

Spring 2009 Prizes & Awards

APS Announces Spring 2009 Prize and Award Recipients

Thirty-seven APS prizes and awards will be presented during special sessions at three spring meetings of the Society: the 2009 March Meeting, March 16-20, in Pittsburgh, PA; the 2009 April Meeting, May 2-5, in Denver, CO; and the 2009 Atomic, Molecular and Optical Physics Meeting, May 19-23, in Charlottesville, VA.

Citations and biographical information for each recipient follow. The Apker Award recipients

appeared in the December 2008 issue of *APS News* (<http://www.aps.org/publications/apsnews/200812/index.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 of this insert.

2009 PRIZES, AWARDS AND DISSERTATIONS

Will Allis Prize for the Study of Ionized Gases NEXT PRIZE AWARDED IN 2010

Hans A. Bethe Prize

David Arnett
University of Arizona

Citation: "For his outstanding and fundamental work on how nuclear reactions shape multi-dimensional and partly out-of-equilibrium evolution of stars and supernova explosions and their yields of new isotopes."

David Arnett received a B.S. in physics from the University of Kentucky in 1961 and a Ph.D. in physics from Yale University in 1965. He has held positions at Caltech, Rice University, UT Austin, University of Illinois, Champaign-Urbana, University of Chicago (Enrico Fermi Institute), University of Arizona (1988-present). Arnett performed the first radiation hydrodynamic simulations of gravitational collapse and the first simulations of thermonuclear supernovae. With collaborators and students, he showed that supernovae yielded quantitative predictions of elemental and isotopic abundances in agreement with data. He predicted new types of supernovae (types Ib and Ic) which were discovered a few years later. He and his collaborators simulated stars in 2D and 3D, discovering instabilities relevant to SN1987A and devising analytic theory to capture the effects of turbulence.



positions at the University of Freiburg, the University of Kaiserslautern, and the University of Würzburg. His research interests include femtosecond laser spectroscopy, non-linear optics, ultrafast (femtosecond and attosecond) lasers, adaptive femtosecond pulse shaping, coherent control of chemical reactions, soft-X-ray generation through high harmonic generation, and femtosecond quantum control of molecular switches and bond-forming catalytic reactions.



Oliver E. Buckley Condensed Matter Physics Prize

Robert Meservey
Massachusetts Institute of Technology

Terunobu Miyazaki
Tohoku University

Jagadeesh Moodera
Massachusetts Institute of Technology

Paul Tedrow
Massachusetts Institute of Technology

Citation: "To Robert Meservey, Terunobu Miyazaki, Jagadeesh Moodera and Paul Tedrow for pioneering work in the field of spin-dependent tunneling and for the application of these phenomena to the field of magnetoelectronics."

Robert Meservey, received a B.A. from Dartmouth College in 1943. In the army from 1943 to 1946, he served in the Tenth Mountain Division and at the Engineer Research and Development Laboratory (ERDL). He worked at ERDL as a civilian physicist from 1951 to 1955. In 1961 he received a Ph.D. from Yale University. He joined the MIT research staff at the Lincoln Laboratory in 1961, moving to the National Magnet Laboratory in 1963. He retired and became a visiting scientist in 1994. His research centered on tunneling studies of superconductors in magnetic fields. In 1970 Meservey and collaborators discovered spin-polarized electron tunneling. In 1994 he helped analyze Moodera's successful tunneling experiment between ferromagnetic metals at room temperature.



Terunobu Miyazaki received his B.S., M.S. and Ph.D. in applied physics from Tohoku University in 1967, 1969 and 1972, respectively. From 1973 to 1975 he was a research associate and a Humboldt research fellow at University of Regensburg, Germany. He worked as a professor at Tohoku University from 1991 until March 2007. He has been a professor at WPI Advanced Institute for Materials Research, Tohoku University since November 2007. His research fields include magnetism and magnetic materials. He is especially interested in searching for new functionalized magnetic materials, namely spin-electronic materials. He currently participates in the NEDO Spintronics Nonvolatile Device Project.



Jagadeesh Moodera received a B.S. in physics, math, and chemistry from Government College in Mercara, India, and a Ph.D. in physics from the Indian Institute of Technology in Chennai, India in 1978. He was then a postdoctoral fellow at West Virginia University. Since 1981 he has



been a scientist at the Francis Bitter Magnet Lab, MIT, where he is group leader of the Thin Film Magnetism, Tunneling and Nano Spintronics group. His research interest focuses on fundamental and applied physics that includes nanospintronics—spin polarized transport and tunneling, thin film magnetism, superconductivity and phase-change materials. He pioneered the study of ferromagnet-insulator-ferromagnet tunnel junctions (MTJ).

Paul Tedrow received a Ph.D. in physics from Cornell University in 1966. After spending a year as a post-doc at Cornell, Tedrow began working with Robert Meservey at MIT's Francis Bitter National Magnet Laboratory in July 1967. Their investigations of the effects of electron spin paramagnetism on the critical field of high-field superconductors led to the discovery in 1970 of the splitting of the quasiparticle density of states of superconductors in a magnetic field. The experiments were extended to include ferromagnets and other superconductors. With some diversion caused by the discovery of high- T_c superconductivity, Tedrow's career was spent following various paths implied by the initial findings. He spent the summer of 1983 as a visiting scientist at Stanford University. He retired from MIT and physics in July 1998.



Davison-Germer Prize in Atomic or Surface Physics

Yves Chabal
University of Texas, Dallas

Krishnan Raghavachari
Indiana University

Citation: "For the individual development and collaborative application of fundamental surface infrared spectroscopy and quantum chemical methods to silicon surface reactions important in microelectronics."

Yves Jean Chabal currently holds the Texas Instruments Distinguished Chair in Nanoelectronics at the University of Texas at Dallas. He obtained his B.A. in physics from Princeton University in 1974 and his Ph.D. in physics from Cornell University in 1980. He then spent 22 years at Bell Laboratories, where he studied fundamental processes relevant to the microelectronics industry, and developed with Krishnan Raghavachari a mechanistic understanding of hydrogen passivation and oxidation of silicon surfaces. He was then a faculty member at Rutgers University and the Director of the Laboratory for Surface Modification, where he developed *in-situ* methods to study atomic layer deposition and chemical functionalization of silicon surfaces. He joined UT Dallas in 2008 and works on hydrogen storage and nanoelectronics.



Krishnan Raghavachari obtained his B.Sc. in chemistry in 1973 from Madras University (India), his M.Sc. from Indian Institute of Technology (Madras) in 1975, and his Ph.D. from Carnegie-Mellon University in 1981. He joined Bell Laboratories as a research scientist in 1981. He joined Indiana University as a professor of chemistry in 2002. His work covers a broad spectrum of problems ranging from chemical bonding in small clusters to computational investigations of semiconductor and nanoscale materials. Apart from his work on silicon surface chemistry, he is best known for the development of accurate electron correlation techniques in quantum chemistry. Most recently, his group has focused on new elec-



tronic embedding methods in quantum chemistry, accurate models for theoretical thermochemistry, and on metal oxide clusters to explore their roles in catalytic activity.

Max Delbruck Prize in Biological Physics

NEXT PRIZE TO BE AWARDED IN 2010

Einstein Prize

James B. Hartle

University of California, Santa Barbara

Citation: "For a broad range of fundamental contributions to relativistic stars, quantum fields in curved spacetime, and especially quantum cosmology."

James B. Hartle was educated at Princeton University (A.B., 1960), and the California Institute of Technology where he completed a Ph.D. in 1964. He has held positions at the Institute for Advanced Study, Princeton University, and the University of Chicago. He is currently Research Professor and Professor of Physics Emeritus at the University of California, Santa Barbara and an external faculty member of the Santa Fe Institute. His scientific work is concerned with the application of general relativity to realistic astrophysical situations, especially cosmology. He has contributed to the understanding of gravitational waves, relativistic stars, and black holes. He is currently interested in the quantum origin of the universe and the earliest moments of the big bang where the subjects of quantum mechanics, quantum gravity, and cosmology overlap.



Fluid Dynamics Prize (2008)

Julio Maria Ottino
Northwestern University

Citation: "For outstanding contributions to the fundamental understanding of chaotic mixing in laminar flows, to mixing and segregation in granular flows and for ground-breaking experimental work that has led to the broad application of these concepts."

Julio M. Ottino is currently Dean of the Robert R. McCormick School of Engineering and Applied Sciences at Northwestern University. He was the founder and co-director of the Northwestern Institute on Complex Systems and was Chairman of the Department of Chemical and Biological Engineering during 1992-2000. Ottino's research has impacted fields as diverse as fluid dynamics, granular dynamics, microfluidics, geophysical sciences, and nonlinear dynamics and chaos. He is an Advisor to Unilever, was a member of the Technical Board of Dow Chemical, and was a member of the International Review of Engineering in the UK.



Broida Prize

Gustav Gerber

Citation: "For the pioneering experimental realization of coherent control of molecular dynamics and chemical reactions with feedback-optimized laser pulses."

Gustav Gerber studied physics and mathematics at the Free University of Berlin and the University of Freiburg. He received a Dr. rer. nat., from the University of Freiburg in 1974 and a Habilitation in experimental physics from the University of Freiburg in 1982. Gerber was a Postdoctoral Fellow with H.P. Broida from 1974 to 1976. He has held academic



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Dannie Heineman Prize for Mathematical Physics

Carlo Becchi

University of Genoa

Alain Rouet

Science & Technology

Raymond Stora

LAPTH

Igor Tyutin

Lebedev Physical Institute

Citation: “For discovery and exploitation of the BRST symmetry for the quantization of gauge theories providing a fundamental and essential tool for subsequent developments.”

Carlo M. Becchi earned his university degree in physics in Genoa in 1962. He has been a professor at Genoa University since 1963. Becchi has chaired the physics department in Genoa twice since 1983 and the Theory Scientific Committee of INFN from 1997 to 2003. In 1964 he began a study of the theory of elementary particle physics in the light of unitary symmetry and quark models. Starting in 1971 he undertook a systematic study of renormalization theory, considering symmetries in particular. He began from the sigma-model and associated current algebra anomalies. Then he studied the possible extensions to gauge theories, which led to the discovery of the Becchi-Rouet-Stora symmetry. His work after 1976 was devoted to the extensions of renormalization techniques to various situations including string theory.

Alain Rouet received a degree in engineering from the Ecole Centrale des Arts et Manufactures in 1969, and a Ph.D. in theoretical physics in 1974. His research has been in quantum field theory, and he has also been interested in dynamic systems. He has worked at Max Planck Institut für Physik und Astrophysik, Munich (Germany)(1975), CERN(1976-1978), CNRS (Marseille, France) (1979-1981), and the Institute for Advanced Study at Princeton (1981-1982). From 1979-1981 he also did consulting work for Aérospatiale and the Atomic Energy Agency. He was technical director of Videolor (Thomson group) (1983-1986), and in 1986 was involved in the creation of Science & Tec, a consulting company for strategic scientific and technical issues. He is now President and Chief Executive Officer of Science & Tec.

