APS Announces Spring 2011 Prize and Award Recipients

Forty-three prizes and awards will be presented during special sessions at three spring meetings of the Society: the 2011 March Meeting, March 21-25, in Dallas, TX, the 2011 April Meeting, April 30-May 3, in Anaheim, CA, and the 2011 Atomic, Molecular and Optical Physics Meeting, June 13-14, in Atlanta, GA.

Citations and biographical information for each recipient follow. The Apker Award recipients appeared in the December 2010 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 website (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.

Will Allis Prize for the Study of Ionized Gases
Frank Iakson Prize for Optical Effects in Solids
Andrei Sakharov Prize

NOT AWARDED IN 2011

Hans A. Bethe Prize
Christopher J. Pethick

Nordita Award for Theoretical Physics

Citation: “For fundamental contributions to the properties of strongly correlated fermions and bosons, in particular to the understanding of quantum liquid droplets and the development of novel imaging techniques, in particular single-molecule imaging and single-molecule light trapping, and for the development of rarefied-gas expansion imaging methods, to study problems of biomedical interest.”

Herbert P. Broida Prize
Richard C. Casten

Yale University

Citation: “For pioneering critical insight into the evolution of nuclear structure with varying proton and neutron numbers and the discovery of a variety of nuclear structure anomalies, and for investigating the evolution of nuclear structure with varying proton and neutron numbers and the discovery of a variety of nuclear structure anomalies, and for investigating the properties of rare isotopes and exotic nuclei.”

Herbert Spohn

The greatest scientific influences in his career were his interactions with his thesis advisor, Peter Heinz, and his mentor, Henry DeWitt. His current research interests include superconductivity and magnetic materials, condensed matter, and quantum field theory.

Herbert Spohn

Citation: “For fundamental contributions to the understanding of nonequilibrium statistical mechanics as exemplified by his exact solutions of growth models and stationary nonequilibrium statistical mechanics.”

Irving Langmuir Prize
Stephen Leone

University of California, Berkeley

Citation: “For pioneering work on soft-matter in probing ultradense dynamics in atomic and molecular solids.”

Julius Edgar Lilienfeld Prize
Gerald Gabrielse

Harvard University

Citation: “For novel methods that enable measurement of the electron magnetic moment and fine-structure constant, the magnetic moment, and by exceptional skill in sharing the science with diverse audiences.”

James Clerk Maxwell Prize for Plasma Physics (2010)
James Drake

University of Maryland

Citation: “For pioneering investigations of plasma instabilities and reconnection in the laboratory, through the development of new confinement systems and the study of plasma plasmas in plasmas; and leadership in plasma science.”

James Drake

Citation: “For his seminal contributions to nonrelativistic mathematical models as exemplified by his studies of coherent states and quantum states of open systems. Combining mathematical rigor with physical insight he has illuminated the transition from microphysics to macroscopic behavior.”

Dannie Heineman Prize for Mathematical Physics
Herbert Spohn

TU Munich

Citation: “For his seminal contributions to nonrelativistic mathematical models as exemplified by his studies of coherent states and quantum states of open systems. Combining mathematical rigor with physical insight he has illuminated the transition from microphysics to macroscopic behavior.”

Dannie Heineman Prize for Mathematical Physics
Herbert Spohn

TU Munich

Citation: “For contributions to the field of single molecule biophysics and super-resolution imaging.”

Max Delbruck Prize in Biological Physics (2010)

Xiaowei Zhuang

Harvard University

Citation: “For the development of novel super-resolution imaging methods and the development of the technique of single-molecule tracking.”

Xiaowei Zhuang

Citation: “For his seminal contributions to nonrelativistic mathematical models as exemplified by his studies of coherent states and quantum states of open systems. Combining mathematical rigor with physical insight he has illuminated the transition from microphysics to macroscopic behavior.”

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Dannie Heineman Prize for Mathematical Physics

Herbert Spohn

TU Munich
Charles Darwin and the history of physics and just finished his novel entitled Faith in Reason, a biography of Hans Bethe.

George E. Pake Prize

Herbert Meyer

IBM TJ Watson Research Center

Citation: “For his excellence in engineering and leadership, including his ground-breaking contributions to the development and commercialization of silicon microprocessors and mixed-signal microcomputers.”

