isomer populations."

Zwier received his Ph.D. in chemical physics from the University of Colorado-Boulder in 1981. He then spent two years as a post-doctoral research associate at the James Franck Institute of the University of Chicago. From 1983-1988, he was an assistant and associate professor of chemistry at Calvin College. In 1988 he moved to the Department of Chemistry at Purdue University, becoming associate professor in 1993 and full professor in 1997. Since 2004 he has been department head there. His current research involves the development and use of laser-based, multiple-resonance methods to probe the spectroscopy and dynamics of flexible biomolecules and molecular clusters. He also applies these techniques to molecules and free radicals of importance in combustion processes and planetary atmospheres.



### Polymer Physics Prize

**Glenn Fredrickson**  
University of California, Santa Barbara

**Citation:** "For insightful and predictive theories regarding the thermodynamics and dynamics of macromolecular systems."

Fredrickson received his Ph.D. degrees from Stanford University in 1984 in chemical engineering. He subsequently joined AT&T Bell Laboratories, and was named Distinguished Member of Technical Staff in 1989. In 1990 he moved to the University of California, Santa Barbara. He served as Chair of Chemical Engineering from 1998 to 2001 and in 2001 founded the Mitsubishi Chemical Center for Advanced Materials (MC-CAM). Fredrickson currently serves as MC-CAM Director and Associate Director of UCSB's Materials Research Laboratory. He has approximately 200 refereed publications and a long-standing interest in the statistical mechanics of complex fluids, especially polymers and glasses. His current research is focused on developing field-based computer simulation strategies to assist the



design of polymer solution and melt formulations.

### I.I. Rabi Prize in Atomic, Molecular and Optical Physics

**Jun Ye**  
JILA

**Citation:** "For advances in precision measurement, including techniques for stabilizing and measuring optical frequencies, controlling the phase of femtosecond laser pulses, and measuring molecular transitions."

Ye received the PhD degree from the University of Colorado, Boulder, in 1997. He was a postdoctoral fellow at the California Institute of Technology from 1997-1999. He has been a fellow of JILA, the National Institute of Standards and Technology and the University of Colorado, since 2001. He has been a fellow of NIST since 2004. His research interests include precision measurement, ultracold atoms and molecules, optical frequency metrology, and ultrafast science and quantum control. He has co-authored over 150 technical papers.



### Aneesur Rahman Prize for Computational Physics

**Daniel Frenkel**  
Amsterdam Center for Computational Science

**Citation:** "For groundbreaking contributions to computational physics through the development of novel methodologies and algorithms to probe soft matter systems, thereby providing understanding of their diverse behaviors."

Frenkel received his PhD from the University of Amsterdam in 1977. He spent three years doing postdoctoral research at UCLA before becoming a research scientist at Shell. He left in 1981 to join the faculty of the University of Utrecht. In 1998 he became a professor of computational macromolecular chemistry at the University of Amsterdam. His current research interests include computer simulations of structure and dynamics of soft-matter systems; simulations of nucleation phenomena; novel Monte Carlo algorithms and coarse-grained modeling techniques.



### J.J. Sakurai Prize for Theoretical Particle Physics

**Stanley Brodsky**  
Stanford Linear Accelerator Center

**Citation:** "For applications of perturbative quantum field theory to critical questions of elementary particle physics, in particular, to the analysis of hard exclusive strong interaction processes."

Brodsky received his Ph.D. in 1964 from the University of Minnesota. He was a research associate in theoretical physics at Columbia University for two years. In 1966 he joined the Stanford Linear Accelerator Center of Stanford University as a research associate. Brodsky became a permanent staff member in 1968 and a professor at SLAC in 1976. He was head of the SLAC theory group from 1996 to 2002. His research spans many areas of high-energy and nuclear theoretical physics, as well as precision tests of quantum electrodynamics in atomic physics. Recently he has been collaborating on the insights into the QCD spectra and hadron light-front wavefunctions which can be obtained from the AdS/CFT correspondence.



### Arthur L. Schawlow Prize in Laser Science

**Szymon Suckewer**  
Princeton University

**Citation:** "For pioneering contributions to the generation of ultra-short wavelength femtosecond lasers and x-ray microscopy."

Suckewer is a professor of Mechanical and Aerospace Engineering at Princeton University. He received a PhD in 1966 and a DSc in 1971 from Warsaw University, both in physics. He emigrated



to the US in 1975 and joined Princeton University's Plasma Physics Laboratory. His initial work at PPPL was on spectroscopic diagnostics of high temperature plasma and development of a recombination x-ray laser in magnetically confined plasma, which he and his group successfully demonstrated in 1984. This laser was used for X-ray microscopy in 1987-1991. In 1985 he expanded his group to proceed with the development of an ultrashort pulse KrF laser, which was completed in 1987. Suckewer and his group are now developing a powerful femtosecond laser based on Raman amplification and compression in plasma.



### 2007 Prize to a Faculty Member for Research in an Undergraduate Institution

**William K. Wootters**  
Williams College

**Citation:** "For his pioneering work on quantum teleportation, his widely cited contributions to quantum information theory, and his prolific engagement of undergraduate students in this research at the foundation of quantum mechanics."

Wootters is the Barclay Jermain Professor of Natural Philosophy in the Department of Physics at Williams College. He received his PhD in 1980 from the University of Texas at Austin, with a thesis in the foundations of quantum mechanics. He joined the faculty at Williams in 1982 and has spent sabbaticals at various institutions, including Santa Fe Institute and the University of Montreal. Most of his research has been in quantum information theory, focusing particularly on the quantitative analysis of entanglement, the use of entanglement in quantum communication, and the acquisition of classical information from quantum states. Currently he and his students are investigating a phase-space formulation of quantum mechanics based on finite fields.



### Robert R. Wilson Prize for Achievement in the Physics of Particle Accelerators

**Lee C. Teng**  
Argonne National Laboratory

**Citation:** "For invention of resonant extraction and transition crossing techniques critical to hadron synchrotrons and storage rings, for early and continued development of linear matrix theory of particle beams, and for leadership in the realization of a facility for radiation therapy with protons."

After completing his undergraduate studies at Fu Jen University in Beijing, Teng received his PhD from the University of Chicago in 1951. He spent two years at the University of Minnesota, and another two years at Wichita State University before becoming director of Argonne National Laboratory's Particle Accelerator Division in 1955. In 1967 he became associate head of the Accelerator Division at Fermilab, returning to Argonne in 1989 as head of the Accelerator Physics Advanced Photon Source, a position he held until 1997. His research has focused on beam dynamics and accelerator project management.



### Awards, Medalships & Lectureships

#### David Adler Lectureship Award in the Field of Material Physics

**Samuel D. Bader**  
Argonne National Laboratory

**Citation:** "For spirited lectures, writing and experimental research in the area of nanomagnetism, magnetic films, multilayers and surfaces of metallic systems, including championing the surface magneto-optic Kerr effect approach."

Bader received his PhD in chemistry from the University of California, Berkeley, in 1974. Presently he is an Argonne Distinguished Fellow. He also heads the Magnetic Films Group, as associate

director of Argonne's Materials Science Division, and Chief Scientist of the new Center for Nanoscale Materials. He is known for work in magnetic surfaces, films and superlattices, including ferromagnetic-superconducting multilayers. He has been active in the fields of giant and colossal magnetoresistance and exchange-coupled multilayers. He pioneered the surface magneto-optic Kerr effect (SMOKE) approach in surface magnetism. His interests include creating ultra-strong permanent magnets, known as spring magnets, and to explore laterally confined nanomagnets in order to develop magnetic electronics and bio-inspired templates for self-assembly.



### Edward A. Bouchet Award

**Gabriela Gonzalez**  
Louisiana State University

**Citation:** "For her significant impact on the field of gravitation wave physics through her many important technical and scientific contributions to the Laser Interferometric Gravitational Wave Observatory (LIGO) and for communicating the excitement of this field to the scientific community and the public."

Born in Córdoba, Argentina, Gonzalez attended the University of Córdoba, earning her undergraduate degree in 1988. She moved to the US in 1989, and got her PhD in 1995 at Syracuse University. She worked with the MIT-LIGO group in 1995-1997 as a staff scientist, joined the faculty of Penn State in 1997, and the faculty of Louisiana State University in 2001, where she is currently an associate professor. Her research interest is in the detection of gravitational waves with interferometric detectors, such as the one in the LIGO Livingston Observatory, in Livingston, LA. She was a founding member of the LIGO Scientific Collaboration. She co-leads one of the four data analysis groups in the collaboration, dedicated to the search for gravitational waves generated by binary systems of compact objects (neutron stars or black holes) in the final inspiraling stage before coalescence.



### Joseph A. Burton Forum Award

**Matthew G. Bunn**  
Harvard University

**Citation:** "For his outstanding contributions in helping to formulate policies to decrease the risks of theft of nuclear weapons and nuclear materials, and his effective communication of these proposals to Congress and the public."

Bunn is a senior research associate in the Project on Managing the Atom at Harvard University's John F. Kennedy School of Government. His research interests focus primarily on policies to prevent nuclear proliferation and nuclear terrorism. Before coming to Harvard, Bunn served as an adviser to the White House Office of Science and Technology Policy, where he took part in a wide range of U.S.-Russian negotiations relating to security, monitoring, and disposition of weapons-usable nuclear materials, and directed a secret study of security for nuclear stockpiles for President Clinton. Previously, Bunn directed a seminal National Academy of Sciences study on disposition of excess plutonium, and served as editor of the journal Arms Control Today. He is the author or co-author of more than a dozen books or major technical reports, and dozens of articles in publications ranging from *Science* and *Nuclear Technology to Foreign Policy* and *The Washington Post*. He received his bachelor's and master's degrees in political science from the Massachusetts Institute of Technology in 1995.



### John H. Dillon Medal for Research in Polymer Physics

**Darrin J. Pochan**  
University of Delaware

**Citation:** "For advancing our understanding of the physics of assembly and chain conformation of synthetic polypeptides."