Raymond Stora (biography unavailable at press time).

Igor Tyutin (biography unavailable at press time).



Frank Isakson Prize for Optical Effects in Solids

NEXT PRIZE TO BE AWARDED IN 2010

Irving Langmuir Prize

W.E. Moerner

Stanford University

Citation: “For making major contributions to the chemical physics of biological systems and non-biological materials through the application of single molecule spectroscopy.”

William E. Moerner, the Harry S. Mosher Professor of Chemistry and Professor, by courtesy, of Applied Physics, at Stanford University, has conducted research in the areas of physical chemistry and biophysics of single molecules, nanophotonics, photorefractive polymers, and trapping of single nanoparticles in solution. He received three bachelor's degrees from Washington University in 1975 and master's and doctoral degrees in physics from Cornell University in 1978 and 1982. He has worked as a Research Staff Member and Manager, IBM Research in San Jose, CA (1981-1985); Guest Professor of Physical Chemistry, Swiss Federal Institute of Technology, Zurich (1993-1994); Professor and Distinguished Chair in Physical Chemistry, University of California-San Diego (1995-1998); Robert B. Woodward Visiting Professor, Harvard University (1997-1998); and Professor, Stanford University (1998-present).



Julius Edgar Lilienfeld Prize

Ramamurti Shankar

Yale University

Citation: “For his innovative applications of field theoretic techniques to quantum condensed matter systems, and his marvelous presentations of the story

of physics through teaching, lectures, textbooks, and public talks.”

Ramamurti Shankar obtained his B. Tech (electrical engineering) at the Indian Institute of Technology in 1969. He obtained his Ph.D. in physics in 1974 from UC Berkeley. After spending 1974-77 at the Harvard Society of Fellows, he joined Yale as J.W. Gibbs Instructor. He is now the John Randolph Huffman Professor at Yale. He has contributed to the determinations of the quark gluon coupling constant, exact S-Matrices (with Witten), self-triality in statistical mechanics and field theory, exact solutions of disordered Ising models (with Murthy), renormalization group for fermions and Landau's fermi liquid, hamiltonian theory of the fractional quantum hall effect (with Murthy) and the solution of disordered and chaotic quantum dots (with Murthy).



James Clerk Maxwell Prize for Plasma Physics (2008)

Ronald C. Davidson

Princeton Plasma Physics Laboratory

Citation: “For pioneering contributions to the physics of one-component non-neutral plasmas, intense charge particle beams, and collective nonlinear interaction processes in high-temperature plasmas.”

Ronald C. Davidson has been Professor of Astrophysical Sciences at Princeton University since 1991, and was Director of the Princeton Plasma Physics Laboratory from 1991-1996. He received a B.Sc. from McMaster University in 1963, and a Ph.D. from Princeton University in 1966. He has held positions at the University of California at Berkeley, the University of Maryland and Massachusetts Institute of Technology. Davidson has made numerous fundamental theoretical contributions to several areas of pure and applied plasma physics, including nonneutral plasmas, nonlinear effects and anomalous transport, kinetic equilibrium and stability properties, intense charged particle beam propagation in high energy accelerators, and coherent radiation generation by relativistic electrons.



James C. McGroddy Prize for New Materials

Akihisa Inoue

Institute for Materials Research

William L. Johnson

California Institute of Technology

Citation: “For the development of slow cooling methods for the fabrication of bulk metallic glasses with remarkable mechanical properties and the characterization and application of these materials.”

Akihisa Inoue received a B.A. in metallurgical engineering from Himeji Institute of Technology in 1970, an M.A. in materials science and engineering from Tohoku University in 1972, and a Ph.D. in materials science and engineering, from Tohoku University in 1975. Inoue was a postdoctoral fellow in the Non-equilibrium Laboratory in the Institute for Materials Research of Tohoku University from 1975 to 1976, a research associate there from 1976-1985, became a professor at Tohoku University in 1985, and is currently President of Tohoku University. He is a Member of the Scientific and Technological Investigation Council, Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan.

William L. Johnson received his Ph.D. in applied physics from Caltech in 1974. After working at IBM's Watson Research Center from 1975-77, he returned to Caltech as a faculty member in 1977. He has held the Ruben Mettler Professorship in Engineering and Applied Science at Caltech since 1988. Johnson was a Visiting Professor and Alexander von Humboldt Distinguished Fellow at the University of Göttingen, Germany, in 1988. Johnson was named as the recipient of the TMS Hume-Rothery Award in 1996, the MRS Gold Medal Award in 1998, and the Franklin Mehl Award of TMS in 2004. An inventor on over 20 U.S. patents, he co-founded a company, Liquidmetal Technologies Inc., which has pioneered the commercialization of bulk amorphous metals in engineering applications.



Lars Onsager Prize

B. Sriram Shastry

University of California, Santa Cruz

Citation: “For pioneering work in developing and solving models of strongly correlated systems and

for wide-ranging contributions to phenomenological many-body theory, which have advanced the analysis of experiments on strongly correlated materials.”

Sriram Shastry received his B.Sc. (1968) from SA College in Akola (Nagpur University), M.Sc. (1970) from I.I.T. Madras, and Ph.D. (1976) from the Tata Institute of Fundamental Research (T.I.F.R.) Bombay. He has held positions at the University of Utah, T.I.F.R., Princeton University, AT&T Bell Labs, and Indian Institute of Science. He has been a professor at UC Santa Cruz since 2003. At T.I.F.R., he worked on the integrability of the 1-d Hubbard model, and the magnetism of metals. At Princeton, he worked on the Gutzwiller type wave functions, and on rigorous theorems for long ranged order in quantum statistical mechanics. At Bell Laboratories, he developed theories for understanding Nuclear Magnetic Relaxation, the Hall constant and Raman scattering in High Tc systems. At I.I.Sc he worked on “Spin Ice,” and on the problem of superconductivity in purely repulsive models. His current interests include thermoelectric effects in strongly correlated systems such as sodium cobaltate.



Abraham Pais Prize for History of Physics

Stephen G. Brush

University of Maryland

Citation: “For his pioneering, in-depth studies in the history of nineteenth and twentieth century physics.”

Stephen G. Brush studied physics and chemistry at Harvard (A.B., 1955) and Oxford (D. Phil., 1958). As a theoretical physicist at the Lawrence Livermore Laboratory, he helped to show that a one-component classical plasma could condense to an ordered solid state. Brush's research in statistical mechanics was complemented by an interest in the history of the kinetic theory of gases. At the University of Maryland since 1968, he started a new program in history of science. He published historical books on the origin of the solar system, the internal structure and age of the Earth, and the relation between science and culture. His current research is a crossdisciplinary study of the reasons why theories like the Periodic Table, Relativity, the Big Bang, and Natural Selection were accepted.



George E. Pake Prize

David J. Bishop

LGS

Citation: “For his effective leadership of AT&T/Lucent/Bell Labs research during an especially turbulent time in the telecommunications industry, and for his seminal contributions to low-temperature physics research.”

David J. Bishop is currently the CTO/COO of LGS, the wholly-owned subsidiary of Alcatel-Lucent dedicated to serving the U.S. federal government market with advanced R&D solutions. Most recently he was President of Government Research & Security Solutions for Bell Labs, Lucent Technologies. He joined AT&T-Bell Laboratories in 1978 as a postdoctoral member of staff and in 1979 became a Member of the Technical Staff. In 1988 he was made a Distinguished Member of the Technical Staff and later that same year was promoted to Department Head, Bell Laboratories. Bishop graduated from Syracuse University in 1973 with a B.S. in physics. In 1978 he received a Ph.D. in physics from Cornell University.



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

Aldo Menzione

I.N.F.N. (Ist. Naz. Fis. Nucl.)

Luciano Ristori

Fermilab

Citation: “For their leading role in the establishment and use of precision silicon tracking detectors at hadron colliders, enabling broad advances in knowledge of the top quark, b-hadrons, and charm-hadrons.”

Aldo Menzione graduated from the University of Pisa in 1967. From 1965 to 1968 he worked on the CERN Karlsruhe Collaboration. From 1970 to 1973 he worked at CERN-ISR-R801. From 1973 to 1980 he worked at CERN-SPS Experiments NA1 NA7. Many technical innovations



were introduced in these experiments, most importantly, the active target based on semiconductors. From 1990 to 2000 he devoted part of his time to an astroparticle experiment, CLUE. Since 1980 he has worked on CDF at Fermilab. Starting in 1985 he had responsibility for the design, construction and commissioning of the silicon vertex, which was relevant in a variety of measurements. He was responsible for the CDF-Pisa group until 2006.

Luciano Ristori graduated with the title Dottore in Fisica in 1971 from the Scuola Normale Superiore in Pisa. In 1973, he joined the NA1 Collaboration at the CERN SPS. In 1977, he obtained a position at the Italian National Institute for Nuclear Physics (INFN). In 1991 he took a position at the Scuola Normale Superiore in Pisa. In 1990 he conceived and proposed a secondary vertex trigger (SVT) for the CDF which has allowed CDF to perform measurements that would otherwise be impossible, especially in the area of hadronic decays of B mesons and baryons. Since 1998, he has been Research Director at INFN in Pisa. He was Co-Spokesperson of the CDF Collaboration from 2003 to 2005, and has been responsible for the Italian group in CDF since 2005.



Earle K. Plyler Prize for Molecular Spectroscopy

Terry A. Miller

Ohio State University

Citation: “For his pioneering spectroscopic investigations of complex molecules, free radicals, and ions – especially for the development of a quantitative understanding of the Jahn-Teller effect in organic molecules.”

Terry A. Miller holds an Ohio Eminent Scholar Chair at The Ohio State University. He is also Director of the Spectroscopy Institute and Chair of the Chemical Physics Program there. Previously he was a Distinguished Member of Technical Staff at Bell Laboratories. He received his undergraduate degree in 1965 from the University of Kansas and his Ph.D. from Cambridge University in 1968. Miller's research centers around the spectroscopic identification, characterization and monitoring of reactive chemical intermediates. He has developed numerous spectroscopic techniques spanning frequencies from the microwave to the ultraviolet. Currently, his laboratory focuses upon reactive intermediates, particularly alkoxy and peroxy radicals, involved in the oxidation of hydrocarbons.



Polymer Physics Prize

Steve Granick

University of Illinois, Urbana-Champaign

Citation: “For pathbreaking and elegant experiment that elucidate the structure and dynamics of polymers and liquids confined by surfaces.”