Bernard S. Meyerson received his BS in physics in 1949 from the City College of New York, and his Ph.D. in physics from the University of New York in 1988. He joined IBM in 1980 as a research staff member researching surface chemistry and epitaxy as related to silicon germanium-based heterostructure devices. Over the years he has delivered technical and engineering businesses culminating in the development of IBM’s Bipolar and Signal business. He now serves as IBM’s Vice President of Technology.

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

Douglas Bryman

University of California, Los Angeles

Laurence Litennberg

Brookhaven National Laboratory

A.J. Stewart Smith

Princeton University

Citation: “For leadership in the measurement of weak decay processes and in particular for the discovery of the CP-violating asymmetry in the B-meson system.”

Douglas Bryman has been a research physicist in the Department of Physics and Astronomy at the University of California, Los Angeles since 1984. He received a B.S. from Syracuse University in 1986 and a Ph.D. from the University of California, Los Angeles in 1992. He joined the Stanford Linear Accelerator Center as a Post Doctoral Researcher in 1999, and Program Director for Medium Energy Physics at the National Science Foundation from 1997 to 2009. He has been involved in charged particle physics through the study of rare decay modes in the BaBar experiment at SLAC and Brookhaven National Laboratory.

Laurence Litennberg received his A.B. degree from Cornell University in 1963 and has a Ph.D. from the University of California at San Diego in 1969. He worked for four years at the Brookhaven Laboratory. In 1973 he took a position at Brookhaven National Laboratory. There he studied K+ in which several new decay modes were discovered and a series of experiments primarily searching for and then studying the rare decay Ka+→π+e+ν. Most recently he was a participant in the Daya Bay Reactor Neutrino Experiment. He is a member of the Brookhaven Neutrino Collaboration and associate chair for high energy physics in that department.

Shaun Mukamel

University of California, Berkeley

Citation: “For seminal contributions toward establishing the theoretical understanding of nonlinear optical interactions (NLO) in molecules and materials for providing the field of ultrafast spectroscopy with the tools to develop new generation devices on this work.”

Shaun Mukamel received his B.S. in chemical physics in 1979 and his Ph.D. in 1984, both from Tel Aviv University. He served as a postdoctoral fellow at the Max-Planck-Institut and the Weizmann Institute and Rice University and in 1982 he joined the faculty of the University of Rochester and became a professor in 1985. Since 2003 he serves on the faculty of UC Irvine as a chancellor professor of chemistry. Professor Mukamel’s interests focus on theoretical and computational studies aimed at the design of novel ultrathin multidimensional coherent non-linear optical spectroscopies for probing electronic and vibrational dynamics of molecules, biological complexes and semiconductor nanostructures.

Polymer Physics Prize

Gary Smith

Sandia National Laboratories

Kurt Kremer

Max Planck Institute for Polymer Research

Citation: “For establishing numerical simulation as a tool on equal footing with experiment and theory in the field of polymer physics and for their seminal simulations of entangled polymer melts.”

Gary Greth received his B.Sc. in 1971 and his Ph.D. in 1974 in physics from the University of Munich, Germany. Following postdoctoral investigations at the University of Chicago and the University of Chicago he joined the faculty of the University of Puerto Rico in 1979. In 1981 Gary was invited to join Exxon’s Corporate Research Laboratories. Since 1998 Gary has been a Distinguished Member of Technical Staff Sandia National Laboratories. His research includes the study of enhanced polymer melts and networks, responsive polymer interfaces, polymer nanocomposites, and novel devices.

Kurt Kremer received his Diploma in physics in 1980 and the Ph.D. in 1983 in theoretical physics from the University of Cologne, Germany. After being a postdoctoral researcher at Technical Research and Engineering he moved to the University of Mainz and then in 1990 he was a scientific staff to the Research Center Jülich. In 1995 after a short stay at Basel University he moved directly to Max Planck Institute for Polymer Research in Mainz, heading the theory department and 1996 Adjunct Professor of the University of Mainz. His research focuses on soft matter physics, especially based on computer simulation methods, where he also is strongly involved in various aspects of method development.

I. Rabi Prize in Atomic, Molecular and Optical Physics

Cheng Chin

James Franck Institute

Citation: “For pioneering work in strongly interacting Fermi gas and few body physics including the development and application of cold atoms to test fundamental physics.”