Pochan is currently an associate professor in the Materials Science and Engineering Department, as well as the Delaware Biotechnology Institute, both

at the University of Delaware. He earned his PhD in polymer science and engineering at the University of Massachusetts-Amherst, followed by a postdoctoral fellowship at the National Institute of Standards and Technology in Gaithersburg, Maryland. His research program involves the construction of new materials and nanostructures via molecular self-assembly mechanisms. Materials of interest include multicompartments, novel micelles, hierarchically structured hydrogels, and the directed assembly of inorganic nanoparticles. Currently, Darrin also serves as associate editor for North America of *Soft Matter*, a new interdisciplinary journal from the Royal Society of Chemistry.



### 2007 Excellence in Physics Education Award

Physical Science Study Committee

**Recipients: Martin Deutsch, John Dodge, Nathaniel H. Frank, Anthony P. French, Francis Friedman, Robert Gardner, Edwin (Ned) Goldwasser, Uri Haber-Schaim, Robert Hulsizer, John King, Edwin D. Land, Phil Morrison, Edwin Purcell, Jerrold Zacharias**

**Citation:** "For the revitalization of subject matter through the involvement of teachers and researchers at all levels, the elevation of the instructional role of the laboratory, the development and utilization of innovative instructional media, and the emphasis on discipline-centered inquiry and the nature of physics, PSSC Physics has had a major and ongoing influence on physics education at the national level."

### Joseph Keithley Award for Advances in Measurement Science

**Kent D. Irwin**  
National Institute of Science & Technology,  
Boulder

**Citation:** "For the development of SQUID multiplexers used in large-format arrays of superconducting transition-edge sensors that have impacted such fields as particle physics, astronomy, materials analysis, cosmology, and nuclear physics."

Irwin leads the quantum sensors project at the National Institute of Standards and Technology in Boulder, Colorado, and is an adjoint professor of astrophysics and planetary science at the University of Colorado. He received a PhD from Stanford University in 1995. At Stanford, he developed the voltage-biased superconducting transition-edge sensor (TES). These devices are now being actively used for the sensitive measurement of electromagnetic signals from microwaves through gamma rays, and for the detection of dark matter, alpha particles, and neutrons. At NIST, he and his group have developed multiplexed superconducting quantum interference devices that have made it possible to instrument large TES arrays, significantly enlarging their scope of application. His group is actively developing detector systems based on multiplexed TES arrays for astronomy, nuclear non-proliferation, materials analysis, and homeland defense applications.



### Maria Goeppert Mayer Award

**Amy J. Barger**  
University of Wisconsin, Madison

**Citation:** "For her pioneering efforts in using observational cosmology to provide new insight into the evolution of black holes, star formation rates and galaxies."

Barger received her PhD in Astronomy in 1997 from King's College and the Institute of Astronomy at the University of Cambridge, where she was a Marshall Scholar. In 1996, she became a postdoctoral fellow at the Institute for Astronomy at the University of Hawaii. She continued her research there after being named both a Hubble Fellow and a Chandra Fellow at Large in 1999. Barger joined the faculty of the University of Wisconsin-Madison in 2000 in the Department of Astronomy, where she is presently an associate professor. She also holds an appoint-



ment as Affiliate Graduate Faculty in the Department of Physics and Astronomy at the University of Hawaii. Barger's primary research interest is mapping the star formation and accretion histories of the universe using observations at many wavelengths. She has made discoveries of new populations of dusty galaxies and supermassive black holes in the distant universe.

### Francis M. Pipkin Award

**David DeMille**  
Yale University

**Citation:** "For wide-ranging studies of fundamental symmetries in atoms and molecules, including novel approaches to searches for the electric dipole moment of the electron and investigations of parity nonconservation and the spin-statistics connection."

DeMille received his PhD in physics from the University of California, Berkeley in 1994. After postdoctoral research at Lawrence Berkeley National Lab, he joined the faculty at Amherst College in 1997, then moved to Yale University in 1998. DeMille's recent research focuses on use of diatomic molecules as a resource in several subfields. For example, the small spacing between energy levels in molecules can enhance small symmetry-violating effects. DeMille is using these enhancements in experiments to study the electric dipole moment of the electron; nuclear anapole moments and semileptonic electroweak couplings; and possible time variation of the electron-to-proton mass ratio. In parallel with these efforts, he is developing techniques to cool and trap polar molecules, and investigating applications of ultracold molecules in precision measurement and quantum information processing.



### Shock Compression Science Award

**Dennis E. Grady**  
Applied Research Associates

**Citation:** "For his pioneering contributions into the fundamental principles controlling dynamic failure and fragmentation, developing a large database of the dynamic response of brittle materials, and identifying a universal relationship between shock wave structure and its amplitude."

Grady is currently an associate and principal scientist with the South West Division of Applied Research Associates headquartered in Albuquerque, New Mexico. He received his PhD in physics from Washington State University in 1971. Following three years on the research staff of Poulter Laboratory at SRI International, he joined Sandia National Laboratories. He retired from Sandia in 1996 and joined Applied Research Associates the same year. He has been involved with the experimental measurement and theoretical description of condensed matter under the extreme pressure and temperature stimulus of shock and high-velocity impact for over 30 years. He has published over 300 technical papers and reports on a range of materials and applications issues in the intense shock environment including experimental methods, electric and magnetic effects, phase transformation, high-pressure equation of state, transient strength, hypervelocity interaction, and dynamic fragmentation.



### Leo Szilard Lectureship Award

**James E. Hansen**  
National Aeronautics and Space Administration

**Citation:** "For his seminal contributions to climate physics, especially the incorporation of radiative transfer in climate models, and his tireless efforts to bring the results of climate science to the attention of policymakers and the public."



Biography unavailable at press time

### John Wheatley Award

**Fazley Bary Malik**  
Southern Illinois University

**Citation:** "For his extensive contributions to developing physics and inspiring physicists in emerging nations through insightful personal collaboration, continuing education of graduate students, creation of research centers and groups in developing countries,



organization of international meetings and attracting resources in the USA and internationally to sustain all these activities for over thirty years."

Malik received his PhD in 1958 from Göttingen University, and spent the next few years as a postdoctoral fellow before joining the faculty of Princeton University in 1964. He left in 1982 for a professorship at Indiana University, Bloomington. Since 2005, he has been a research professor at Southern Illinois University at Carbondale. His research includes extensive investigations in relativistic effects in atomic processes, theory of nuclear fission, the role of rotational-particle in nuclear spectra, nuclear reaction, physical processes in strongly correlated systems and variational method in quantum physics. He has served as a consultant to many national labs, and as an advisor to Bangladesh Government on higher education and UNESCO to establish an international institute of applied and theoretical physics in Iowa. He has been a member of the International Advisory Committee on International Workshop on Condensed Matter Theories since 1985.



## DISSERTATION AWARDS

### Andreas Acrivos Dissertation Award in Fluid Dynamics

Eric Lauga

Massachusetts Institute of Technology

**Citation:** "For the dissertation 'Slip, Swin, Mix, Pack: Fluid Mechanics at the Micron Scale,' a treatment of slip and mixing relevant to micron-scale geometries, swimming of microorganisms and self-assembly of colloidal particles."

Eric Lauga received the diplôme d'Ingénieur (equiv. B.S.) from Ecole Polytechnique in France in 1998, majoring in Fluid Mechanics and Earth Sciences. He then joined the Corps des Mines program at Ecole des Mines de Paris, during which he spent a year at the University of California San Diego (1999-2000). In 2001 he obtained a D.E.A. (equiv.

M.S.) in Mechanics from the University of Paris VI. Lauga received his PhD in 2005 from the Division of Engineering and Applied Sciences at Harvard University, under the direction of Michael P. Brenner and Howard A. Stone. Lauga's thesis work concerned theoretical investigations of flow behavior at the micron scale. He is currently an Assistant Professor of Applied Mathematics in the Department of Mathematics at MIT. His current work considers problems in bio-fluid mechanics and microfluidics.



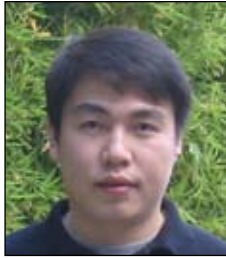
### Nicholas Metropolis Award for Outstanding Doctoral Thesis Work in Computational Physics

Chengkun Huang

University of California, Los Angeles

**Citation:** "For his innovative work in plasma physics that led to the development of the QuickPIC code that revolutionized the simulation of plasma-based accelerator research."

Huang was born in China. He began his undergraduate study at Tsinghua University in 1994 and conducted graduate research on the spherical tokamak in Tsinghua University, receiving a master's degree in 2000. He continued his study in the Department of Electrical Engineering at the University of California, Los Angeles, where his research focused on multiscale computer modeling for plasma wakefield acceleration. Huang is the author of the simulation tool QuickPIC, which is a large scale parallel Particle-In-Cell code for efficiently modeling beam-plasma and laser-plasma interactions in plasma-based acceleration and also used in studying electron cloud effect of conventional accelerators. He holds a M.S. degree (2003) and a Ph.D. degree (2005) in Electri-



cal Engineering from UCLA and currently works as a postdoctoral scholar in the plasma theory and simulation group at the physics department of UCLA.

### Dissertation in Nuclear Physics

Kathryn K.S. Miknaitis  
University of Washington

**Citation:** "For her dissertation describing a search for change in the flavor composition of neutrinos that traverse the earth by means of analysis of salt-phase data from the Sudbury Neutrino Observatory to identify day-night variations in the rate of neutrino interactions."

Biography unavailable at press time

Magdalena Djordjevic  
Columbia University

**Citation:** "For her dissertation presenting a theoretical treatment of heavy quark energy loss in a strongly interacting quark gluon plasma in which the gluon radiative energy loss was solved to all orders in opacity."

Born in Serbia, Djordjevic received her Diploma in Physics from the University of Belgrade in August 2000. In September 2000, she enrolled in graduate studies at Columbia University, as a Faculty Fellow. Her thesis work which addressed theoretical problems in Relativistic Heavy Ion Physics, was done under the guidance of Professor Miklos Gyulassy. In joint work with Gyulassy, she developed a formalism that allows to compute the radiative energy loss for heavy quarks in a hot quark-gluon plasma to all orders in opacity. This theory allows to obtain theoretical predictions for heavy-ion collision experiments at RHIC (the Relativistic Heavy Ion Collider) and LHC (the Large Hadron Collider) She is currently a postdoctoral researcher at The Ohio State University under the supervision of Professor Ulrich Heinz.