Steve Granick has been on the faculty of the University of Illinois since 1985, where he is currently Founder Professor of Materials Science and Engineering, as well as Professor of Chemistry, Physics, and Chemical and Biomolecular Engineering. He graduated from Princeton University in 1978 with a B.A. and in 1982 earned his Ph.D. in chemistry at the University of Wisconsin. As a postdoc, he worked first with Pierre-Gilles de Gennes at the Collège de France and then with Matthew Tirrell at the University of Minnesota. He has long-standing research interests in tribology as well as in the dynamics of polymers, complex fluids, colloids, and phospholipid membranes.



I.I. Rabi Prize

Mikhail Lukin

Harvard University

Citation: “For pioneering theoretical and experimental work at the interface between quantum optics, quantum information processing, and the quantum many body problem.”

Mikhail Lukin received his Ph.D. from Texas A&M University in 1998. He was a post-doctoral fellow at the Institute for Theoretical Atomic and Molecular Physics at Harvard University from 1998-2001. He joined the faculty of Harvard Physics Department as an Assistant Professor in 2001 and has been a Professor of Physics at Harvard since 2004. His research interests include quantum optics, quantum control of atomic and nanoscale solid-state systems, quantum dynamics of many-body systems and quantum information science. He has received a number of awards, including Alfred P. Sloan Fellow-



ship, David and Lucile Packard Fellowship for Science and Engineering, NSF Career Award, Adolph Lomb Medal of the Optical Society of America (200) and AAAS Newcomb Cleveland Prize.

Aneesur Rahman Prize for Computational Physics

A. Peter Young
University of California, Santa Cruz

Citation: "For his innovative and definitive numerical studies of spin glasses and the vortex glass state of High Temperature superconductors."

A. Peter Young received his undergraduate degree in 1970 from Oxford University, and his D. Phil in 1973 from the same institution. From 1978 to 1985 he was lecturer and then reader at Imperial College, London, and has been Professor of Physics at the University of California Santa Cruz since 1985. He is the author of about 200 papers on theoretical condensed matter physics, especially numerical studies on the theory of phase transitions in disordered condensed matter systems such as spin glasses, and the theory of quantum phase transitions.



Andrei Sakharov Prize

NEXT PRIZE TO BE AWARDED IN 2010

J.J. Sakurai Prize for Theoretical Particle Physics

John C. Collins
Pennsylvania State University

R. Keith Ellis
Fermilab

Davison E. Soper
University of Oregon

Citation: "For work in perturbative Quantum Chromodynamics, including applications to problems pivotal to the interpretation of high energy particle collisions."

John C. Collins received his B.A. in 1971 and his Ph.D. in 1975, both from the University of Cambridge. From 1975 to 1980, he was a postdoc and then an assistant professor at Princeton University. From 1980 to 1990, he was on the faculty of the Illinois Institute of Technology. Since then he has been on the faculty at the Pennsylvania State University. Collins' primary research interests focus on the consequences of QCD in high-energy collisions. In collaboration with Dave Soper and George Sterman, he formulated, proved, and extended factorization theorems that are essential to many applications of QCD. In recent years, he has shown how novel QCD phenomena appear in more complicated situations.



Davison E. Soper graduated from Amherst College in 1965 and received his Ph.D. from Stanford University in 1971. He taught at Princeton University from 1971 to 1977. He has been at the University of Oregon since 1977. Soper worked with J. Collins on the definition of parton distribution functions and with Collins and G. Sterman on summing logarithmically enhanced contributions to observables and on the factorization property that enables one to make reliable predictions for hadron colliders. Z. Kunszt, S. Ellis, and Soper calculated cross sections to make jets of hadrons in hadron-hadron collisions, using matrix elements from R.K. Ellis and J. Sexton. Soper's most recent work, with Zoltan Nagy, concerns the parton showers produced in high energy collisions.



Richard Keith Ellis graduated from New College, Oxford with a B.A. in 1971. In 1975 he obtained the degree of D.Phil, from Wadham College. After postdoctoral positions at La Sapienza (Rome), Imperial College (London), MIT, Caltech, CERN, and INFN (Rome), he came to Fermilab in 1984 and led the Fermilab Theory department from 1992-2004. His most significant scientific accomplishments include calculations that support the precise measurement of α_s , and the best predictions for many hard processes including heavy flavor production. His current scientific interest is the accurate prediction of hard processes at the Tevatron and the LHC, especially those involving leptons, missing energy and heavy flavors, which are of importance in the search for physics beyond the standard model.

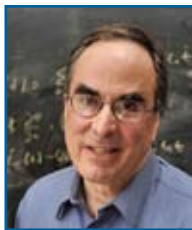


Arthur L. Schawlow Prize in Laser Science

Robert W. Field
Massachusetts Institute of Technology

Citation: "For pioneering development and application of multiple resonance laser spectroscopy and effective Hamiltonian models, that reveal fundamental mechanisms of chemical bond breaking, electronic rearrangement, intramolecular vibrational redistribution, and unimolecular isomerization."

Robert W. Field majored in chemistry at Amherst College (1965). He received his Ph.D. from Harvard University in 1972. As a postdoc with Herbert P. Broida and David O. Harris at UCSB (1971-1974) he performed the first microwave-optical and optical-optical double resonance studies of diatomic molecules using tunable lasers and showed how to extract global insights into the electronic structure of the alkaline earth monoxides from the systematic study of spectroscopic perturbations. At MIT his students and postdocs have continued to develop new laser spectroscopic techniques (most notably Stimulated Emission Pumping) with a goal of uncovering and exploiting unconventional patterns that encode the mechanisms of far-from-equilibrium molecular dynamics, particularly Intramolecular Vibrational Redistribution, Doorway-Mediated Intersystem Crossing, and energy exchange between a Rydberg electron and a molecular ion-core.



Prize for a Faculty member for Research in an Undergraduate Institution

James C. Eckert
Harvey Mudd College

Citation: "For the significant contributions he has made to the understanding of the complex exchange biasing mechanism crucial to spin-valve sensors used in the read-write heads of hard disks and for his skilled and enthusiastic inclusion of undergraduates in physics research."

James C. Eckert is a professor of physics at Harvey Mudd College. He received his B.S. in 1974 and his Ph.D. in 1980, both from the University of Southern California. He joined the faculty at Harvey Mudd in 1980. His research efforts are in the area of magnetism and have focused on magnetic exchange bias in multilayer systems with extremely thin antiferromagnetic layers, probing the onset of exchange bias. Eckert is one of the founders of the Harvey Mudd College Magnetism Group, with over \$2M in state of the art sample preparation and diagnostic equipment in use by undergraduates. In the past 5 years, he has published 16 papers with undergraduate research students appearing as coauthors a total of 43 times. His students routinely present their work at major national and international conferences.



Prize for Industrial Application of Physics

Philip J. Wyatt
Wyatt Technology Corporation

Citation: "For pioneering developments in the physics of the inverse scattering problem: new applications of laser light scattering and the successful sustained commercialization of new related analytical methods and instrumentation."

Philip J. Wyatt completed his undergraduate education at the University of Chicago (A.B. 1952, S.B. 1954) with additional studies at Christ's College, Cambridge University. He completed his graduate studies at the University of Illinois (M.S. 1956) and the Florida State University (Ph.D. 1959) Upon graduation he joined the Ford Motor Company's Aeronautic Division. In 1968, he founded Science Spectrum, Inc. That firm closed in 1982 at which time he founded Wyatt Technology Corporation where he continues as its CEO. His scientific endeavors continue with his direction of the firm's ongoing research, development and manufacturing in the field of analytical instrumentation with particular attention to the study and measurement of protein interactions, nanoparticle structure, drug development and delivery, and biodefense.



George E. Valley, Jr Prize

Paul Sorensen
Brookhaven National Laboratory

Citation: "For his role in the discovery of quark number of scaling in the elliptic flow of hadrons in nucleus-nucleus collisions, and its interpretation

showing the relevance of quark degrees of freedom in heavy ion interactions."

Paul Sorensen developed an interest in physics while studying art at Mount Hood Community College in Oregon. Transferring to the University of Nebraska-Lincoln, he earned a B.S. in physics in 1996. Sorensen went on to earn an M.S. and Ph.D. in physics, both from the University of California, Los Angeles, in 1999 and 2003, respectively. Sorensen's thesis was awarded the RHC and AGS thesis award in 2003. He was a post-doctoral researcher at Lawrence Berkeley National Laboratory for two years before joining Brookhaven Lab in 2005 as a Goldhaber Distinguished Fellow. Sorensen recently became an associate physicist at Brookhaven. His current research within the STAR collaboration focuses on the phase diagram of nuclear matter.



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

Satoshi Ozaki
Brookhaven National Laboratory

Citation: "For his outstanding contribution to the design and construction of accelerators that has led to the realization of major machines for fundamental science on two continents, and his promotion of international collaboration."

Satoshi Ozaki completed his B.S. and M.S. at Osaka University, Japan, in 1953 and 1955, respectively. After obtaining his Ph.D. in physics from MIT in 1959, he moved to BNL. In 1981, he moved to KEK, Japan, to direct the construction of TRISTAN, a 60 GeV e^+e^- collider, the first major high energy physics facility in Japan. He returned to BNL in 1989 as head of the RHIC Project, which was completed in 1999. He was also instrumental in bringing polarized proton capability to RHIC with funding support from RIKEN, Japan. He is the Senior Project Advisor to the NSLS-II Project at BNL. He has served on science policy committees of several laboratories, and on technical, project and program reviews and advisories for many laboratories and for DOE.



AWARDS

David Adler Lectureship Award in the Field of Materials Physics

Salvatore Torquato
Princeton University

Citation: "For his highly original and deep studies of n-point correlation functions in heterogeneous materials and his outstanding communication of these results through publication and public presentation."

Salvatore Torquato is Professor of Chemistry at Princeton University. He earned his B.S. from Syracuse University in 1975. He received his Ph.D. in 1981 from SUNY at Stony Brook. He soon after joined the faculty at North Carolina State University. In 1992 he joined the faculty at Princeton. Torquato is broadly interested in the fundamental microscopic understanding of condensed matter using statistical mechanics. Systems under study include heterogeneous materials (e.g., composites and porous media), colloids, liquids, glasses, quasicrystals, and crystals. Current work has been focused on understanding random particle packings in low dimensions, sphere packings in high dimensions, optimal multifunctional material design, self-assembly theory, and cancer modeling.



LeRoy Apker Award PhD-Granting Institutions

Sujit S. Datta
University of Pennsylvania

Non-PhD-Granting Institutions

Byron C. Drury
Haverford College

Citation: "Surface Potentials and Layer Charge Distributions in Few-Layer Graphene Films."