Cheng Chin obtained his Bachelor of Science degree from National Taiwan University in 1988, and his Ph.D. in Physics from Stanford University in 1993. He was a postdoctoral fellow at Stanford University and Institute for Advanced Study, because he was a visiting professor at Innsbruck University and ETH (Zurich), Switzerland. He joined the Physics Department and James Franck Institute faculty of the University of Chicago as an Assistant Professor in 2005 and has been an Associate Professor since 2009. Cheng Chin’s research interest focuses on the quantum many-body regime of complex systems. His works cover Feshbach resonances in cold collisions, degenerate quantum gases, ultra-cold molecules and optical lattices.

Anreus Rahman Prize for Computational Physics

James M. Stone

Princeton University

Citation: “For his pioneering work in developing quantum algorithms, the simulation of a variety of many-body systems, and the development and dissemination of widely used software.”

James is a professor in the Department of Applied and Computational Mathematics and Physics at Princeton University. He received a B.Sc in physics in 1984 and M.Sc in 1985 from Queen’s University, in Kingston Ontario, Canada. He received a Ph.D. in 1990 from the University of Illinois at Urbana-Champaign in 1990. He was a postdoctoral researcher at UCL and joined the faculty at the University of Maryland in 1992. In 2002 he was elected as a fellow of the American Physical Society and at Cambridge University, and moved to his current position at Princeton in 2003. Stone’s research interests are in numerical methods for quantum systems to study nonlinear and multidimensional fluid dynamics in atmospheric systems.

J.J. Sakurai Prize for Theoretical Physics Prize

Emil Faith Feinberg

Iain Hinchliffe

Lawrence Berkeley National Laboratory

Kenneth Lane

Boston University

Chris Quigg

University of Manchester

Citation: “For their work, separately and collectively, to chart a course of the exploration of new physics up to and beyond the electroweak scale.”

Exxia Eichten received his B.S. in Physics in 1968 and his Ph.D. in Physics in 1973 from the Massachusetts Institute of Technology. Exchon joined the Theoretical Physics group at the MIT Center for Accelerator Laboratory in 1971. In 1972 he returned to MIT as a postdoctoral student. A study of heavy quark-antiquark systems and heavy quark effective theory in the continuum and on the lattice. Eugene and Kenneth Lane had studied the possibility that electroweak symmetry breaking arises from an underlying structure in the quark sector with a new strong interaction. They explored the theoretical and phenomenological consequences of this beyond the standard model. They showed that an extended Technicolor is necessary to prevent fermion masses in such theories. Exxia is currently exploring the possibility of a new B-meson or tauon collider.

Iain Hinchliffe graduated from his BA in physics from University College, Oxford, and his D.Phil in theoretical particle physics from St. Johns College Oxford in 1980. In 1976 he was a staff scientist at Lawrence Berkeley National Laboratory, and his main activity now is with the ATLAS collaboration at CERN’s Large Hadron Collider, which he joined in 1996, and since 2007 he has been the ATLAS spokesperson. He presented the confirmation that the Standard Model can be tested at hadron colliders. Since ATLAS started taking data in 2009, he is developing ATLAS’s capability for TeV scale energy. Chris Quigg graduated from Yale University in Physics in 1970, and received his Ph.D. in physics at Berkeley in 1975. He was a postdoc at Brookhaven National Laboratory, and then moved to Penn State. In 1976 he became a faculty member at Fermilab, and then in 2007 and currently heads Berkeley’s LAT collaboration, developing the ATLAS experiment with the hope of breaking the electroweak scale breaking of the Standard Model.

Arthur L. Schawlow Prize in Laser Science

Jorge Rico

Colorado State University

Citation: “For pioneering developments in coherent optical sources: optical parametric amplifiers and lasers in high resolution imaging, plasma diagnostics, quantum communication, and precision metrology.”