Her current research addresses collisional heavy quark energy loss and generalization of the energy loss formalism to a dynamical medium.

### Mitsuoyoshi Tanaka Dissertation Award in Experimental Particle Physics

Jean-Francois Arguin

Lawrence Berkeley National Laboratory

**Citation:** "Measurement of the Top Quark Mass with In Situ Jet Energy Scale Calibration using Hadronic W Boson Decays at CDF-II"

Jean-Francois Arguin was born in 1976 in Chicoutimi, Qc, Canada and lived most of his life in Quebec City. Arguin completed his undergraduate degree in Mathematical Physics in 1998 at the Université de Montréal. He became interested in experimental particle physics in the last year of his B.Sc., which brought him to study charm physics at the BaBar experiment. Arguin completed an M.Sc. on BaBar from the Université de Montréal in 2000. He then joined the Collider Detector at Fermilab (CDF) collaboration, which studies proton-antiproton collisions at the Tevatron. Arguin's doctorate studies were conducted at the University of Toronto under the supervision of Professor Pekka K. Sinervo. Arguin studied the top quark at CDF. He devised a method to measure precisely the mass of the top quark by reducing the uncertainty in measurements of the energy of the jets that arise from the decay of top quarks. This method yielded the most precise measurement of the top quark mass to date, which in turn provided unprecedented constraints on the mass of the Higgs boson, the last particle predicted by the Standard Model that has yet to be observed. Arguin's work was awarded the URA Thesis Award at Fermilab. Arguin is now a Chamberlain fellow at the Lawrence Berkeley Laboratory, where he is participating in the next generation of hadron collider experiments: the ATLAS experiment at the Large Hadron Collider at CERN.



# APS Council Announces 2006 APS Fellows

The APS Council elected the following as Fellows of the Society at its November 2006 meeting. Nominations for fellowship are received at APS Headquarters throughout the year, and are forwarded for review to the appropriate division, topical group or forum fellowship committees. The deadlines for the various units appear on page 8 of this insert, and are posted on the web.

Fellowship nomination forms may be completed on the web at <http://fellowship.aps.org/>. Information for completing the form is available at <http://www.aps.org/programs/honors/fellowships/nomination-requirements.cfm>.

## 2006 Fellows (Alphabetical by Last Name)

### Adams, Philip Wayne

Louisiana State University

#### DCMP

For his major contributions to the understanding of high field superconductivity and two dimensional electron localization.

### Allamandola, Louis John

NASA Ames Research Center

#### Chemical Physics

For his seminal contributions in astrochemistry that have forever revolutionized our understanding of interstellar molecules, interstellar ices, and the chemical physics of the interstellar medium.

### Amendt, Peter

Andrew Lawrence Livermore National Laboratory

#### Plasma Physics

For seminal contributions to the development of indirectly-driven single- and double-shell inertial confinement fusion physics necessary for the demonstration of laboratory-scale ignition.

### Arnold, Susan Theresa

Air Force Research Laboratory

#### DAMOP

For outstanding achievements in anion laser photoelectron spectroscopy and the kinetics and dynamics of ion-molecule, electron-molecule, and electron-ion reactions of importance in the atmospheric and aerospace sciences.

### Attwood, David

University of California, Berkeley

#### Laser Science

For leading contributions to the characterization and use of coherent extreme ultraviolet and soft x-ray radiation, and for pioneering work in laser interferometry of dense plasmas.

### Averbukh, Ilya

The Weizmann Institute of Science, Israel

#### DAMOP

For pioneering contributions to the understanding of wave packet dynamics in atoms and molecules, particu-

larly the sequence of revivals and fractional revivals.

### Balachandar, Sivaramakrishnan

University of Illinois at Urbana Champaign

#### Fluid Dynamics

For fundamental contributions to the understanding of thermal convection in the earth's mantle, the structure of bluff body wakes and their effect on the dynamics of small particles, the dynamics of vortices in wall turbulence, and theory of two-phase flow, including the equilibrium Euler formulation for disperse flow.

### Banerjee, Sanjay Kumar

University of Texas

#### Forum on Industrial and Applied Physics

For contributions to silicon and silicon-germanium heterostructure MOS transistors and three-dimensional integrated-circuit technology.

### Baroni, Stefano

Scuola Internazionale Superiore di Studi Avanzati, Italy

#### Computational Physics

For his seminal contributions to the broad area of modeling of condensed matter and for his services to the international electronic structure community as a promoter and an instructor.

### Batrouni, Ghassan George

Institut Non-Lineaire de Nice University of Nice-Sophia Antipolis, France

#### Computational Physics

For fundamental contributions to quantum monte carlo techniques and their application to lattice gauge theory, condensed matter and atomic physics.

### Bauer, Daniel

Fermilab

#### Particles & Fields

For his crucial contributions to the success of the Cold Dark Matter Search (CDMS) experiment.

### Becker, Ulrich J.

Massachusetts Institute of Technology

#### Particles & Fields

For leadership in experiments elucidating the electroweak and strong interaction theories, primarily through the development of advanced instrumentation.

### Bilderback, Donald H.

Cornell University

#### DCMP

For his contributions to synchrotron x-ray physics in the field of x-ray optics and to the development of cryogenic cooling.

### Billinge, Simon John Laird

Michigan State University

#### Materials Physics

For seminal contributions to the study of atomic-scale disorder in complex nanostructured materials by developing and applying novel x-ray and neutron scattering methods.

### Blaisten-Barojas, Estela Olga

George Mason University

#### Computational Physics

For pioneering work in the computational simulation of atomic and molecular clusters including significant advances in the understanding of the structure and other important properties of nanoscale systems.

### Blucher, Edward Charles

University of Chicago

#### Particles & Fields

For his work in measurements of electroweak processes, in particular for precise determinations of the parameters of kaon decays and the elucidation of the "unitarity puzzle" in kaon physics.

### Blumberg, Girsh

Bell Laboratories, Lucent Technologies

#### DCMP

For his seminal contributions to elucidating the physics of spin, charge and superconducting correlations in 1D and 2D complex oxide compounds using Raman scattering techniques.

### Bollen, Georg

Michigan State University

#### Nuclear Physics

For his seminal contribution to the development of Penning traps for short-lived radioactive isotopes and for high-precision mass measurements of these isotopes.

### Bonnecaze, Roger T.

University of Texas

#### Fluid Dynamics

For seminal contributions to the understanding of suspension and interfacial flows.

### Brown, Garry L.

Princeton University

#### Fluid Dynamics

For seminal contributions to the understanding of structure and mixing in turbulent shear flows.

### Bryant, Garnett W.

NIST

#### DCMP

For seminal contributions to the theory of semiconductor quantum dots and other complex quantum nanostructures and to nanooptics.

### Bulgac, Aurel

University of Washington

#### Nuclear Physics

For his ground-breaking work on collective properties of many-fermi systems, particularly on the theory of nuclear pairing.

### Bunning, Timothy J.

AFRL/MLPJ

#### Polymer Physics

For fundamental and innovative elucidation of the structure-property relationships of novel passive and dynamic polymer-based photonic materials; which is enabling the development of next-generation adaptive optical platforms.

### Burkhardt, Theodore W.

Temple University

#### DCMP

For his contributions to the theory of phase transitions at surfaces and interfaces, and his contributions to the statistical mechanics of polymers.

### Cao, Hui

Northwestern University

#### Laser Science

For the invention of microlasers based on disordered media, and other groundbreaking experimental studies coherent light generation and transport in disordered media.

### Cerdeira, Hilda A.

The Abdus Salam International Centre for Theoretical Physics, Italy

#### Forum on International Physics

For her contributions in superconductivity, nonlinear dynamics and synchronization of chaotic systems and her development and management of outreach programs in communications and literature for colleagues in developing countries.



## Chan, Shirley Suiling

Princeton University

### Biological Physics

For using sophisticated techniques to explore the spectra, structure, and dynamics of proteins and nucleic acids, and for dedicated service to the American Physical Society.

## Chang, Choong-Seock

New York University

### Plasma Physics

For seminal and pioneering contributions in neo-classical, rf-driven, and basic transport theories, and for his leadership in plasma edge simulation in torodial magnetic confinement devices.

## Chaudhury, Manoj K.

Lehigh University

### Polymer Physics

For conducting fundamental studies on the roles of energetic and kinetic processes on adhesion, fracture and tribological properties of polymeric interfaces.

## Cheng, Kwong-sang

University of Hong Kong, China

### Astrophysics

For contributions to the theory of compact objects, especially the study of high energy radiation from pulsars and the glitch relaxation phenomenon of pulsars.

## Chin, Siu Ah

Texas A&M University

### Computational Physics

For original and powerful new fourth-order algorithms to solve diverse computational problems in physics and chemistry; and for pioneering theoretical and computational contributions to the many-body physics of hadronic matter.

## Chu, Sung Nee George

Multiplex INC

### Forum on Industrial and Applied Physics

For contributions to the development of lasers and photodiodes for optical fiber communication systems.

## Coles, William Arthur

University of California, San Diego

### Plasma Astrophysics

For his major contributions to our understanding of the effect of plasma turbulence on radio wave propagation, and the use of radio propagation measurements to infer properties of remote turbulent plasmas in interplanetary space and the interstellar medium.

## Collins, Gilbert Wilson

Lawrence Livermore National Laboratory

### Plasma Physics

For seminal contributions to the field of high-energy-density physics related to the development and application of novel laser-compression capabilities to measuring ultra-high pressure material properties.

## Corke, Thomas C.

University of Notre Dame

### Fluid Dynamics

For beautiful experiments elucidating the structure of turbulent boundary layers, the transition from laminar to turbulent flow in boundary layers and in unconfined systems, and the control of turbulence.

## De Long, Lance Eric

University of Kentucky

### DCMP

For his contributions to the understanding of magnetic properties and interactions in superconducting and strongly correlated metallic crystals and films.

## Deem, Michael W.

Rice University

### Biological Physics

For his elegant and pioneering work on the connection between spin glass physics and complex phenomena in biology ranging from the immune system response to the dynamics of evolution.

## Dekker, Cees

Delft University of Technology, Netherlands

### Materials Physics

For seminal experimental discoveries of the electronic properties of carbon nanotubes and other contributions to nanoscience.