Citation: "Factoring Quantum Logic Gates with Cartan Involutions."

Sujit S. Datta received a B.A. and an M.S. in physics, and a B.A. in mathematics, from the University of Pennsylvania in May 2008. As an undergraduate at Penn, Datta studied the physics of electrons at the nanoscale in



A. T. Charlie Johnson's group. He used experimental and computational tools to study the biochemical, structural and electronic properties of one- and two-dimensional nanostructures including few-layer graphene, carbon nanotubes, and devices for single-molecule electronics. Datta is currently pursuing a Ph.D. in physics at Harvard University. His current research interests include experimental soft condensed matter physics and physical biology.

Byron C. Drury received a B.S. in physics from Haverford College in May 2008. His research has explored the algebraic structure of the group of quantum logic operators, the building blocks of the quantum circuit model of quantum computation. In 2008 Drury received a Churchill Scholarship to study at the University of Cambridge, and he is currently pursuing a Certificate of Advanced Study in Mathematics at the DAMTP. In fall of 2009 he will enter the Ph.D. program in physics at MIT. Drury is an Honorary Cambridge Overseas Trust Scholar, a member of the Phi Beta Kappa honor society, and a recipient of the Louis Green Prize in Physics.



Edward A. Bouchet Award

Gaston R. Gutierrez
Fermilab

Citation: "For contributions to the D-Zero collaboration, in particular the 'matrix-element' method of extracting precise measurements of standard-model parameters, as well as his outstanding mentorship of young scientists."

Gaston R. Gutierrez completed his undergraduate education in the National University of La Plata, Argentina in 1977. In 1982 he received his Ph.D. from the same institution. He participated in high energy physics experiments at Brookhaven National Laboratory and Fermilab and for the past ten years he has been a member of the D0 experiment. The young scientists he mentored have been recipients of Fermilab's Alvin Tollestrup Award, the APS Mitsuyoshi Tanaka Dissertation Award, the URA Thesis Award and the University of Rochester Frederick Lobkowitz Thesis Award. His contributions to the D0 experiment include the construction of the Fiber Tracker detector, the optimization of the Central Muon detector and the precision measurement of the top quark mass. His current research interest also includes the understanding of dark energy.



Joseph A. Burton Forum Award

Patricia Lewis
UNIDIR

Citation: "For her contributions to arms control and international security, through experiments to demonstrate verifiability of arms control treaties and through her leadership of two international institutes, VERTIC and UNIDIR."

Patricia Lewis is the Deputy Director and Scientist-in-Residence of the James Martin Center for Nonproliferation Studies at the Monterey Institute of International Studies. Prior to this appointment, she was the Director of the United Nations Institute for Disarmament Research (UNIDIR). From 1989 to 1997, she was the Director of the Verification Technology and Information Centre (VERTIC) in London. She holds her B.Sc.(Hons) in physics from the University of Manchester (1978) and her Ph.D. in nuclear physics from the University of Birmingham (1981). Before her work at UNIDIR in Geneva, she has worked in India, New Zealand, Australia and the United Kingdom. Lewis was a Commissioner on the 2004-2006 Weapons of Mass Destruction Commission. Currently Lewis is an adviser to the International Commission on Nuclear Non-proliferation and Disarmament (ICNND).



John Dawson Award for Excellence in Plasma Physics (2008)

Stewart C. Prager
University of Wisconsin

Michael C. Zarnstorff
Princeton Plasma Physics Laboratory

Citation: "For demonstrating that the parallel Ohm's law in axisymmetric toroidal plasmas with impurities is governed by Coulomb collision processes, including neoclassical resistivity and the bootstrap current."

Stewart C. Prager received his Ph.D. from Columbia University in 1975, and bachelor's degrees in 1970 from both Columbia (electrical engineering) and Queens College, New York (liberal arts). Following two years at General Atomics (1975-1977), he joined the faculty at Wisconsin, where he is now

a professor of physics. He currently directs both the MST experiment in plasma physics and fusion research, and the Center for Magnetic Self-Organization in Laboratory and Astrophysical Plasmas, a multi-institutional center supported under the NSF Physics Frontier Centers program. His research focuses on basic plasma physics, fusion plasma physics (particularly magnetic confinement) and, recently, connections between lab and astrophysical plasmas.

Michael C. Zarnstorff is a Principal Research Physicist at the Princeton Plasma Physics Laboratory. He was named a Distinguished Research Fellow by the laboratory in 1995 and teaches in the astrophysics department of Princeton University. He received his Ph.D. in physics from the University of Wisconsin-Madison (1984). Zarnstorff is an experimental plasma physicist with interest in the basic physics of plasma confinement and configuration optimization. His research included the first observation and systematic study of the bootstrap current, investigations of neoclassical and turbulent transport, transport barriers, and the confinement and stability of different magnetic field configurations. He led the National Compact Stellarator Experiment physics group and was one of the leaders of the TFTR experimental program. He has collaborated on experiments across the US and in Germany, Japan, and the UK.



John H. Dillon Medal for Research in Polymer Physics

Venkat Ganesan
University of Texas

Citation: "For exceptional contributions to innovative computer simulation approaches and analysis of equilibrium and dynamic properties of multicomponent polymeric materials and nanocomposites."

Venkat Ganesan is an Associate Professor in the Department of Chemical Engineering at the University of Texas at Austin. He obtained his bachelor's degree in chemical engineering from the Indian Institute of Technology, Madras, and his master's degree and Ph.D. in chemical engineering from the Massachusetts Institute of Technology. Subsequently, he spent 2 years as a postdoctoral research associate at the Materials Research Laboratories at the University of California at Santa Barbara before joining UT Austin in 2001. Ganesan's research interests center on the development of models and simulation approaches for predicting the equilibrium and dynamical properties of multicomponent polymeric materials and polymer nanocomposites. More recently, his research has started making forays into the structure-property relationships in polymers used for fuel cell and organic photovoltaic applications.



Excellence in Physics Education Award

Two Year College Workshop Team (Curtis Hieggelke, Tom O'Kuma, David Maloney)

Citation: "For leadership in introducing physicists in two-year colleges to new instructional methods, in developing new materials based on physics education research, and in fostering faculty networking, particularly in two-year colleges."

Joseph Keithley Award for Advances in Measurement Science

Robert Schoelkopf
Yale University

Citation: "For development of techniques for high frequency measurements of mesoscopic physics and quantum noise, including the radio-frequency single-electron transistor and absolute thermometry based on electron shot-noise."

Robert J. Schoelkopf, the William A. Norton Professor of Applied Physics and Physics at Yale University, is noted for his research on quantum transport, single-electron devices and charge dynamics in nanostructures. He and his laboratory invented the Radio-Frequency Single-Electron Transistor, an electrometer capable of measuring sub-electron charges on nanosecond timescales. In 2007, a team of scientists led by Schoelkopf and Steven Girvin engineered a superconducting communication bus to store and transfer information between distant qubits on a chip. Schoelkopf earned a bachelor's degree from Princeton University and a Ph.D. from the California Institute of Technology. He



joined Yale as a postdoctoral researcher in 1995 and became a faculty member in 1998.

Maria Goeppert Mayer Award

Saskia Mioduszewski
Cyclotron Institute

Citation: "For her pioneering contributions to the observation of jet quenching and her continuing efforts to understand high- p_T phenomena in relativistic heavy-ion collisions."

Saskia Mioduszewski is an experimental nuclear physicist interested in ultra-relativistic heavy-ion collisions. She received her B.S. in physics and mathematics in 1994 from North Carolina State University and her Ph.D. in physics from the University of Tennessee. Starting as a Postdoctoral Research Associate in 2000, she worked at Brookhaven National Laboratory on the PHENIX Experiment at the Relativistic Heavy Ion Collider (RHIC). In 2005, she moved to Texas A&M University as an assistant professor and became a member of the STAR Collaboration at RHIC, where she continues to pursue her interest in high-energy heavy-ion collisions.



Nicholson Medal for Human Outreach

Katepalli R. Sreenivasan
ICTP

Citation: "For his commitment to mentoring students and junior colleagues and his significant contributions to fostering international collaborations and promoting the advancement and education of early career scientists from the developing world."

Katepalli R. Sreenivasan joined Yale University in 1979 on its teaching faculty, following his education and post-doctoral work in India, Australia and at the Johns Hopkins University. In 2002, he moved to the University of Maryland as the Director of the Institute of Physical Science and Technology. A year and a half later, he took up his current position as the Director of the International Centre for Theoretical Physics in Trieste, Italy, where he also holds the Abdus Salam Research Professorship. His research interests are primarily in fluid dynamics, but they have also touched on a few other areas of physics.



Francis Pipkin Award

Zheng-Tian Lu
Argonne National Laboratory

Citation: "For development of techniques to laser cool and trap rare and radioactive atomic species; and for applications of these techniques ranging from trace isotope analysis to tests of fundamental symmetries."

Zheng-Tian Lu is a Senior Scientist in the Physics Division of Argonne National Laboratory and a Professor (part-time) in the Physics Department and Enrico Fermi Institute of The University of Chicago. He received a B.Sc. from the University of Science and Technology of China in 1987, and a Ph.D. from the University of California at Berkeley in 1994. He was a postdoc at JILA prior to joining Argonne in 1997. Throughout his career, Lu has been developing novel techniques of laser manipulation and laser spectroscopy of atoms, and applying these techniques to ultrasensitive trace analysis, studying nuclear structure, and testing fundamental symmetries.



Shock Compression Award

Donald Curran
SRI International

Citation: "For his pioneering contributions to the fundamental understanding of dynamic failure of materials and the incorporation of this understanding into successful theories and models of material response."

Donald Curran is a Senior Staff Scientist Emeritus with SRI International. He received his B.S. in physics from Iowa State College in 1953, and an M.S. and a Ph.D. in physics in 1956 and 1960, respectively, from Washington State University. After receiving his M.S., and during the summers while pursuing his Ph.D., he worked at SRI. From 1962 to 1967 he worked at the Norwegian Defense Research Establishment near Oslo, Norway, and thereafter at the Ernst Mach Institute in Freiburg, Germany before returning to SRI in 1970. At that time a group of scientists was developing a new approach to fracture mechanics, which later



became known as the NAG/FRAG (Nucleation and Growth to Fragmentation) methodology. Over the next 30 years, he and colleagues applied this methodology to measurement and modeling of both dynamic and quasi-static material failure applications.

Leo Szilard Lectureship Award

Raymond Jeanloz

University of California, Berkeley

Citation: "For contributions to development of sound public policy for nuclear weapons management and nuclear non-proliferation."