Jorge Rico has a Ph.D. in Computer Science from Utah State University. He received a diploma in Physics from the University of Rosario in Argentina and a Ph.D. from Colorado State University in 1982. He is a member of the first group that generated the first gain-saturated table-top soft x-ray laser using a discharge plasma as gain medium, and later extended this concept to introduce tabletop lasers down to 10 nm using laser-created plasmas. He is an active force in coherence imaging and seeding. He and his collaborators have demonstrated the use of these lasers in scalable imag
Robert W. Wilson Prize for Achievement in the Physics of Particle Accelerators

Yaroslav Derbenev

Thomas Jefferson National Accelerator Facility Citation: For a broad range of seminal contributions to particle accelerators and linear accelerators, including theory and control of polarization with “Laboratory” linear accelerators and rapid-round-to-flat beam transformations, FELs, and high-brightness electron beams.

Biography unavailable at press time.

David Adler Lectureship Award in the Field of Materials Physics

Stephen Pennyton University of Florida Citation: For development of compound semiconductor processing methods crucial for technology readiness and commercial devices.

Steve Pennyton received his B.S. degree in physics from the University of Wisconsin-Madison in 1981. He was a postdoc at UT-Battelle prior to joining AT&T and Bell Laboratories. He joined the University of Florida in 1994. At UF, Labs he developed the use of ion implantation, dry etching and contact technologies in successive generations of semiconductor devices. At UF, Dr. Pennyton has primarily focused on fabrication processes for blue/green lasers on InGaN-based LED, lasers and power electronics. His most recent interests have been in developing solid state sensors.

ReyAmp Akper Award (2020)

Chia Wei Hsu Wesleyan University Citation: "Self-assembled DNA Nanoparticles.

Chadwick Christduchik Windermere University Citation: "Parallel Enlargement Distribution on Hypercube Networks.

Chia Wei Hsu received his B.S. in physics from National Taiwan University in 1978 and his Ph.D. in physics at Harvard. At Wesleyan, Chia Wei studied properties of fullerenes and nanotubes. In 2007, he discovered that nanoparticles could be used to enhance the speed at which quantum computers work, which he later patented. These discoveries then led to the development of new programs for quantum computers, as well as additional research into quantum systems and machine learning.

Edward A. Bouchet Award

Peter Delfyett University of Central Florida Citation: "Innovative research and scientific contributions in the area of ultrashort optical device physics including ultrafast pulse generation, and for his exemplary and continuing efforts in the cancer research development of underrepresented minorities in science and engineering.

Peter J. Delfyett received his B.E. from John Hopkins University in 1981, his M.S. from the University of Rochester in 1983, and his Ph.D. from the Graduate School & University Center, City University of New York in 1987 and 1988, respectively. He joined Bell Communication Research where he conducted research on quantum electronics, in particular the first high power optical pulses from semiconductor dye lasers in 1982, and the world's first, most powerful modelocked semiconductor laser diode. Dr. Delfyett joined the College of Optics & Photonics and the Center for Research Education in Optics and Lasers at the University of Central Florida in 1993.

Joseph A. Burton Forum Award

M. Granger Morgan Carnegie Mellon University Citation: "For his public service and major contributions in the field of astrophysics and theoretical cosmology, and for his role in the field of integrated science and technology.

M. Granger Morgan is head of the U.S. Department of Energy and Public Policy at Carnegie Mellon University. He addresses problems in science, technology and public policy with expertise focused on environmental, energy, systems, climate and change analysis. Much of his work has involved the development and demonstration of methods to characterize and treat uncertainty in quantitative policy models. He holds a B.A. from Harvard College (1963) where he concentrated in Physics, an M.A. in Astronomy and a Ph.D. from Cornell (1969) and a Ph.D. from the Department of Applied Physics and Information Sciences at the University of California at San Diego (1969).

John Dawson Award for Excellence in Plasma Physics (2010)

Eric Erway Lawrence Berkeley National Laboratory Cameron Geddes Lawrence Berkeley National Laboratory Simon Hooker Oxford University Win Leemans Lawrence Berkeley National Laboratory Carl Schroeder Lawrence Berkeley National Laboratory Citation: “For experiments and theory leading to the demonstration of high-quality electron beams from laser plasma accelerators.

Eric Erway is a B.S. in nuclear engineering student at MIT and is also a Ph.D. student in nuclear engineering at MIT. He has been working on the development of relativistic beams at Lawrence Berkeley National Laboratory since 2003. His Ph.D. work has focused on developing and testing new accelerators for high-energy physics and national security applications. He has been involved in the development of high-energy laser plasma accelerators and has contributed to several experiments and simulations that demonstrate the feasibility of this approach.