## Delley, Bernard T.

Paul Scherrer Institute, Switzerland

### Chemical Physics

For his pioneering contribution to density functional methodology and helping to establish density functional theory as a major tool for academic and industrial chemistry.

## Demkov, Alexander A.

University of Texas at Austin

### Forum on Industrial and Applied Physics

For contributions to the development of the materials theory of oxides and their interfaces, as applied to CMOS technology development.

## Dingus, Brenda Lynn

Los Alamos National Laboratory

### Astrophysics

For her pioneering work on understanding the highest energy gamma-ray emission from gamma-ray bursts.

## Dobrynin Andrey V.

University of Connecticut

### Polymer Physics

For his contributions to the theory of charged polymers.

## Duxbury, Phillip Martin

Michigan State University

### Computational Physics

For the development of efficient computational methods for strongly non-linear disordered systems and the extraction of novel physics from the application of these methods.

## Edwards, Glenn S.

Duke University

### Biological Physics

For seminal research in the rapid thermodynamics governing infrared-laser ablation of tissue and for quantifying force producing processes in tissue dynamics during dorsal closure, a stage of *Drosophila* morphogenesis.

## Elliott, Daniel S.

Purdue University

### Laser Science

For pioneering experimental demonstrations of coherent control in atomic systems.

## Erwin, Steven Charles

Naval Research Laboratory

### Computational Physics

For creative and influential contributions to computational materials science in the fields of fulleride solids, semiconductor surfaces, magnetic semiconductors, and nanocrystals.

## Esry, Brett Daniel

Kansas State University

### DAMOP

For contributions to the theory of few-body physics at ultracold temperatures and its impact on our understanding of trapped atoms, molecules and Efimov states, and degenerate quantum gases.

## Ferron, John R.

General Atomics

### Plasma Physics

For contributions to the fundamental understanding and control of the MHD stability of high-pressure tokamak plasmas, including the stability of the H-mode edge.

## Fisher, Peter H.

Massachusetts Institute of Technology

### Particles & Fields

For initiating Tau Polarization Asymmetry Measurements and W-Boson self couplings, leading to a top mass prediction (found later at FNAL). First proof of single W-production in e+ e- annihilation. Determination of sin2θw with proposal to expand to highest accuracy of 10-5 at LHC.

## Fitzsimmons, Michael Raymond

Los Alamos National Laboratory

### Topical Group on Magnetism

#### & Its Applications

For his work in elucidating the magnetization reversal processes in exchange bias systems using polarized neutron reflectometry.

## Freericks, James Knox

Georgetown University

### DCMP

For seminal results in applying dynamical mean-field theory to bulk and multilayered strongly correlated electron systems, significantly advancing our understanding of transport, light scattering, ordered phases and photoemission.

## Fu, Guo-yong

Princeton Plasma Physics Laboratory

### Plasma Physics

For pioneering contributions to the physics of energetic particle-driven MHD modes in tokamaks and ideal MHD stability in stellarators.

## Fye, Richard Maurice

Sandia National Laboratories

### Computational Physics

For the pioneering development and usage of exact quantum Monte Carlo and other methods for studying models of highly correlated electrons.

## Gammie, Charles Forbes

University of Illinois, Urbana-Champaign

### Astrophysics

For contributions to understanding the structure and implications of astrophysical turbulence, particularly in black hole magnetospheres, star forming interstellar clouds, and circumstellar disks.

## Garcia, Ricardo Garcia

Instituto de Microelectronica de Madrid, Spain

### Materials Physics

For his contributions to the development of scanning probe microscopes into multipurpose tools for nanoscale imaging, patterning and compositional analysis of polymers, biomolecules and semiconductors.

## Garcia De Abajo, Francisco Javier

Institute De Optica, CSIC, Spain

### APS

Nominated for his theoretical contributions to understanding various aspects of atomic collisions in solids, electron-energy loss spectroscopy (EELS), photoelectron diffraction (PD), and light interaction with nanostructures.

## Gehring, Peter Motz

NIST

### DCMP

For major contributions to our understanding of the lattice dynamics of relaxor ferroelectrics, and elucidating the nature of the spin dynamics of cuprate oxides by means of neutron scattering.

## Giulian, Gabriele F.

Purdue University

### DCMP

For his many contributions to the theory of the electron liquid and in particular to its modern formulation in terms of many-body local fields.

## Glazie, James Alexander

Indiana University

### Biological Physics

For his contributions to the development of the field of biological physics through the Cellular Potts Model and the modeling of limb development and angiogenesis.

## Glotzer, Sharon C.

University of Michigan

### Computational Physics

For her pioneering simulations of glass-forming liquids, self-assembled nanomaterials and complex fluids, and for her leadership and service to the computational science community.

## Gray, George Thompson (Rusty)

Los Alamos National Laboratory

### Shock Compression Topical Group

For the development of soft shock recovery techniques leading to significant advances in our understanding of defect generation and storage, and tensile failure of shock compressed materials.

## Greaves, Roderick George

First Point Scientific, Inc

### Plasma Physics

For the development of new methods to create positron plasmas and beams, including those of technological importance, and seminal studies of positron plasmas and the electron-positron plasma system.

## Griffioen, Keith A.

College of William and Mary

### Hadronic Physics

For definitive experimental studies of the spin structure of the proton and neutron, both in the perturbative, deep-inelastic regime, and in the non-perturbative resonance region.

## Hallman, Timothy J.

Brookhaven National Laboratory

### Nuclear Physics

For his leadership of the STAR experiment at the Relativistic Heavy Ion Collider at Brookhaven National Laboratory.

## Hammond, Paula T.

Massachusetts Institute of Technology

### Polymer Physics

For her contributions on thin-film patterning of polymers through selective deposition and her studies on side-chain liquid-crystalline block copolymers.

## Hanne, George Friedrich

Universitat Munster, Germany

### DAMOP

For his studies of spin-dependent effects in electron-atom collisions using polarized electrons, and particularly his prediction and experimental verification of the "fine-structure effect".

## Harrison, Neil

Los Alamos National Laboratory

### DCMP

For pioneering experimentation on the electronic structure and magnetism of strongly correlated electron systems in very strong magnetic fields.

## Hebner, Gregory A.

Sandia National Laboratories

### DAMOP

For investigations of, and contributions to, the science of atomic and molecular processes in plasmas through development of innovative optical, microwave and rf diagnostics.

## Helmerson, Kristian P.

National Institute of Standards and Technology

### Laser Science

For pioneering work in cooling, trapping, and coherent manipulation of cold atoms and for the development of seminal techniques for the manipulation and control of objects with optical tweezers.

## Hernandez, E. Susana

University of Buenos Aires, Argentina

### Forum on International Physics

For her contributions to international physics, including remarkably diverse scientific contributions derived from her continuing efforts to bring together researchers from different areas and disciplines with particular emphasis on young scientists.

## Hernando, Antonio

Instituto de Magnetismo Aplicado, Spain

### Forum on International Physics

For significant contributions to applied magnetism in soft magnetic materials and magnetism in metallic nanoparticles for his many contributions to international physics through his participation in IUPAP committees and activities.

## Herrmann, Hans Jurgen

University of Stuttgart, Germany

### Computational Physics

For his novel contributions to significant problems in computational physics including fracture, packings, percolation, granular flow, dunes and irreversible growth.

## Heyde, Kristiaan Ludwig Guido

University of Gent, Belgium

### Nuclear Physics

For his many contributions to nuclear structure, especially large-scale shell model physics, particle-core coupling and nuclear shape coexistence, as well as his excellent textbooks on nuclear physics.

## Hillery, Mark

Hunter College of CUNY

### DAMOP

For his imaginative and pioneering work in quantum information theory and quantum optics and his effective contributions to Physical Review A on the Editorial Board and as Associate Editor.

## Hinchliffe, Ian

Lawrence Berkeley National Laboratory

### Particles & Fields

For distinguished contributions to the theoretical and experimental physics of high energy colliders.

## Hixson, Robert S.

Los Alamos National Laboratory

### Shock Compression Topical Group

For sustained technical contributions towards dynamic properties measurements on materials of broad scientific importance and vital interest to national defense needs, and for leadership in the field of shock physics.

## Hofer, Ulrich

Philipps-Universitat Marburg, Germany

### Laser Science

For outstanding contributon to the development and application of laser-based techniques to the study of surface and interface dynamics.

## Hogan, Mark J.

Stanford Linear Accelerator Center

### Physics of Beams

For scientific achievement and leadership in the development of electron and positron beam-plasma interactions, including the first experimental demonstration of meter-scale wakefield acceleration.

## Holmes, Philip John

Princeton University

### Statistical & Nonlinear Physics

For fundamental contributions to the theory of nonlinear dynamics and the development of groundbreaking applications in classical, solid and fluid mechanics, neuroscience, and cognitive psychology.

## Holtkamp, Norbert Richard

Oak Ridge National Laboratory

### Physics of Beams

For leadership in the successful construction and commissioning of the Spallation Neutron Source.

## Howell, Calvin R.

Duke University

### Nuclear Physics

For precision measurements of the nucleon-nucleon interaction in few-body systems using polarization observables and for service to the scientific community, especially, by mentoring students at historically black colleges and universities.

## Hu, Qing

Massachusetts Institute of Technology

### Forum on Industrial and Applied Physics

For contributions to the development of long-wavelength terahertz quantum-cascade lasers and real-time terahertz imaging.

## Hudson, Steven David

NIST

### Polymer Physics

For excellence in structural studies of supramolecular and polymeric materials and the quantitative description of droplet and particle dispersion under quiescent and flow conditions.

## Huffman, Gerald P.

University of Kentucky

### Forum on Industrial and Applied Physics

For wide-ranging and significant contributions to the field of fossil energy research.

## Inguscio, Massimo

University of Florence, Italy

### DAMOP

For pathbreaking experiments exploring the quantum dynamics of ultracold gases of atomic fermions and bosons, and for major advances in precision laser spectroscopy of the helium atom.

## Ioffe, Lev B.

Rutgers University

### DCMP

For significant contributions to the theory of spin glasses, without quenched disorder, disordered superconductors, high-Tc superconductors and the discovery of Josephson networks with topological order parameter.

## Jenkins, Elizabeth

University of California, San Diego

### Nuclear Physics

For her contributions to the understanding of the realization of flavor and spin symmetries for Baryons, through innovative application of the large Nc expansion.