Raymond Jeanloz, a professor of Earth and Planetary Science and of Astronomy at the University of California, Berkeley, chairs the National Academy of Sciences' Committee on International Security and Arms Control that focuses on scientist-to-scientist dialogues around the world on topics ranging from nuclear weapons and non-proliferation to biological threats and counter-terrorism. His scientific research has focused on the properties of materials at high pressures and temperatures and on the constitution and evolution of planetary interiors. After completing his bachelor's degree (Amherst College, 1975), he received his Ph.D. from the California Institute of Technology in 1979, and joined the faculty of Harvard University before moving to UC Berkeley in 1981.



John Wheatley Award

Carlos R. Ordóñez
University of Houston

Citation: "For his extensive contributions to developing physics throughout Latin America, and especially for his work with the World Laboratory to expand its efforts on US-Latin American exchange and cooperation."

Carlos R. Ordóñez got his B.S. in physics at the University of Panama in 1979 and his Ph.D. in physics at the University of Texas in 1986. He has taught and done research at the University of Texas at Austin; The Rockefeller University; New York University; Vanderbilt University; The Institute for Advanced Study at Princeton; The Kavli Institute for Theoretical Physics at the University of Santa Barbara; the University of Houston, and has had short-term visits to many other institutions. He directed a World Laboratory Center at the University of Houston from 1998-2006. He does research in high-energy theory with emphasis on quantum field theory and aspects of quantum gravity and black hole thermodynamics. He has made important contributions to theoretical nuclear physics (chiral lagrangian approach).



DISSERTATION AWARDS

Andreas Acrivos Dissertation Award in Fluid Dynamics (2008)

John Ryan Taylor
Massachusetts Institute of Technology

Citation: "Numerical Simulations of the Stratified Oceanic Bottom Boundary Layer."

John R. Taylor received a B.S. in engineering physics from Santa Clara University in 2001. He spent the following year as a UCAR visiting scientist at the Navy's Fleet Numerical Meteorology and Oceanography Center before starting graduate school in the Department of Mechanical and Aerospace Engineering at the University of California, San Diego in 2002. He received his Ph.D. in 2008. His thesis work on stratified bottom boundary layers was advised by Sutanu Sarkar. Taylor is currently working with Raffaele Ferrari as an NSF Mathematical Sciences Postdoctoral Fellow in the Department of Earth, Atmospheric and Planetary Sciences at MIT. His current research interests include turbulence in the ocean and atmosphere, internal wave dynamics, and physical-biological interactions.



Outstanding Doctoral Thesis Research in Atomic, Molecular and Optical Physics Award (2008)

David Moehring
Max Planck Institute for Quantum Optics

Citation: "Remote Entanglement of Trapped Atomic Ions."

David Moehring attended Purdue University as an undergraduate. Moehring received his bachelor's degree in honors applied physics with highest distinction in 2001, and shortly thereafter joined the trapped

ion quantum computing group of Chris Monroe at the University of Michigan. Moehring's graduate dissertation presents a theoretical and experimental realization for the entanglement of two trapped atomic ions, including the first explicit demonstration of quantum entanglement between a single trapped ion and its single emitted photon, as well as the entanglement between two macroscopically separated trapped ions. In addition to their promise for scalable quantum information processing, these results provide evidence for the completeness of quantum mechanics via demonstration of Bell inequality violations.

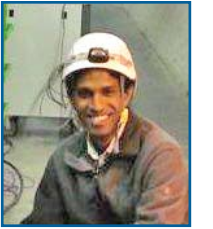


Outstanding Doctoral Thesis in Beam Physics Award (2008)

Rama Calaga
Brookhaven National Laboratory

Citation: "For his dissertation about characterization and correction of RHIC's transverse optics and beam dynamics and about design of an Ampere Class SRF gun and cavity."

Rama Calaga obtained a B.S. in physics and minor in mathematics (2000) from Truman State University. He completed his Ph.D. in physics at Stony Brook University in 2006. His Ph.D. work on "RHIC optics characterization & Ampere class superconducting linacs" was supervised by Ilan Ben-Zvi and Steve Peggs, who are research staff members at Brookhaven National Lab and professors of physics at Stony Brook University. His research was awarded the Stony Brook's President's Award to Distinguished Doctoral Students in May 2006. He is currently a TOOHiG fellow under the US-LARP program to aid in commissioning and upgrade studies of the Large Hadron Collider (LHC) at CERN.



Nicholas Metropolis Award for Outstanding Doctoral Thesis Work in Computational Physics

Chao Cao
University of Florida

ADVISOR: Hai-Ping Cheng

Citation: "For First-Principles and Multi-Scale Modeling of Nano-Scale Systems."

Chao Cao earned his bachelor's degree in physics at Fudan University, Shanghai, China, in 2003, when he entered the University of Florida for graduate study in physics. Under the supervision of Hai-Ping Cheng, Cao worked on mechanical, electronic, and transport properties of quasi-one-dimensional wires and on effects of external fields and environments. Cao developed a parallel computing framework for execution of multiple codes that allows multi-scale and multi-phenomena modeling and simulation. Cao has mastered a number of theoretical and computational methods and worked on nano-magnets and high T_c materials during his Ph.D. studies. Cao received his Ph.D. in physics in 2008. He is continuing his work in computational physics in the areas of nano-scale sciences, condensed matter, and materials.



Nuclear Physics Dissertation Award

Thomas I. Banks
University of California, Berkeley

Steven M. Clayton
University of Illinois, Urbana-Champaign

Citation: "For measurement of the rate of muon capture in hydrogen gas and determination of the proton's pseudoscalar coupling."

Thomas I. Banks received an A.B. in 1999 from Cornell University. Banks then entered graduate school at the University of California, Berkeley. In 2001 he joined the Berkeley group collaborating on the MuCap experiment, which sought to make a precision measurement of the muon capture rate in hydrogen gas in order to resolve the controversy surrounding the value of the nucleon's electroweak pseudoscalar coupling. Banks received a Ph.D. in 2007 for his dissertation describing the results of his analysis of the first MuCap data. Banks is currently a postdoctoral researcher at Berkeley, where he has developed a new calibration system for the KamLAND neutrino experiment and contributes to the CUORE neutrinoless double beta decay experiment.

Steven M. Clayton received a B.Sc. in physics from University of Minnesota in 1997. He earned



his Ph.D. in physics from the University of Illinois in 2007. At Illinois, Clayton performed an independent data analysis of the MuCap experiment—which measured the capture rate of the negative muon on the proton—after contributing to MuCap’s construction, commissioning, and first-physics data collection. After completion of his Ph.D., Clayton joined an effort to measure the electric dipole moment of the neutron (the nEDM collaboration) and became a postdoctoral researcher at Los Alamos National Laboratory, where he continues to work on nEDM as well as an experiment to measure the neutron beta decay asymmetry using ultracold neutrons.



Marshall N. Rosenbluth Outstanding Doctoral Thesis Award (2008)

Yang Ren
University of Wisconsin

Citation: “For experimental characterization of collisionless magnetic reconnection in a laboratory plasma, including the out-of-plane Hall effect magnetic field and the diffusive electron out-of-flow channel.”

Yang Ren received his bachelor’s degree in applied physics from the University of Science and Technology of China in 2000. He was awarded the Guo Moruo Scholarship, the highest honor for undergraduates, in 1999, and he received an excellent undergraduate thesis award in 2000. Ren did his Ph.D. thesis work at the magnetic Reconnection



eXperiment (MRX) in the Princeton Plasma Physics Laboratory, studying non-MHD effects during magnetic reconnection. His dissertation work experimentally verified the Hall Effect and identified the electron diffusion region during magnetic reconnection. Ren received his Ph.D. from Princeton University in 2007. Ren then joined the Madison Symmetric Torus (MST) group at the University of Wisconsin-Madison. He is currently studying magnetic turbulence in MST, particularly high frequency magnetic fluctuations.

Mitsuyoshi Tanaka Dissertation Award in Experimental Particle Physics

Ryan B. Patterson
California Institute of Technology

Citation: “A Search for Muon Neutrino to Electron Neutrino Oscillations at $\Delta m^2 > 0.1 \text{ (eV)}^2$.”

Ryan Patterson received a bachelor of science from the California Institute of Technology in 2000.

He received his Ph.D. in 2007 from Princeton University. His thesis work was completed on the MiniBooNE experiment at Fermilab, which looked to confirm or refute the unexplained neutrino oscillation signal hinted at by earlier results from the LSND experiment at Los Alamos. Patterson’s dissertation presented an analysis of MiniBooNE’s first complete neutrino data set. His analysis, which showed no evidence for LSND-like two-flavor oscillations, required the development of many calibration, simulation, and reconstruction techniques to achieve sufficient sensitivity to make a definitive statement. Patterson is now a Tolman Postdoctoral Scholar at Caltech, where he continues investigating the unknowns of the neutrino sector through two long-baseline neutrino experiments, MINOS and NOvA.



APS Council Announces 2008 APS Fellows

The APS Council elected the following as Fellows of the Society at its November 2008 meeting. The names and citations of the new APS fellows are listed below. Nominations for fellowship are received at the APS headquarters throughout the year, and are forwarded for review to the appropriate division, topical group or forum fellowship committees. The deadline 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://www.aps.org/programs/honors/fellowships/nominations.cfm>). Information for completing the form is available at (<http://www.aps.org/programs/honors/fellowships/nomination-requirements.cfm>).

Akerib, Daniel

Case Western Reserve University

Citation: For significant contributions to direct Dark Matter detection experiments, in particular for his work on the CDMS experiment. Nominated by: Particles and Fields (DPF)

Alam, Muhammad

Purdue University

Citation: For fundamental contributions to and innovative computational models for Electronic Transport in Spatially and Temporally Random Systems. Nominated by: Industrial and Applied Physics (FIAP)

Albers, Robert C.