Citation: “For exceptional contributions to the understanding of fundamental processes that lead to the generation of fast, high-quality electron beams and related phenomena, including laser plasma acceleration.”

Dr. Raffaele Mezzenga received his master's degree from Perugia University in Italy, Science and Engineering, while actively working for the CERN and NCC laboratories in particle, polymer and materials interactions. In 2001, he obtained his Ph.D. from Perugia University in Chemistry and Materials Science from EPFL Lausanne. He then went to 2001 and 2002 as a postdoctoral student at University of California, Santa Barbara and was also a member of the Nestle Research Center in Lausanne. In 2005, he was hired to the Laboratory of Nanophysics and the Laboratory of Bioorganic and then he joined ETH Zurich on 2009. His research focuses on the fundamental understanding of self-assembly processes and their application to the design and control of advanced materials.

Joseph Aman was awarded the University of California Berkeley, University of Chicago Ph.D. in Physics in 1986 and 1990 respectively. Following his Ph.D. work at Oxford and Stanford University, he joined the University of Michigan in 1996 to take up a Royal Society University Research Fellowship. He joined the faculty at Oxford in 2005. Simon's research has focused on the applications of high-intensity laser-plasma interactions and their application to radiation and plasma science.

Simon Hooker was awarded undergraduate degrees in mathematics from Williams Col- lege, his Ph.D. in Physics at Harvard, and his postdoc at UC San Diego. He is currently a professor in the Department of Physics at ETH Zurich. He is also the holder of the Chair of Nonlinear Physics at ETH Zurich.

Citation: “For providing peer-led professional development for 25 years to more than 5000 physics teachers in the United States through a network of more than 500 physics teachers.”

Steve Pearton received his B.A. in physics and mathematics from Williams College in 1977 and his Ph.D. in physics at Harvard. At Harvard, Chia Wei studied properties of fullerenes and nanotubes. In 2007, he discovered that nanoparticles could be used to enhance the speed at which quantum computers work, which he later patented. These discoveries then led to the development of new programs for quantum computers, as well as additional research into quantum systems and machine learning.

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Joseph Keithley Award for Advances in Measurement Science

Ivan Van Stryland
University of Oxford

Citation: “For the development and commercialization of atomic clocks and quantum phase measurements.”

Maria Goeppert Mayer Award

Reka Albert
Penn State University

Citation: “For pioneering studies of network structure and the development of new mathematical tools for analyzing complex systems.”

Nicholson Medal for Human Outreach

Nomie Benserker Koller
Rutgers University

Citation: “For steadfast commitment to advocating the freedom of scientists around the world and for leadership in fostering equal opportunities for women in science.”

Nomie Koller is an Emerita and Research Professor at Rutgers University. She received her BA from Barnard College, Columbia University, and her Ph.D. from Berkeley in 1968. After joining the faculty of Texas A&M University, she served as a Regents Professor in the Department of Physics and associate dean in the College of Science. In 2000 she rejoined the faculty of the Hebrew University of Jerusalem. From 2009 until 2011 she designed and directed the new program of physics and applied mathematics which were supported by the NSF.

Biography unavailable at press time.


Kang-Kuen Ni
California Institute of Technology

Citation: “A Quantum Gas of Polar Molecules.”

Outstanding Doctoral Thesis Award in Beam Physics Award (2010)

Jonathan Jarvis (2010 recipient)
University of Texas, Austin

Citation: “Development of New-Brighter Electrons Sources for Free-Electron Lasers.”

Nicholas Metropolis Award for Outstanding Doctoral Thesis Work in Computational Physics

Dmitry Fedotov
University of Michigan

Citation: “Multi-scale Modeling of Blood Flow and Soft Matter.”

Mitsuyoshi Tanaka Dissertation Award in Experimental Particle Physics

Stephen Hoober
University of Chicago

Citation: “Search for Ultrahigh-Energy Neutrino and Measurement of Cosmic Ray Radiation with the University of Chicago’s A Sanity.”

Stephen Hoober graduated from Purdue University in 2003 with a B.S. in physics and computer science. He then attended the University of Texas, Austin, and received his Ph.D. in 2009. His work at the University of Chicago helped to develop the NASA long-duration balloon experiment A Sanity.