## Kais, Sabre

Purdue University

### Chemical Physics

For the development of a finite size scaling approach to calculate quantum critical parameters for atomic, molecular and quantum dot systems.

## Kane, Charles Lewis

University of Pennsylvania



### DCMP

For significant contributions to the theory of electronic transport in low-dimensional systems, including Luttinger liquids, the quantum Hall effect, carbon nanotubes and graphene.

### Kao, Chi-Chang

Brookhaven National Laboratory

#### Topical Group on Magnetism & Its Applications

For his many contributions to resonant elastic and inelastic x-ray scattering techniques and their application to materials physics.

### Karna, Shashi P.

US Army Research Laboratory

#### Chemical Physics

For contributions to the theory and understanding of the mechanism of nonlinear optical phenomena in molecules and nanoscale atomic nanoclusters.

### Kent, Andrew David

New York University

#### Topical Group on Magnetism & Its Applications

For seminal contributions to quantum tunneling through experimental studies of the tunneling of the magnetization in molecular magnets.

### Kessler, David Alan

Bar-Ilan University, Israel

#### Statistical & Nonlinear Physics

For fundamental investigations into non-equilibrium pattern formation mechanisms, especially with regard to dendritic growth, viscous fingering and surface deposition.

### Kharzeev, Dmitri E.

Brookhaven National Laboratory

#### Nuclear Physics

For research on the properties of matter at very high energy density, and the theory of the high energy limit of QCD.

### Kivshar, Yuri S.

Australian National University, Australia

#### Laser Science

For creative, stimulating, and seminal contributions to nonlinear optics, the physics of optical solitons, and the theory of nonlinear localized modes.

### Klippenstein, Stephen Jacob

Argonne National Laboratory

#### Chemical Physics

For fundamental contributions to the development and application of quantitative theoretical methods for predicting the kinetics of chemical reactions in the gas phase.

### Kolomensky, Yury G.

University of California, Berkeley

#### Particles & Fields

For his significant contributions of elucidating the spin structure of the nucleon, the electroweak theory and B-meson decays.

### Krieger, Martin Harvey

University of Southern California

#### Forum on History of Physics

For his series of books on the historical development of models and the mathematics employed in twentieth-century physics, especially the Ising model and its relatives and the proofs of the stability of matter.

### Kronberg, Philipp Paul

Los Alamos National Laboratory

#### Astrophysics

For leading the growing appreciation of the importance of astrophysical magnetic fields. His work has helped to define this area of astrophysics and plasma astrophysics.

### Law, Chung King

Princeton University

#### Fluid Dynamics

For sustained and outstanding contributions to the fundamentals of combustion, notably those on the dynamics and combustion of droplets, the dynamics, structure, extinction, and stability of flames, and flame chemistry.

### Lawrence Jonathan Mac

University of California, Irvine

#### DCMP

For pioneering contibutions to understanding intermediate valence phenomena in correlated electron systems.

### Leibfried, Dietrich

NIST

#### Quantum Information

For seminal contributions to the field of Quantum Information Processing using trapped ions including the demonstration of high fidelity logic gates and the implementation and application of entangled states.

### Leigh, Robert G.

University of Illinois, Urbana-Champaign

#### Particles & Fields

For his important work in String Theory, Supersymmetric Gauge Theory, the Theory of the Electroweak Phase Transition, and the Theory of D-branes.

### Li, Chikang

Massachusetts Institute of Technology

#### Plasma Physics

For innovative analysis of implosion physics utilizing novel charged-particle techniques that have led to insightful measurements and understanding of fuel-shell mix, of areal density, and of a asymmetry growth.

### Lichtenstadt, Jechiel

Tel Aviv University, Israel

#### Nuclear Physics

For contributions in experimental nuclear physics from the study of lead high-spin states to the investigation of lithium nuclei, and the measurement of the nucleon electromagnetic form-factors and spin structure.

### Lin, Zhihong

University of California

#### Plasma Physics

For fundamental contributions to the understanding of zonal flows and turbulence spreading and to the pioneering development of massively parallel gyrokinetic particle simulations on modern leadership class supercomputers.

### Liu, Ying

Pennsylvania State University

#### DCMP

For contributions to the understanding of the pairing state of the superconductivity in strontium ruthenate and for innovative investigations of the destruction of global phase coherence in superconducting cylinders.

### Lu, Zheng-Tian

Argonne National Laboratory

#### Fundamental Const. Topical Group

For development of the Atom Trap Trace Analysis technique and its subsequent application to radio-krypton dating of ancient groundwater and measurement of the charge radii of short-lived nuclei.

### Lumpkin, Alexander Henderson

Argonne National Laboratory

#### Physics of Beams

For his pioneering work in the time-resolved imaging of particle and photon beams, which has led to a better understanding of the dynamics of accelerator and photon source related physical processes.

### Magnaudet, Jacques

Institut de Mecanique des Fluides de Toulouse, France

#### Fluid Dynamics

For numerical and theoretical contributions to the understanding and description of multiphase flows at both high and low Reynolds numbers, including turbulent flows and heat and mass transfer.

### Mandrus, David G.

Oak Ridge National Laboratory

#### Materials Physics

For significant contributions to the discovery and elucidation of new properties of correlated electron materials.

### Marko, John Frederick

University of Illinois at Chicago

#### Biological Physics

For statistical-mechanical theories of DNA and chromosome structure.

### Martel, Richard

Universite de Montreal, Canada

#### Chemical Physics

For seminal advances in understanding and exploiting the electrical and optical properties of individual carbon nanotubes.

### Martins, Jose Luis

Instituto Superior Tecnico, Portugal

#### DCMP

For his contributions to the study of the electronic structure of solids and clusters and to the development of ab-initio methods, including new pseudopotentials.

### Masnou-Seeuws, Francoise

Laboratoire Aime Cotton, France

#### DAMOP

For the development and application of original procedures for high precision calculations of the properties of diatomic molecules and the creation of ultracold molecules by photoassociation of ultracold atoms.

### Matis, Howard S.

Lawrence Berkeley National Laboratory

#### Forum on Education

For his many contributions to education and outreach on nuclear science including a website, wall-chart, guidebook, and Boy Scout merit badge, as well as a classroom cosmic-ray detector.

### Matkowsky, Bernard Judah

Northwestern University

#### Fluid Dynamics

For fundamental contributions to the combustion theory including the formulation and derivation of mathematical models and their use in describing observed behavior and predicting new, as yet unobserved, thermally active physical and chemical processes.

### Melnitchouk, Wolodymyr (Wally) Jefferson Lab

#### Hadronic Physics

For his theoretical and phenomenological contributions to the study of the quark structure of nucleons and nuclei, in particular that underpinning the nuclear physics program at Jefferson Lab.

### Merminga, Nikolitsa (Lia)

Center for Advanced Studies of Accelerators

#### Physics of Beams

For leadership in designing and developing energy recovery linacs, and applications to light sources and electron-ion colliders.

### Milburn, Gerard J.

University of Queensland, Australia

#### DAMOP

For seminal and fundamental contributions to the theory of quantum feedback and control and of optical implementations of quantum computation.

### Milton, John Gordon

The Claremont Colleges

#### Biological Physics

For his work on the biological physics of nervous systems and their motor control.

### Morse, William Michael

Brookhaven National Laboratory

#### Particles & Fields

For leadership and intellectual contributions to experimental particle physics, and especially for his role as resident spokesman for the BNL muon anomalous magnetic moment experiment.

### Mungal, Mark Godfrey

Stanford University

#### Fluid Dynamics

For the fundamental understanding of mixing and chemical reactions in subsonic and supersonic shear layers and jets in co-flow and cross-flow, and for elucidating the role of the flowfield in flame stabilization.

### Murray, Norman William

University of Toronto, Canada

#### Astrophysics

For fundamental contributions to the theory of active galactic nuclei, black hole and star formation in galactic disks, planet formation, and the dynamics of planetary systems.

### Nagaitsev, Sergei

Fermilab

#### Physics of Beams

For designing, building, and successfully commissioning the world's first relativistic electron cooling device.

### Nahar, Sultana Nurun

Ohio State University

#### DAMOP

For seminal contributions to studies of photoionization and recombination of multicharged atomic systems fundamental to atomic physics and plasma physics and pioneering calculations of remarkable complexity on astrophysically significant processes.

### Nastasi, Michael Anthony

Los Alamos National Laboratory

#### Materials Physics

For seminal contributions to the fields of ion-solid interactions, including ion enhanced and plasma synthesis of novel materials with applications to energy, manufacturing, nanotechnology, and advanced microelectronics.

### Newman, Nathan

Arizona State University

#### Forum on Industrial and Applied Physics

For contributions to the understanding of Schottky barriers in semiconductor devices, and to the synthesis of novel materials for superconducting devices.

### Norris, David J.

University of Minnesota

#### DCMP

For fundamental contributions and pioneering investigations in the areas of growth of doped nanocrystals and growth of photonic crystals based on self-assembly.

### Norton, David Paul

University of Florida

#### Materials Physics

For pioneering work in the area of epitaxial oxide thin films, including superlattice formation and heteroepitaxy.

### Orr, Bradford G.

University of Michigan

#### Materials Physics

For contributions to the fundamental understanding of heteroepitaxial and homoepitaxial thin film growth.

### Ostroumov, Peter Nikolayevich Argonne

National Laboratory

#### Physics of Beams

For creativity and leadership in the design and development of both normal conducting and superconducting ion linear accelerators.

### Ott, William R.

National Institute of Standards and Technology

#### APS

For sustained leadership of the research and service programs of the Physics Laboratory of the National Institute of Standards and Technology.

### Panton, Ronald L.

University of Texas, Austin

#### Fluid Dynamics

For insightful application of analytical methods to fluid mechanics, the study of turbulence, including wall-bounded turbulent flows and pressure fluctuations, and for authorship of a successful graduate-level fluids textbook.

### Pianetta, Piero Antonio

SLAC

#### DCMP

For his pioneering contributions to the synchrotron based photoelectron spectroscopy study of electronic structure of surfaces and interfaces.

### Piel, Alexander J.

Institut fur Experimentelle und Angewandte

Physik, Germany

#### Plasma Physics

For significant contributions in opening the field of dusty plasma experiments, discoveries of

new self-organized structures in strongly-coupled plasmas, and innovative contributions to research on plasma turbulence and the ionosphere.