Los Alamos National Laboratory

Citation: For his pioneering work on the theory of f-electron elements and materials, and its implementation of into robust computational methods for use by experimentalists to interpret Extended X-ray Absorption Fine Structure spectra. Nominated by: Computational Physics (DCOMP)

Aleiner, Igor

Columbia University

Citation: For important contributions to the theory of low-dimensional and mesoscopic conductors. Nominated by: Condensed Matter Physics (DCMP)

Alexandrov, Alexandre

Loughborough University

Citation: For important and broad-ranging contributions to the theory of correlated electron systems. Nominated by: Condensed Matter Physics (DCMP)

Anders, Andre

Lawrence Berkeley National Laboratory

Citation: For pioneering contributions to the physics and technology of cathodic arc plasmas and their applications. Nominated by: Plasma Physics (DPP)

Antiochos, Spiro

NASA/GSFC

Citation: In recognition of his far-reaching scientific contributions to solar astrophysics, among them several compelling models explaining a variety of phenomena originating in the interactions between magnetic fields and plasmas, and his service to the international solar and space physics communities. Nominated by: Plasma Astrophysics (GPAP)

Argyriou, Dimitri

Hahn-Meitner Inst Berlin

Citation: For important applications of neutron and x-ray scattering which reveal the relationships between crystal and magnetic structure and physical properties in perovskite-based CMR. Nominated by: Condensed Matter Physics (DCMP)

Baksay, Laszlo

Florida Institute of Technology

Citation: For his contributions to high energy physics, leadership of international collaborations especially in bringing the Hungarian physics community into the international enterprise, innovations and activities in science education and many efforts for the APS international program and the Forum on International Physics. Nominated by: International Physics (FIP)

Baldwin, Kenneth

Australian National University

Citation: For seminal contributions to quantum-atom optics and precision laser spectroscopy, organization of major international efforts to study these problems, and outstanding professional leadership. Nominated by: International Physics (FIP)

Barkley, Dwight

University of Warwick

Citation: For combining computation and dynamical systems analyses to obtain remarkable insights into hydrodynamic instabilities and patterns in diverse systems, including flow past a cylinder, channel flow, laminar-turbulent bands, and thermal convection. Nominated by: Fluid Dynamics (DFD)

Basaran, Osman A.

Purdue University

Citation: For computational, theoretical, and experimental work on improving fundamental understanding of pinch-off singularities, drop formation, and electrohydrodynamics, and for development of nonstandard inkjet printing applications. Nominated by: Fluid Dynamics (DFD)

Batelaan, Herman

University of Nebraska

Citation: For outstanding contributions to electron matter optics, in particular the measurements of the Kapitza-Dirac effect and elucidation of the Aharonov-Bohm effect. Nominated by: Atomic, Molecular, & Optical Physics (DAMOP)

Baur, Ulrich

SUNY-Buffalo

Citation: For contributions to precision electroweak physics, especially the phenomenology of electroweak gauge bosons at hadron colliders. Nominated by: Particles and Fields (DPF)

Beaucage, Gregory

University of Cincinnati

Citation: For development of the unified scattering function and related work in small angle scattering from disordered materials

and polymers. Nominated by: Polymer Physics (DPOLY)

Belcher, John

Massachusetts Institute of Technology

Citation: For developing 3D electromagnetic field visualization tools and for the creation and large-scale implementation of a studio-based, active learning version of introductory physics, TEAL. Nominated by: Education (FEd)

Beltram, Fabio

Scuola Normale Superiore

Citation: For major contributions to nanophysics, including studies of semiconductor nanostructures and in molecular biophysics, and for leadership in promoting the international reach of Italian research. Nominated by: International Physics (FIP)

Ben-Naim, Eli

Los Alamos National Laboratory

Citation: For broad contributions to granular physics, traffic flows, and non-equilibrium statistical physics. Nominated by: Condensed Matter Physics (DCMP)

Benz, Samuel

NIST

Citation: For inventing and developing the first Josephson junction array arbitrary waveform synthesizer and using it as a practical quantum-based ac voltage standard. Nominated by: Instrument & Measurement Science (GIMS)

Berman, Michael

Air Force Office of Science Research

Citation: For his outstanding leadership, advocacy, and support of physical science research and for fostering and developing innovative and visionary multidisciplinary partnerships. Nominated by: Physics and Society (FPS)

Biferale, Luca

University Tor Vergata

Citation: For his original applications of multifractal concepts, numerical simulations, and models to obtain insight into the dynamics of fully developed turbulence. Nominated by: Statistical & Nonlinear Physics (GSNP)

Blaum, Klaus

Max-Planck-Institut für Kernphysik

Citation: For contribution to high-precision experiments with cooled and stored ions, especially high-precision mass spectrometry on highly-charged ions and short-lived radio-nuclides, and laser spectroscopy and magnetic moment measurements for fundamental studies. Nominated by: Precision Measurement and Fundamental Constants (GPMFC)

Bless, Stephen

Institute of Advance Technology

Citation: For experimental and analytical studies of dynamic failure in poly-crystalline ceramics, glasses, and heavy metals, and the application of those results to improved understanding of armor/anti-armor phenomena. Nominated by: Shock Compression of Condensed Matter (GSCCM)

Brown, Michael R.

Swarthmore College

Citation: For experimental studies of magnetic reconnection and for unusual mentoring skills, especially training undergraduates to be skilled researchers in plasma physics. Nominated by: Plasma Physics (DPP)

Brunger, Michael

Flinders University

Citation: For benchmark measurements of electron scattering from molecules, specifically concerning absolute collision cross sections and electron momentum spectroscopy. Nominated by: Atomic, Molecular, & Optical Physics (DAMOP)

Bruschweiler, Rafael

Florida State University

Citation: For fundamental contributions to methodology and applications of nuclear magnetic resonance spectroscopy in combination with novel computational approaches for the dynamic characterization of proteins in solution. Nominated by: Biological Physics (DBP)

Burrows, Philip

University of London

Citation: For his leading contributions to precision studies of quantum chromodynamics in the light and heavy quark sectors, based on polarized Z0 decays recorded with the SLD experiment at SLAC. Nominated by: Particles and Fields (DPF)

Caldwell, Robert

Dartmouth College

Citation: For his numerous contributions to theoretical cosmology, particularly those on pioneering ideas for dark energy. Nominated by: Astrophysics (DAP)

Carlip, Steven

University of California, Davis

Citation: For contributions to black hole physics and to gravity in 2+1 dimensions. Nominated by: Gravitation (GGR)

Cebe, Peggy

Tufts University

Citation: For use of heat capacity, dielectric relaxation, and X-ray scattering to study semicrystalline polymer and biopolymer materials, and for work with Deaf and hard of hearing students.

Nominated by: Condensed Matter Physics (DCMP)

Chakraborty, Bulbul

Brandeis University

Citation: For important theoretical contributions to diverse areas of condensed matter physics, including frustrated magnets, diffusion of light particles in metals, the glass transition, and jamming in granular systems. Nominated by: Condensed Matter Physics (DCMP)

Chamon, Claudio

Boston University

Citation: For his important theoretical work on the probing of fractional charge and statistics in strongly correlated systems. Nominated by: Condensed Matter Physics (DCMP)

Chandrasekhar, Venkat

Northwestern University

Citation: For significant contributions to transport in mesoscopic systems. Nominated by: Condensed Matter Physics (DCMP)

Chang, Zenghu

Kansas State University

Citation: For contributions to the development of femtosecond x-ray streak cameras, to the stabilization of the carrier-envelope phase of high-power lasers, and to the generation of high-order harmonics and attosecond pulses. Nominated by: Laser Science (DLS)

Chen, Jian-Ping

Thomas Jefferson National Accelerator Facility

Citation: For his contributions to understanding the spin structure of the neutron, through the use of a polarized Helium-3 target. Nominated by: Hadronic Physics (GHP)

Chen, Long-Qing

Pennsylvania State University

Citation: For pioneering contributions to the field of computational materials physics in developing models for mesoscale microstructure evolution during solid-state phase transformations. Nominated by: Materials Physics (DMP)

Cheshnovsky, Ori

Tel Aviv University

Citation: For establishing negative ion photoelectron spectroscopy as a central tool for the investigation of electronic states in mass-selected clusters. Nominated by: Laser Science (DLS)

Childress, William S.

New York University

Citation: For pioneering contributions to dynamo theory, geophysical fluid dynamics and biological fluid mechanics including locomotion. Nominated by: Fluid Dynamics (DFD)

Ching, Wai-Yim

University of Missouri

Citation: For his contributions to the theory and methods of electronic structure and spectroscopic properties of materials, especially in complex ceramic crystals and their microstructures including grain boundaries, interfaces and defects. Nominated by: Materials Physics (DMP)

Chu, Paul K.

City University of Hong Kong

Citation: For seminal contributions to the understanding of plasma - materials interactions as well as development and applications of innovative plasma-based surface modification and materials synthesis technologies and instrumentation. Nominated by: Plasma Physics (DPP)

Coe, James V.

Ohio State University, Columbus

Citation: For his pioneering work in the study of hydrated electron clusters, ion solvation, ion absorption spectroscopy, cation/anion recombination, doubly-charged fullerene anions, and surface-plasmon mediated transmission of metal microarrays. Nominated by: Chemical Physics (DCP)

Conway, John S.

University of California, Davis

Citation: For outstanding contributions in the search for the Higgs boson and physics beyond the Standard Model at high energy particle accelerators. Nominated by: Particles and Fields (DPF)

Costley, Alan

ITER Organization

Citation: For his pioneering contributions to the physics understanding of electron cyclotron emission in fusion plasmas, and his outstanding leadership in developing the plasma diagnostic systems for ITER. Nominated by: Plasma Physics (DPP)

Covello, Aldo

Univ. di Napoli Federico II

Citation: For perfecting the theory of pairing correlations, for showing that the nucleon-nucleon potential leads to predictions for nuclei far from stability, and for his outstanding contributions to the international nuclear physics community by providing, for over two decades, a venue for theorists and experimentalists to share their latest ideas. Nominated by: International Physics (FIP)

Coverdale, Christine

Sandia National Laboratory

Citation: For exceptional experimental achievements in both la-

ser and z-pinch plasma physics, dedicated service to the professional community, and leadership in promoting laboratory and university collaborations. Nominated by: Plasma Physics (DPP)

Crowell, Paul

University of Minnesota

Citation: For the application of elegant optical and transport techniques to the study of spin dynamics and transport in metals and semiconductors and experiments probing the excitation spectra of inhomogeneously magnetized systems, particularly magnetic vortices. Nominated by: Magnetism & Its Applications (GMAG)

Dahl, Jens

Technical University of Denmark

Citation: For his pioneering work on quantum chemistry and its interplay with Wigner phase-space including fundamental questions of quantum mechanics such as the spinning electron. Nominated by: Atomic, Molecular, & Optical Physics (DAMOP)

Dai, Pengcheng

University of Tennessee

Citation: For his contribution to understand fundamental properties of magnetic excitations in high-transition temperature superconductors, f-electron heavy Fermions, and colossal magneto-resistance manganites. Nominated by: Magnetism & Its Applications (GMAG)

Danielewicz, Pawel

Michigan State University

Citation: For outstanding contributions to the theory of quantum transport, particle production in nuclear collisions, the nuclear equation of state and the development of important new methods of analyzing experimental data. Nominated by: Nuclear Physics (DNP)

Deen, M. Jamal

McMaster University

Citation: For significant contributions to noise and physics-based modeling of semiconductor devices and innovations in experiments. Nominated by: Industrial and Applied Physics (FIAP)

Derevianko, Andrei

University of Nevada

Citation: For elucidating the role of the Breit interaction in atomic parity non-conservation, demonstrating the importance of higher-order non-dipole corrections in low-energy photoionization, and for pioneering calculations of higher-order many-body corrections to atomic energies and matrix elements. Nominated by: Atomic, Molecular, & Optical Physics (DAMOP)

Devereaux, Thomas

Stanford University

Citation: For significant contributions to the theories of inelastic light scattering and angle-resolved photoemission spectroscopies in strongly correlated systems. Nominated by: Condensed Matter Physics (DCMP)

Diddams, Scott

NIST

Citation: For major contributions to the development of optical frequency comb technology, and particularly for pioneering demonstrations of frequency combs in optical clocks, high resolution spectroscopy, and tests of basic physics. Nominated by: Laser Science (DLS)

Domaradzki, Julian A.