ANITA has not yet detected neutrinos, but has discovered the signature of geosynchronous radio silence caused by the cosmic air showers. Instead of receiving his Ph.D. from UCLAI in 2010, Dr. Hooper now works at the University of Chicago. He joined the South Pole Telescope collaboration, studying cosmicology through tilts in the geomagnetic field, which are caused by the momentum of the universe's magnetic field.

Sabbatical Support Awards

John R. Primakoff
University of Illinois

Citation: “For contributions to the understanding of quantum degenerate gas of polar molecules. This experimental realization of an ultracold, near degenerate quantum gas of molecules opens new research directions in ultralow-temperature quantum physics, and quantum information science. After the completion of his Ph.D. in 2009, Kang-Kuen joined Jeff Kimble’s group at Caltech as a Center for the study of quantum phases.”

Matthew Luzum received his B.A. in 2003 from Saint John’s University in Minnesota, and his Ph.D. from the University of Washington in 2009. He is currently a postdoctoral research fellow at the Humboldt Foundation in Germany and he continues to do research in computational biophysics.
Petrovic, Zoran
Institute of Nuclear Microscopy and Physics, University of Belgrade
- For fundamental contributions to the understanding of the properties of rare isotopes and their applications in nuclear astrophysics and quantum chemistry.

Qi, Z. G.
University of California, Berkeley
- For pioneering contributions to the understanding of the properties of rare isotopes and their applications in nuclear astrophysics and quantum chemistry.

Qian, Hong
University of Washington
- For seminal contributions to the development of novel materials for energy conversion and storage technologies.

Qi, Zhi Guo
University of California, Berkeley
- For seminal contributions to the development of novel materials for energy conversion and storage technologies.

Raij, Rong
University of Washington
- For seminal contributions to the development of novel materials for energy conversion and storage technologies.

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Call for Nominations for 2012 APS Prizes and Awards

To nominate a candidate for any of the APS prizes or awards, visit the appropriate link under the prize name to complete a nomination form. Nomination deadline is July 1, 2011, unless otherwise indicated on the website.

PRIZES

Will Allis Prize for the Study of Ionized Gases
http://prizes.aps.org/prizes/login.cfm?PRIZE=ALLIS

Hans A. Bethe Prize
http://prizes.aps.org/prizes/login.cfm?PRIZE=BETHE

Tom W. Bonner Prize
http://prizes.aps.org/prizes/login.cfm?PRIZE=BONNER

Oliver E. Buckley Prize
http://prizes.aps.org/prizes/login.cfm?PRIZE=BUCKLEY

Davidson-Germer Prize
http://prizes.aps.org/prizes/login.cfm?PRIZE=DAVIDSON

Max Delbruck Prize
http://prizes.aps.org/prizes/login.cfm?PRIZE=DELBRUCK

Fluids Dynamics Prize
http://prizes.aps.org/prizes/login.cfm?PRIZE=FLUID

Dannie Heineman Prize
http://prizes.aps.org/prizes/login.cfm?PRIZE=HEINEMAN

John Dawson Award for Excellence in Plasma Physics Research
http://prizes.aps.org/prizes/login.cfm?PRIZE=DISSER

John H. Dillon Medal
http://prizes.aps.org/prizes/login.cfm?PRIZE=DILLON

Excellence in Physics Education Award
http://prizes.aps.org/prizes/login.cfm?PRIZE=EDUCATION

Joseph F. Keithley Award
http://prizes.aps.org/prizes/login.cfm?PRIZE=KEITHLEY

Maria Goeppert-Mayer Award
http://prizes.aps.org/prizes/login.cfm?PRIZE=MGOM

Nicholson Medal
http://prizes.aps.org/prizes/login.cfm?PRIZE=NICHOLSON

DISSERTATION AWARDS

Andreas Acrivos
http://prizes.aps.org/prizes/login.cfm?PRIZE=AARVOS

Marshall Rosenbush
Ambroge Fassi, CRPP-EPFL, PB Station 13, Lausanne CH-1015, Switzerland, Phone 41 21 693 3492, Fax 41 21 693 517 ambrog.fassi@epfl.ch

2011 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 submitted information see: http://www.aps.org/prizes/honors/fellowships/nominations.cfm.