### Plischke, Michael Simon

Fraser University, Canada

#### Statistical & Nonlinear Physics

For seminal work on the statistical mechanics of complex systems, including alloys, random magnets, classical fluids, aggregation, random surfaces, interface growth and deposition, and vulcanization.

### Pocanic, Dinko

University of Virginia

#### Nuclear Physics

For leading contributions to measurements of rare decays, structure and interactions of the pi meson.

### Prokof'ev, Nikolai Victorovich

University of Massachusetts

#### DCMP

For pioneering contributions to theories of dissipative quantum dynamics and for innovative Monte Carlo approaches to quantum and classical studies of critical phenomena.

### Pullin, Dale Ian

California Institute of Technology

#### Fluid Dynamics

For his deep, insightful contributions to theoretical/computational fluid dynamics including: understanding of vortex sheet dynamics, the equilibrium particle simulation method, and physics-based vortex models for turbulence and large-eddy simulation.

### Raab, Fredrick J.

LIGO Hanford Observatory

#### Gravitational Topical Group

For development of fundamental techniques for interferometric gravitational wave detection and for leadership in LIGO during its transition from laboratory-scale to kilometer scale devices.

### Radford, David C.

Oak Ridge National Laboratory

#### Nuclear Physics

For pioneering nuclear structure studies with radioactive ion beams, development of innovative software for gamma ray spectroscopy, and significant contributions to gamma ray tracking detectors.

### Raikh, Mikhail E.

University of Utah

#### DCMP

For pioneering contributions to the theory of tunneling through localized states, magnetotransport in two-dimensional electron systems, and light propagation in disordered crystals.

### Raithel, Georg Albrecht

University of Michigan

#### DAMOP

For research on collisions and excitation blockades in cold gases of Rydberg atoms, Rydberg-atom trapping, and cold-atoms in optical lattices, atom guides and strong magnetic fields.

### Rappe, Andrew Marshall

University of Pennsylvania

#### Chemical Physics

For contributions to electronic structure methodology, understanding mechanisms of chemisorption bonding and energy exchange with surfaces, and for relating chemical identity to material response in ferroelectric oxides.

### Rasio, Frederic A.

Northwestern University

#### Astrophysics

For his broad contributions to theoretical astrophysics, including pioneering work on mergers of relativistic binaries, compact objects in dense star clusters, and extrasolar planets.

### Reitze, David Howard

University of Florida

#### APS

For leadership in the applications of lasers to in diverse areas from the detection of gravitational waves to the ultrafast response of matter.

### Resta, Raffaele

Universita di Trieste, Italy

#### Computational Physics

For outstanding contributions to the development of theoretical methods for the calculation of dielectric response and electronic polarization and localization in insulators.

### Reucroft, Stephen

Northeastern University

#### Particles & Fields

For leadership and outstanding contributions to the precision determination of fundamental quantities in particle physics.

### Rice, John Edward

Massachusetts Institute of Technology

#### Plasma Physics

For significant contributions in the areas of spontaneous rotation, momentum and impurity transport, internal transport barrier formation and spectroscopy of medium and high Z impurities in magnetic fusion confinement devices.

### Ritz, Steven M.

NASA Goddard Space Flight Center

#### Astrophysics

For his leadership role in particle astrophysics, including his major contributions to the design and construction



of the Large Area Telescope for the GLAST Mission.

**Rogers, John A.**

University of Illinois at Urbana Champaign

**Forum on Industrial and Applied Physics**

For contributions to the fields of flexible electronics, optical fiber devices, nanolithography and picosecond ultrasonics.

**Rosenberg, Eli Ira**

Iowa State University

**Particles & Fields**

For his definitive contributions to the first measurements of quark structure of the pion, electronics design for the DELPHI electromagnetic calorimeter, and development of the BaBar on-line software.

**Rosengren, Anders**

KTH-Royal Institute of Technology, Sweden

**DCMP**

For sustained theoretical work that correctly predicted superconductivity in americium, effects of impurities in high-temperature superconductors, new phases in rare-earth metals, and the critical point for the 3d Ising model.

**Roth, Bradley J.**

Oakland University

**Biological Physics**

For his theoretical and numerical studies of bioelectric and biomagnetic phenomena, especially for his contributions to the bidomain model of the heart.

**Rugar, Daniel**

IBM Research Division

**DCMP**

For his development of ultrasensitive force detection techniques and their application to atomic, magnetic and magnetic resonance force microscopes, including single electron spin detection.

**Sanders, Barry C.**

University of Calgary, Canada

**Quantum Information**

For contributions to optical quantum information science including optimal quantum measurements, quantum cryptography, and new protocols for quantum information processing.

**Sarcevic, Ina**

University of Arizona

**Particles & Fields**

For outstanding contributions to physics of ultrahigh-energy neutrinos and cosmic rays.

**Sarff, John Stephen**

University of Wisconsin-Madison

**Plasma Physics**

For seminal contributions to the understanding and control of magnetic fluctuations and associated transport, to the understanding of magnetic self-organization, and to the advancement of the reversed field pinch fusion configuration.

**Sarkar, Sutanu**

University of California, San Diego

**Fluid Dynamics**

For outstanding and original contributions to the physics of turbulence in compressible flows, stratified flows and combustion, and for the numerical modeling of these important processes.

**Savin, Daniel Wolf**

Columbia Astrophysics Laboratory

**DAMOP**

For his many and wide ranging contributions to atomic collision studies; their applications to astrophysics; and for catalyzing numerous astrophysically motivated research projects with other atomic, molecular, and optical scientists.

**Schein, Lawrence B.**

**Forum on Industrial and Applied Physics**

For contributions to electrophotography, electrostatics and transport in organic solids.

**Schmalian, Jorg**

Iowa State University

**DCMP**

For his pioneering contributions to the theory of strongly correlated materials, including studies on the role of disorder, frustration, and unconventional pairing in quantum many body systems.

**Schollwoeck, Ulrich Joseph**

Institut

fur Theoretische Physik, Germany

**Computational Physics**

For his contributions to the density matrix renormalization group method and its application to non-equilibrium classical and quantum problems.

**Schopper, Herwig**

CERN Switzerland

**Forum on International Physics**

For his contributions to particle physics and accelerator technology; for fostering world-wide scientific collaborations; for leadership in the SESAME project towards the advancement of physics and peaceful regional cooperation.

**Schwartz, Steven David**

Albert Einstein College of Medicine

**Biological Physics**

For the development of the theory of the coupling of protein vibrations to catalytic function in enzymes.

**Seely, John F.**

Naval Research Laboratory

**Plasma Physics**

For fundamental contributions to the x-ray spectroscopy of hot laser-produced and solar plasmas, and for the determination of the atomic energy levels of highly-charged ions.

**Selen, Mats Anton**

University of Illinois

**Particles & Fields**

For leadership and hardware contributions to the CLEO collaboration and contributions to the understanding of charm hadronic decays and excited states.

**Shastry, Balajapalli Sriram**

University of California, Santa Cruz

**DCMP**

For his seminal contributions to the theory of strongly correlated and quantum-spin systems.

**Sheldon, Paul**

Vanderbilt University

**Particles & Fields**

For significant contributions to searches for rare and forbidden charm decays.

**Snoke, David W.**

University of Pittsburgh

**DCMP**

For his pioneering work on the experimental and theoretical understanding of dynamical optical processes in semiconductor systems.

**Son, Dam Thanh**

University of Washington

**Nuclear Physics**

For original contributions to the theory of quark pairing at high density, and for the proposal of a fundamental viscosity bound for the QCD plasma being investigated at RHIC.

**Spalding, William Jeffrey**

Fermilab

**Particles & Fields**

For his outstanding contributions to heavy flavor physics experiments in both fixed target and colliding hadron beam environments.

**Springborg, Michael**

University of Saarland, Germany

**Chemical Physics**

For his seminal contributions to the development of density-functional methods exploiting helical symmetry of one-dimensional systems and their application to the polymers and chain compounds.

**Srinivasarao, Mohan**

Georgia Institute of Technology

**Polymer Physics**

For his creative contributions to the fields of microstructured polymers and polymer-dispersed liquid crystals.

**Stankiewicz, Jolanta Irena**

Universidad de Zaragoza, Spain

**DCMP**

For significant contributions to the physics of semimagnetic semiconductors and pioneering semiconductor research in Venezuela.

**Stolovitzky, Gustavo A.**

IBM-Thomas J. Watson Research Center

**Biological Physics**

For contributions to the use of pattern discovery and other multivariate analytical tools in mining biological data—especially in gene expression—and to modeling noise in biotechnologies such as PCR and gene expression arrays.

**Stoof, Hendricus T. C.**

Utrecht University, Netherlands

**DAMOP**

For pioneering contributions to the many-body theory of ultracold atomic gases, and especially for the development of the theory of Feshbach resonances in strongly interacting Bose and Fermi gases.

**Stutzmann, Martin**

Walter Schottky Institut, Germany

**Materials Physics**

For contributions to the microscopic understanding of electronic processes in semiconductors and the development of novel semiconductor devices.

**Suits, Arthur G.**

Wayne State University

**Chemical Physics**

For pioneering work in the application of state-resolved and “universal” ion imaging techniques to a broad range of problems in chemical physics and reaction dynamics.

**Szmulowicz, Frank**

University of Dayton Research Institute

**Forum on Industrial and Applied Physics**

For contributions to the design and understanding of semiconductor materials for infrared detector applications.

**Tang, Kwong Tin**

Pacific Lutheran University

**DAMOP**

For seminal theoretical contributions to our understanding of intermolecular forces, which govern the properties of gases, most liquids and insulator solids.

**Taylor, Kenneth Thomas Andrew**

The Queen’s University, Northern Ireland

**DAMOP**

For pioneering theoretical and computational studies of

photon interactions with atoms and molecules, from the weak-field through strong-field regime.

**Timmermans, Eddy M.**

Los Alamos National Laboratory

**DAMOP**

For theoretical insights into trapped ultracold atoms, including novel superfluids in bosonic and fermionic systems, Feshbach resonances and atom-molecule coherence, and resonant light scattering.