University of Southern California

Citation: For insightful contributions to the development of subgrid-scale algorithms for computational fluid dynamics and for their use to illuminate the physics of the energy transfer between eddy scales in large eddy simulations of turbulent flow fields. Nominated by: Fluid Dynamics (DFD)

Dowling, Jonathan P.

Louisiana State University

Citation: For major contributions to quantum optics as it pertains to the development of the theory of atomic emission rates and nonlinear switching in photonic crystals, as well as seminal contributions to quantum metrology and imaging, especially the invention of quantum lithography. Nominated by: Atomic, Molecular, & Optical Physics (DAMOP)

Doyle, Mark D.

American Physical Society

Citation: In recognition of his distinguished and dedicated service to electronic access and communication of physics results to the community, and for his essential role in making the APS Journals from 1893 to the present available on our desktops. Nominated by: APS

Elber, Ron

University of Texas, Austin

Citation: For contributions to computational chemical physics, through the development and application of algorithms and theories for the static and dynamic behavior of macromolecules, including methods for the simulation of long time events in complex systems. Nominated by: Chemical Physics (DCP)

Engheta, Nader

University of Pennsylvania

Citation: For development of concepts of metamaterial-inspired optical lumped nanocircuits, and for ground breaking contribu-

tions to the fields of metamaterials, plasmonic nano-optics, biologically-inspired imaging, and electrodynamics. Nominated by: Laser Science (DLS)

Fan, Shanhui

Stanford University

Citation: *Contributions to the theory and applications of nano-photonic structures and devices, including photonic crystals, plasmonics and meta-materials.* Nominated by: Laser Science (DLS)

Fasoli, Ambrogio

EPFL-Lausanne

Citation: *For fundamental experimental research on plasma wave phenomena including the dynamics of Alfvén wave eignemodes in Tokamaks.* Nominated by: Plasma Physics (DPP)

Forest, Cary

University of Wisconsin

Citation: *For broad and fundamental advances in plasma physics, from electromagnetic wave propagation and transport processes in fusion plasmas to dynamo effects underlying geomagnetic and astrophysical magnetic field generation.* Nominated by: Plasma Physics (DPP)

Forgacs, Gabor

University of Missouri

Citation: *For his original contributions to the elucidation of physical mechanisms in early morphogenesis, intracellular signaling, establishment of the technology of organ printing, as well as for his synergistic and educational activity to bridge the gap between the physical and life sciences.* Nominated by: Biological Physics (DBP)

Forrest, James A.

University of Waterloo

Citation: *For pioneering work in the dynamics of confined polymers and polymer surfaces.* Nominated by: Polymer Physics (DPOLY)

Forrest, Stephen

University of Michigan

Citation: *For contributions to the fundamental understanding of the thin film growth, and physics of excitons in organic materials, leading to the demonstration of high efficiency organic light emitting devices, organic photovoltaics and organic lasers.* Nominated by: Materials Physics (DMP)

Fox, John

SLAC

Citation: *For leadership in developing instrumentation and instability control systems for colliders and light sources, for applying control formalism to accelerator problems, and for developing novel beam instruments and new formalisms.* Nominated by: Physics of Beams (DPB)

Fredrickson, Eric

Princeton University

Citation: *For many contributions to the physics of MHD instabilities in tokamaks, including pioneering experimental studies of magnetic reconnection, ballooning modes, resistive instabilities, and fast-ion-driven Alfvén instabilities.* Nominated by: Plasma Physics (DPP)

Fryer, Chris

Los Alamos National Laboratory

Citation: *For his leadership in and contributions to theoretical and computational high energy astrophysics through multidimensional simulations that demonstrated the importance of three-dimensional convection and neutrino transport in core-collapse supernovae explosions.* Nominated by: Astrophysics (DAP)

Fu, Chong Long

Oak Ridge National Laboratory

Citation: *For outstanding contributions to the fundamental understanding of the electronic, magnetic, and structural properties of metallic and intermetallic systems based on accurate first-principles calculations and to the development of novel high temperature intermetallics and nanocluster strengthened alloys for structural applications.* Nominated by: Materials Physics (DMP)

Garfinkle, David

Oakland University

Citation: *For his numerous contributions to a wide variety of topics in relativity and semiclassical gravity.* Nominated by: Gravitation (GGR)

Geisel, Theo

MPI for Dynamics & Self-Organization

Citation: *For pioneering and sustained contributions to our understanding of transport in classic and quantum chaotic dynamical systems, and for applying this understanding to a broad range of real-world problems.* Nominated by: Statistical & Nonlinear Physics (GSNP)

Goedecker, Stefan A.

University of Basel

Citation: *For his pioneering development of efficient linear scaling and low complexity algorithms for electronic structure calculations and atomic simulations.* Nominated by: Computational Physics (DCOMP)

Goldberg, Bennett

Boston University

Citation: *For the development and application of nanoscale optical spectroscopy to semiconductors and biological systems and for the commitment to improving urban education.* Nominated by: Condensed Matter Physics (DCMP)

Golowich, Eugene

University of Massachusetts

Citation: *For extensive contributions to the development and understanding of the Standard Model, particularly through the calculations elucidating the interplay of the strong and weak interactions and the application of chiral and dispersive methods.* Nominated by: Particles and Fields (DPF)

Goodman, Maury C.

Argonne National Laboratory

Citation: *For pioneering contributions to experimental neutrino physics, especially the initiation of worldwide programs of accelerator long-baseline neutrino oscillation experiments and of the new generation of reactor experiments to measure the theta-13 neutrino mixing parameter.* Nominated by: Particles and Fields (DPF)

Goyal, Amit

Oak Ridge National Laboratory

Citation: *For leadership and pioneering contributions to the invention, research, and development of high-performance, high temperature superconducting (HTS) wires, culminating in over 50 issued patents and the subsequent technology transfer to the industry.* Nominated by: Industrial and Applied Physics (FIAP)

Guazzelli, Elisabeth

CNRS-Paris

Citation: *For extensive and careful experiments revealing complex phenomena in mobile particulate systems.* Nominated by: Fluid Dynamics (DFD)

Gurevich, Alexander V.

Florida State University

Citation: *For significant contributions to the theory of super-conductivity, particularly the effect of crystalline defects on critical currents, vortex dynamics, and upper critical fields of high-temperature superconductors and MgB₂.* Nominated by: Condensed Matter Physics (DCMP)

Hammack, William S.

University of Illinois, Urbana-Champaign

Citation: *For enhancing public awareness about physics, science, and technology via his radio commentaries and for his governmental service at the State Department.* Nominated by: Physics and Society (FPS)

Hansmann, Ulrich H.

Michigan Technological University

Citation: *For pioneering protein simulations, innovative contributions to computational algorithms and their applications to Biological Physics.* Nominated by: Computational Physics (DCOMP)

Harris, Richard

NIST

Citation: *For creating remarkable and practical measurements and standards based on superconducting integrated circuits through technical leadership and personal contributions.* Nominated by: Industrial and Applied Physics (FIAP)

Hasenfratz, Anna

University of Colorado

Citation: *For her studies of nonperturbative behavior in quantum field theory, including quantum chromodynamics and models for electroweak symmetry breaking, using lattice discretization and renormalization group methods.* Nominated by: Particles and Fields (DPF)

Hayes, Dennis

Retired

Citation: *For pioneering work into the nature of shock wave induced phase transitions in a broad range of materials and the development of multi-phase equations-of-state (EOS) for materials that can be used in computer codes for large scale simulations.* Nominated by: Shock Compression of Condensed Matter (GSCCM)

Heinson, Ann

University of California, Riverside

Citation: *For leadership in the search for single top quark production and significant contributions to experimental single top quark physics.* Nominated by: Particles and Fields (DPF)

Hengehold, Robert

Air Force Institute of Technology

Citation: *For pioneering contributions to semiconductor material characterization, over 30 years of distinguished and dedicated leadership in the development of graduate applied physics programs for military officers, and service to the physics community through APS sectional meetings specifically on applied and industrial physics.* Nominated by: Industrial and Applied Physics (FIAP)

Horowitz, Charles J.

Indiana University

Citation: *For seminal and sustained contributions to relativistic descriptions of nuclei, nuclear reactions, and dense matter.* Nominated by: Nuclear Physics (DNP)

Hughes, John P.

Rutgers University

Citation: *For seminal contributions to the development of the Chandra X-ray Observatory and for pioneering studies of the origin of Galactic cosmic rays using the structure and evolution of supernova remnants.* Nominated by: Astrophysics (DAP)

Hwa, Terence

University of California, San Diego

Citation: *For fundamental investigations into the statistical physics underlying molecular biology, especially including transcriptional regulation.* Nominated by: Biological Physics (DBP)

Hwang, Robert

Sandia National Laboratory

Citation: *For his pioneering experiments on metal-on-metal epitaxy leading to fundamental advances in the understanding the structure of thin metal films, and for his exceptional service in the advocacy of nanoscience in the United States.* Nominated by: Materials Physics (DMP)

Imai, Takashi

McMaster University

Citation: *For important studies of quantum magnetism and superconductivity using NMR techniques.* Nominated by: Condensed Matter Physics (DCMP)

Jain, Ravinder K.

University of New Mexico

Citation: *For pioneering contributions in several areas of applied physics, including discovery of plasmon-mediated light-emission from tunnel junctions, seminal studies of nonlinear optics in semiconductors and optical fibers, and the invention of several important ultrashort pulse lasers and fiber lasers.* Nominated by: Industrial and Applied Physics (FIAP)

Judd, O.