**Timp, Gregory Louis**

University of Illinois

**DCMP**

For contributions to the fabrication of nanometer-scale structures and the understanding of transport through them.

**Toner, John**

University of Oregon

**DCMP**

For a wealth of contributions to the theory of correlations, fluctuations, topological defects, and anomalous elasticity and hydrodynamics of partially ordered phases.

**Traschen, Jennie Harriet**

University of Massachusetts

**Gravitational Topical Group**

For her ground-breaking contributions to early universe cosmology and black hole physics.

**Trebinio, Rick Peter**

Georgia Institute of Technology

**Laser Science**

For inventing and developing techniques for measuring ultrashort laser pulses.

**Tsang, Manyee Betty**

Michigan State University

**Nuclear Physics**

For her contributions towards the understanding of reaction dynamics, the density dependence of the symmetry energy, and the extraction of spectroscopic factors.

**Vicsek, Tamas**

Eotvos University, Hungary

**Statistical & Nonlinear Physics**

For his numerous seminal contributions to statistical physics, and its applications to fractal growth phenomena, surface dynamics, and self-organization in biological systems and human dynamics.

**Vidali, Gianfranco**

Syracuse University

**APS**

In recognition of significant contributions to our understanding of atom-surface interactions and seminal experimental investigations in astrochemistry.

**Villeneuve, David M.**

National Research Council of Canada

**DAMOP**

For the first observation of a single electron orbital wavefunction using high harmonic emission, and novel applications of femtosecond lasers to controlling molecular internal and external degrees of freedom.

**Vogt, Thomas**

USC NanoCenter

**Materials Physics**

For original contributions to the development and dissemination of neutron and synchrotron x-ray powder diffraction and their use in probing structure-property relationships.

**Voter, Arthur F.**

Los Alamos National Laboratory

**Materials Physics**

For original contributions to the theory of chemical and surface dynamics, especially through the pioneering development of accelerated molecular dynamics.

**Walukiewicz, Wladyslaw**

Lawrence Berkeley National Laboratory

**Materials Physics**

For seminal contributions in the areas of amphoteric defects in semiconductors; Group-III nitrides; the effect of Mn interstitials in ferromagnetic semiconductors; and the formulation of the band structure of highly-mismatched semiconductor alloys.

**Wang, Enge**

Chinese Academy of Sciences, China

**Forum on International Physics**

For his contributions to the synthesis of tubular graphite cones, nanobells and other nanostructures and for developing the Institute of Physics, Chinese Academy of Sciences, as a premier institution to promote international collaborations.

**Wang, Lin-Wang**

Lawrence Berkeley National Laboratory

**Computational Physics**

For his contributions in computational nanoscience, especially for the development of new computational algorithms in electronic structure calculations of large nanostructures.

**Wang, Hailin**

University of Oregon

**Laser Science**

For contributions to the study of coherent optical processes in semiconductors, especially the pioneering experimental work on electromagnetically induced transparency via exciton correlations.

**Whisnant, Kerry Lewis**

Iowa State University

**Particles & Fields**

For important contributions to the study of neutrino mass and neutrino oscillations and to the phenomenology of electroweak gauge models.

**Whyte, Dennis Gordon**

University of Wisconsin-Madison

**Plasma Physics**

For major contributions to the understanding of physical processes in the edge of magnetic confinement plasma devices, the physics of plasma surface interactions and disruption mitigation.

**Willenbrock, Scott**

University of Illinois

**Particles & Fields**

For pioneering work in the understanding of single top quark production at hadron colliders, and for contributions to the understanding of associated production of Higgs and vector bosons as a discovery channel at the Tevatron and LHC.

**Williams, James Stanislaus**

Australian National University

**Forum on Industrial and Applied Physics**

For contributions to the understanding and application of ion-solid interactions in semiconductors, especially defect evolution and crystallization of amorphous layers.

**Williams, David Robert**

Illinois Institute of Technology

**Fluid Dynamics**

For contributions to the understanding of fluid flow and flow control through innovative experimentation with cylinder wakes, cavities and bodies of revolution.

**Worster, Michael Grae**

University of Cambridge, UK

**Fluid Dynamics**

For making fundamental advances in understanding the interaction between solidification and convection in mushy layers through systematic analytical, numerical and experimental studies.

**Xiao, Gang**

Brown University

**Topical Group on Magnetism & Its Applications**

For his significant contributions to spintronics research, especially on half-metallic ferromagnets, magneto-tunneling, colossal magnetoresistance, nanoscale structures and devices.

**Yang, Xueming**

Chinese Academy of Sciences, China

**Chemical Physics**

For his contributions to the study of reaction dynamics of elementary chemical reactions using the state-of-the-art crossed molecular beam methods.

**Yelton, John Martin**

University of Florida

**Particles & Fields**

For discovery and study of many baryons states, which contributed to our understanding of the quark structure of hadrons.

**Yeung, Pui-Kuen**

Georgia Institute of Technology

**Fluid Dynamics**

For insightful contributions to the understanding and modeling of similarity scaling in turbulence and the mixing of passive scalars, especially the study of Lagrangian statistics and dispersion in turbulence through high-resolution simulations addressing Reynolds number and Schmidt number dependencies.

**Zaleskiewicz, Thad P.**

University of Pittsburgh

**Forum on Education**

For contributions to the education of teachers in contemporary physics topics through continuous sustained activity in the Contemporary Physics Education Project.

**Zhu, Yimei**

Brookhaven National Laboratory

**Materials Physics**

For outstanding and innovative development and implementation of advanced electron beam experiments to understand electronic and magnetic structures and the physical behavior of functional materials such as superconductors and ferromagnetics.

**Zia, Royce K.P.**

Virginia Tech

**Statistical & Nonlinear Physics**

For seminal and sustained contributions to statistical physics, especially critical phenomena, interfacial properties and far-from-equilibrium phenomena.

**Zouros, Theo J.M.**

University of Crete

**DAMOP**

For his many years of exploration of ion-atom collisions through high-resolution electron spectroscopy and his study of inelastic scattering of electrons from highly-charged ions through the use of quasi-free electron targets.



# Nomination Announcements

## Call for Nominations for 2008 APS Prizes and Awards

The following prizes and awards will be bestowed by the Society in 2008. 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 Prizes and Awards page on the APS web site at <http://www.aps.org/programs/honors/>.

### Nomination Deadline is July 1, 2007, unless otherwise indicated.

#### Prizes

##### Will Allis Prize

Margaret M. Murnane, JILA, University of Colorado – Boulder, Boulder, CO 80309-0440, Phone (303) 492-7839, Fax (303) 492-5235, Email [murnane@jila.colorado.edu](mailto:murnane@jila.colorado.edu)

##### Hans A. Bethe Prize

Robert Tribble, Texas A&M University, Cyclotron Institute, College Station, TX 77843, Phone (979) 845-1411, Fax (979) 845-1899, Email [tribble@comp.tamu.edu](mailto:tribble@comp.tamu.edu)

##### Max Delbruck Prize

John Nagle, Carnegie Mellon University, Department of Physics, Pittsburgh, PA 15213, Phone (412) 268-2764, Fax (412) 681-0648, Email [nagle@andrew.cmu.edu](mailto:nagle@andrew.cmu.edu)

##### Tom W. Bonner Prize

Ani Aprahamian, University of Notre Dame, Department of Physics, 225 Nieuwland Science Hall, Notre Dame, IN 46556, Phone (219) 631-8120, Fax (219) 631-5952, Email [ani.aprahamian.1@nd.edu](mailto:ani.aprahamian.1@nd.edu)

##### Oliver E. Buckley Prize

M. Christina Marchetti, Syracuse University, Department of Physics, Syracuse, NY 13244, Phone (315) 443-2581, Fax (315) 443-9103, Email [mcm@physics.syr.edu](mailto:mcm@physics.syr.edu)

##### Davisson-Germer Prize

Nora Berrah, Department of Physics, Western Michigan University, Kalamazoo, MI 49008-5151, Phone (616) 387-4955, Fax (616) 387-4939, Email [Berrah@wmich.edu](mailto:Berrah@wmich.edu)

##### Fluid Dynamics Prize

Deadline: March 31, 2007

Elaine Oran, 3516 Duff Drive, Falls Church, VA 22041, Phone (202) 767-6260, Fax (202) 767-4798, Email [oran@lcp.nrl.navy.mil](mailto:oran@lcp.nrl.navy.mil)

##### Dannie Heineman Prize

John Donoghue, University of Massachusetts, Department of Physics & Astronomy, Amherst, MA 01003, Phone (413) 545-1940, Fax (413) 545-0648, Email [donoghue@phast.umass.edu](mailto:donoghue@phast.umass.edu)

##### Frank Isakson Prize

Antoinette (Toni) Taylor, Los Alamos National Laboratory, MS K764, Los Alamos, NM 87545, Phone (505) 665-7652, Fax (505) 665-0030, Email [ttaylor@lanl.gov](mailto:ttaylor@lanl.gov)

##### Julius Edgar Lilienfeld Prize

Evelyn Hu, University of California, Santa Barbara, Department of ECE, Santa Barbara, CA 93106, Phone (805) 893-2368, Fax (805) 893-8170, Email [hu@ece.uscb.edu](mailto:hu@ece.uscb.edu)

##### James Clerk Maxwell Prize

Deadline: April 3, 2007

Michael Mauel, Columbia University, Department of Applied Physics, 500 West 120th Street, New York, NY 10027, Phone (212) 854-4455, Fax (212) 854-8257, Email [mauel@columbia.edu](mailto:mauel@columbia.edu)

##### James C. McGroddy Prize

Christopher B. Murray, IBM T.J. Watson Research Center, 1101 Kitchawan Road, PO Box 218, Route 134, Yorktown Heights, NY 10598, Phone (914) 945-3021, Fax (914) 945-2141, Email [cbmurray@us.ibm.com](mailto:cbmurray@us.ibm.com)

##### Lars Onsager Prize

Christopher Gould, University of Southern California, Department of Physics, Seaver Science Center, Los Angeles, CA 90089-0484, Phone (213) 740-1101, Fax (213) 740-6653, Email [gould@usc.edu](mailto:gould@usc.edu)

##### Abraham Pais Prize

Deadline: May 1, 2007

Daniel M. Siegel, 2218 Eton Ridge, Madison, WI 53726-5304, Phone (608) 262-1406, Fax (608) 262-3984, Email [dmsiegel@facstaff.wisc.edu](mailto:dmsiegel@facstaff.wisc.edu)

##### George E. Pake Prize

Dan Fleetwood, EECs Department, Vanderbilt University, PO Box 92 Station B, Nashville, TN 37235, Phone (615) 322-2498, Fax (615) 343-6702, Email [dan.fleetwood@vanderbilt.edu](mailto:dan.fleetwood@vanderbilt.edu)

##### W.K.H. Panofsky Prize

Deadline: May 1, 2007

Al Goshaw, Duke University, PO Box 90305, Durham, NC

27708-0305, Phone (919) 660-2584, Fax (919) 660-2525, Email [goshaw@fnal.gov](mailto:goshaw@fnal.gov)

##### Earle K. Plyler Prize

David Pratt, University of Pittsburgh, Department of Chemistry, Pittsburgh, PA 15260, Phone (412) 624-8660, Fax (412) 624-8611, Email [pratt+@pitt.edu](mailto:pratt+@pitt.edu)

##### Polymer Physics Prize

Anne Mayes, MIT, 13-5025, 77 Massachusetts Avenue, Cambridge, MA 02139, Phone (617) 253-3318, Fax (617) 452-3432, Email [amayas@mit.edu](mailto:amayas@mit.edu)

##### Aneesur Rahman Prize

Beverly Berger, NSF, 4201 Wilson Boulevard, Arlington, VA 22230, Phone (703) 292-7372, Fax (703) 292-9078, Email [bberger@nsf.gov](mailto:bberger@nsf.gov)

##### Andrei Sakharov Prize

Andrew M Sessler, University of California, Lawrence Berkeley Lab MS71-259, One Cyclotron Rd, Berkeley, CA 94720, Phone (510) 486-4992, Fax (510) 486-6485, Email [amessler@lbl.gov](mailto:amessler@lbl.gov)

##### J.J. Sakurai Prize

Deadline: May 1, 2007

Joe Polchinski, UCSB, Institute for Theoretical Physics, Santa Barbara, CA 93106, Phone (805) 893-3126, Fax (805) 893-2431, Email [joep@itp.ucsb.edu](mailto:joep@itp.ucsb.edu)

##### Arthur L. Schalow Prize

Lou F. DiMauro, Brookhaven National Laboratory, Department of Chemistry, Upton, NY 11973, Phone (631) 344-4323, Fax (631) 344-5815, Email [dimauro@bnl.gov](mailto:dimauro@bnl.gov)

##### Prize to a Faculty Member for Research in an Undergraduate Institution

Sally Koutsoliotas, Bucknell University, Department of Physics, Lewisburg, PA 17837, Phone (570) 577-3105, Email [koutsolts@bucknell.edu](mailto:koutsolts@bucknell.edu)

##### Robert R. Wilson Prize

Steve Peggs, Brookhaven National Laboratory, Building 911, Upton, NY 11973, Phone (631) 344-3104, Fax (631) 344-5729, Email [peggs@bnl.gov](mailto:peggs@bnl.gov)

## AWARDS, MEDALS & LECTURESHIPS

##### David Adler Lectureship

Julie Ann Borchers, NIST, Center for Neutron Research, Bldg 235, E154, Gaithersburg, MD 20899, Phone (301) 975-6597, Fax (301) 921-9847, Email [julie.bochers@nist.gov](mailto:julie.bochers@nist.gov)

##### Excellence in Plasma Physics Education Award

Ken Krane, Oregon State University, Department of Physics, 301 Weniger Hall, Corvallis, OR 97331-6507, Phone (541) 737-1692, Fax (541) 737-1683, Email [kranek@physics.oregonstate.edu](mailto:kranek@physics.oregonstate.edu)

##### Leroy Apker Award

Deadline: June 20, 2007

Alan Chodos, American Physical Society, One Physics Ellipse, College Park, MD 20740, Phone (301) 209-3233, Fax (301) 209-0865, Email [chodos@aps.org](mailto:chodos@aps.org)

##### Edward A. Bouchet Award

Elvira Williams, Shaw University, College of Arts and Sciences, 118 East South Street, Raleigh, NC 27601, Phone (919) 546-8274/8395, Email [elviraw@shawu.edu](mailto:elviraw@shawu.edu)

##### Joseph A. Burton Award

Peter D. Zimmerman, Chair, Science and Security, Department of War Studies, King's College, London, Strand, London, WC2R 2LS, Phone 011+44+777 600 3081, Fax 011+44+207 848 2436, Email [peter.zimmerman@kcl.ac.uk](mailto:peter.zimmerman@kcl.ac.uk)

##### John H. Dillon Medal

Anne Mayes, MIT, 13-5025, 77 Massachusetts Avenue, Cambridge, MA 02139, Tel: (617) 253-3318, Fax: (617) 452-3432, Email: [amayas@mit.edu](mailto:amayas@mit.edu)

##### Joseph F. Keithley Award

Art Hebard, University of Florida, Department of Physics, 2257 New Physics Building, Box 118440, Gainesville, FL 32611-8440, Phone (352) 392-8842, Fax (352) 392-3591, Email [afh@phys.ufl.edu](mailto:afh@phys.ufl.edu)

##### Maria Goeppert-Mayer Award

Marc Sher, College of William & Mary, Department of Physics, Williamsburg, VA 23187, Phone (757) 221-3538, Fax (757) 221-3540, Email [sher@physics.wm.edu](mailto:sher@physics.wm.edu)

##### Dwight Nicholson Medal for Human Outreach

John Risley, North Carolina State University, Department of Physics, PO Box 8202, Raleigh, NC 27695-8202, Phone (919) 515-2524, Fax (919) 781-2994, Email [risley@ncsu.edu](mailto:risley@ncsu.edu)

##### John Dawson Award in Plasma Physics Research

Deadline: April 3, 2007

Nermin Uckan, Oak Ridge National Laboratory, Fus Energy Div-M/S 6169, PO Box 2008, Oak Ridge, TN 37831, Phone (865) 574-1354, Fax (865) 241-8231, Email [uckanna@ornl.gov](mailto:uckanna@ornl.gov)

##### Leo Szilard Lectureship

Peter D. Zimmerman, Chair, Science and Security, Department of War Studies, King's College, London, Strand, London,

WC2R 2LS, Phone 011+44+777 600 3081, Fax 011+44+207 848 2436, Email [peter.zimmerman@kcl.ac.uk](mailto:peter.zimmerman@kcl.ac.uk)

## DISSERTATION AWARDS

##### Andreas Acrivos Dissertation Award

Sandip Ghosal, Northwestern University, Department of Mechanical Engineering, 2145 Sheridan Road, Evanston, IL 60208, Phone (847) 467-5990, Email [s-ghosal@northwestern.edu](mailto:s-ghosal@northwestern.edu)

##### Mitsuyoshi Tanaka Dissertation Award

Henry Frisch, Enrico Fermi Institute, 5640 S. Ellis Ave, Chicago, IL 60637, Phone (773) 702-7479, Fax (773) 704-5959, Email [Frisch@hep.uchicago.edu](mailto:Frisch@hep.uchicago.edu)

##### Marshall Rosenbluth Dissertation Award

John Goree, The University of Iowa, 210 Van Allen Hall, Department of Physics & Astronomy, Iowa City, IA 52242, Phone (319) 335-1843, Fax(319) 335-1753, Email [john-goree@uiowa.edu](mailto:john-goree@uiowa.edu)

##### Nuclear Physics Dissertation Award

Richard G. Milner, Massachusetts Institute of Technology, 26-411 Department of Physics, 77 Massachusetts Avenue, Cambridge, MA 02139, Phone (617) 258-5439, Fax (617) 258-5440, Email [milner@mit.edu](mailto:milner@mit.edu)

##### Nicholas Metropolis Dissertation Award

Ann Orel, University of California-Davis, Department of Applied Science, One Shields Avenue, Davis, CA 95616, Phone (925) 422-9787, Fax (925) 422-8681, Email [aorel@ucdavis.edu](mailto:aorel@ucdavis.edu)

##### DAMOP Thesis Research Dissertation Award

Janine Shertzer, College of the Holy Cross, Department of Physics, Worcester, MA 01610, Phone (508) 793-2470, Email [jas@jas.holycross.edu](mailto:jas@jas.holycross.edu)

##### Beam Physics Dissertation Award

Georg Hoffstaetter, Cornell University, Department of Physics, Newman Lab, Ithaca, NY 14850, Phone (607) 255-5197, Fax (607) 254-4552, Email [georg.hoffstaetter@cornell.edu](mailto:georg.hoffstaetter@cornell.edu)

## 2007 APS Fellowship Nomination Deadlines

Fellowship nominations may be submitted at any time, but must be received by the deadlines listed below for the next review. For submittal information see: <http://www.aps.org/programs/honors/fellowships/nominations.cfm>

### DIVISIONS

Astrophysics	04/27/2007
Biological Physics	04/03/2007
Chemical Physics	PAST
Computational Physics	04/16/2007
DAMOP (Atomic, Molecular, Optical)	04/16/2007
DCMP (Condensed Matter)	PAST
Fluid Dynamics	03/30/2007
Polymer Physics	04/16/2007
Laser Science	04/03/2007
Materials Physics	PAST
Nuclear Physics	04/03/2007
Particles & Fields	04/03/2007
Physics of Beams	03/16/2007
Plasma Physics	04/03/2007

### FORUMS

Physics & Society	04/03/2007
History of Physics	05/11/2007
International Physics	04/03/2007
Industrial and Applied Physics	03/09/2007
Education	04/16/2007

### TOPICAL GROUPS

Few Body	04/03/2007
Precision Measurement & Fund. Const.	04/03/2007
Instrument & Measurement Science	04/27/2007
Shock Compression	04/03/2007
Hadronic Physics	04/27/2007
Gravitation	04/03/2007
Magnetism and Its Applications	04/03/2007
Statistical & Nonlinear Physics	04/16/2007
Plasma Astrophysics	04/03/2007
Quantum Information	04/13/2007

### APS GENERAL

06/02/07

This category is reserved for unusual situations where the contributions of the nominee clearly do not fall into the area of a technical unit. They are reviewed and recommended directly by the APS Fellowship Committee)