Retired

Citation: *For outstanding, seminal contributions to the understanding and development of high power/energy gas lasers and their applications to laser function, laser chemistry, and national defense.* Nominated by: APS

Kailasanath, Kazhikathra

Naval Research Lab

Citation: *For contributions to advanced computational techniques and basic understanding of the dynamics of chemically reactive flows and their application in design, analysis, and performance of propulsion concepts.* Nominated by: Fluid Dynamics (DFD)

Kalogera, Vassiliki

Northwestern University

Citation: *For fundamental contributions to understanding the structure, formation and evolution of compact objects in binary systems, using X-ray and radio observations to study their importance for gravitational wave detectors.* Nominated by: Astrophysics (DAP)

Kamionkowski, Marc P.

Caltech

Citation: *For pioneering contributions to theoretical cosmology, including investigations of supersymmetry-inspired candidates for dark matter and of the use precise measurements of the cosmic microwave background and gravitational waves to test cosmological models.* Nominated by: Particles and Fields (DPF)

Kammel, Peter

University of Illinois, Urbana-Champaign

Citation: *For scientific leadership and development of novel experimental techniques related to muon capture, muon catalyzed fusion and other precision muon and antiproton measurements.* Nominated by: Nuclear Physics (DNP)

Kennefick, Daniel

University of Arkansas

Citation: *For his enthusiastically reviewed book, “Traveling at the Speed of Thought,” for his associate editorship of the Einstein papers and for his articles including “Einstein versus the Physical Review.”* Nominated by: History of Physics (FHP)

Kes, Peter

Leiden University

Citation: *For his outstanding contributions to physics of vortex matter in disordered superconductors.* Nominated by: Condensed Matter Physics (DCMP)

Khomskii, Daniel

University of Koeln

Citation: *For important contributions to the theory of strongly correlated electron systems, especially the study of orbital ordering.* Nominated by: Condensed Matter Physics (DCMP)

Kneisel, Peter

Thomas Jefferson National Accelerator Facility

Citation: *For pioneering contributions to superconducting rf science and technology through a wide range of research and development advances.* Nominated by: Physics of Beams (DPB)

Kodama, Ryosuke

Osaka University

Citation: *For unique and original studies on fast ignition and pioneering effort on high energy plasma photonics.* Nominated by: Plasma Physics (DPP)

Kondo, Jun

21st Century Medicine Inc

Citation: *For the discovery of the mechanism for the resistance minimum in metals with magnetic impurities, universally known as “the Kondo effect”.* Nominated by: Condensed Matter Physics (DCMP)

Konigsberg, Jacobo

University of Florida

Citation: *For his contributions to the discovery and studies of the Top quark, and for his leadership in the CDF experiment.* Nominated by: Particles and Fields (DPF)

Koochesfahani, Manoochehr M.

Michigan State University

Citation: *For his pioneering contributions to the development of experimental techniques including laser induced fluorescence, molecular tagging velocimetry and thermometry, and quantum dot imaging, and for his fundamental studies of turbulent mixing.* Nominated by: Fluid Dynamics (DFD)

Kotwal, Ashutosh

Duke University

Citation: *For his precision measurements of the mass of the W boson at the Tevatron.* Nominated by: Particles and Fields (DPF)

Krausch, Georg

Johannes-Gutenberg University

Citation: *For his insightful research on the thin film behavior of block copolymers and polymer mixtures.* Nominated by: Polymer Physics (DPOLY)

Kravchenko, Sergey

Northeastern University

Citation: *For significant contributions to the field of metal-insulator transitions of electrons confined to two dimensions in silicon.* Nominated by: Condensed Matter Physics (DCMP)

Krennrich, Frank

Iowa State University

Citation: *For scientific contributions and the development of sensitive instrumentation in high energy gamma-ray astrophysics.* Nominated by: Astrophysics (DAP)

Krishnamoorti, Ramanan

University of Houston

Citation: *For outstanding contributions to polymer thermodynamics, and structure and properties of polymer nanocomposites.* Nominated by: Polymer Physics (DPOLY)

Kroll, I. Joseph

University of Pennsylvania

Citation: *For major contributions to the observation and measurement of Bs-Bsbar mixing, including early recognition of the importance of the measurement, proposal and construction of the CDF time-of-flight system to improve particle identification, studies of B-tagging, and leadership during the final phases of the measurement.* Nominated by: Particles and Fields (DPF)

Kusenko, Alexander

University of California, Los Angeles

Citation: *For original and seminal contributions to particle physics, astrophysics, and cosmology, as the inventor of super-symmetric Q-balls, proposer of mechanisms for neutrino-driven pulsar recoil, proponent of sterile neutrinos as dark matter, and valued contributor to theories of baryogenesis and ultrahigh-energy cosmic rays.* Nominated by: Particles and Fields (DPF)

Kyrala, George

Los Alamos National Laboratory

Citation: *For outstanding experimental and theoretical contributions to understanding ionization and excitation processes in matter, and for pioneering efforts in developing and using x-ray produced by short-pulse laser matter interactions in ICF and high energy density physics experiments.* Nominated by: Plasma Physics (DPP)

Laguna, Pablo

Georgia Institute of Technology

Citation: *For his various contributions to numerical relativity and computational astrophysics.* Nominated by: Astrophysics (DAP)

Lanzara, Alessandra

University of California, Berkeley

Citation: *For important contributions to the physics of highly correlated materials using photoemission spectroscopy.* Nominated by: Condensed Matter Physics (DCMP)

Li, Qi

Pennsylvania State University

Citation: *For her seminal contributions to the development and understanding of high T_c superconducting superlattices, novel magnetoresistance in strained ferromagnetic oxides, and superconductivity in magnesium diboride thin films.* Nominated by: Materials Physics (DMP)

Lister, John

University of Cambridge

Citation: *Manifold contributions to the dynamics of free-surface flows, their singular structures, and applications to flows and transport processes relevant to the earth sciences.* Nominated by: Fluid Dynamics (DFD)

Ludlam, Thomas W.

Brookhaven National Laboratory

Citation: *For his contribution to the establishment of the scientific program for the Relativistic Heavy Ion Collider at Brookhaven National Laboratory and for his leadership in the design and construction of the RHIC detectors.* Nominated by: Nuclear Physics (DNP)

Lueptow, Richard M.

Northwestern University

Citation: *For careful experiments and simulations in a broad range of areas including granular flow, Taylor Couette flow, physical acoustics, turbulent flow, membrane filtration, and sprays as well as noteworthy service to the Division of Fluid Dynamics.* Nominated by: Fluid Dynamics (DFD)

Luke, Graeme

McMaster University

Citation: *For the study of exotic magnetism and superconductivity using muon spin rotation techniques.* Nominated by: Condensed Matter Physics (DCMP)

Luzar, Alenka

Virginia Commonwealth University

Citation: *For her elegant and pioneering contributions to fundamental theory of aqueous interfaces, dynamics of hydrogen bonds in condensed phase systems, phase behavior of confined water, and kinetics of aqueous self-assembly.* Nominated by: Chemical Physics (DCP)

MacKinnon, Andy

Lawrence Livermore National Laboratory

Citation: *For pioneering experimental studies of interactions of intense laser pulses with matter and in particular, the physics and applications of short pulse laser driven proton beams.* Nominated by: Plasma Physics (DPP)

Malik, Mujeeb R.

NSAS/Langley Research Center

Citation: *For pioneering contributions to the understanding of the breakdown of cross flow vortices in three-dimensional boundary layers, attachment-line and hypersonic boundary layer instability including real gas effects, and developing physics-based methods for the prediction of laminar-turbulent transition.* Nominated by: Fluid Dynamics (DFD)

Malka, Victor

ENSTA

Citation: *For important experimental contributions to the development of compact laser plasma accelerators and non-linear laser-plasma interactions.* Nominated by: Plasma Physics (DPP)

Marder, Seth R.

Georgia Institute of Technology

Citation: *For seminal contributions to the understanding of the relationship between molecular structure and nonlinear optical properties of organic materials.* Nominated by: Materials Physics (DMP)

Markert, John

University of Texas

Citation: *For the synthesis and study of magnetic and superconducting materials, particularly electron-doped copper-oxide superconductors.* Nominated by: Condensed Matter Physics (DCMP)

Mason, Thomas G.

University of California, Los Angeles

Citation: *For pioneering the approach of microrheology of complex fluids based on the thermal diffusion of probe colloids.* Nominated by: Condensed Matter Physics (DCMP)

Matsen, Mark W.

University of Reading

Citation: *For seminal contributions to the development and implementation of the self-consistent field theory for block-copolymer materials and polymeric brushes.* Nominated by: Polymer Physics (DPOLY)

Matveev, Konstantin

Argonne National Laboratory

Citation: *For fundamental contributions to the physics of mesoscopic systems, including the theory of Coulomb blockade, and of transport and tunneling in quantum dots and quantum wires.* Nominated by: Condensed Matter Physics (DCMP)

McGuire, Stephen C.

Southern University and A&M College

Citation: *For his leadership in exploring new ways for research physicists, traditional educators and museum professionals to work together to engage students and the public, particularly under-represented groups, in the excitement of physics.* Nominated by: Education (FEd)

probe microscopy and other nanotechnology platforms for the analysis, manipulation and measurements at the nanoscale and of molecular components and for the elucidation of the fundamental physical principles underlying these systems. Nominated by: Instrument & Measurement Science (GIMS)

Nam, Chang H.

Korea Advance Institute of Science & Technology

Citation: For contributions to the theory and experiments of physical processes of high harmonic generation for the development of attosecond coherent x-ray sources and related femtosecond laser technology. Nominated by: Laser Science (DLS)

Nealey, Paul

University of Wisconsin

Citation: For fundamental and insightful research on the dimension dependent properties of polymer nanostructures, the directed self-assembly of block copolymers, and their application in the development of advanced lithographic materials and processes. Nominated by: Polymer Physics (DPOLY)

Neumann, Dan A.

NIST

Citation: For seminal studies of the structure and dynamics of new carbon-based materials and critical leadership serving the U.S. neutron scattering community. Nominated by: Materials Physics (DMP)

Newman, Harvey B.

Caltech

Citation: For pioneering contributions to the discovery of the gluon, precision electroweak measurements and searches for new particles, and for innovations in detector instrumentation, computing and networks that serve the global science community. Nominated by: Particles and Fields (DPF)

Nico, Jeffrey S.

NIST

Citation: In recognition of his contributions and leadership in precision measurements and fundamental symmetry tests using cold neutrons, and his contributions to radiochemical determinations of the p-p fusion solar neutrino flux. Nominated by: Nuclear Physics (DNP)

Noh, Tae Won

Seoul National University

Citation: For his contributions to the understanding of oxide ferroelectric thin films and optical properties of oxides with strong electron correlations. Nominated by: Materials Physics (DMP)

Onel, Yasar

University of Iowa

Citation: For significant contributions to particle physics, organizing many international particle physics experiments and conferences, and inspiring and mentoring students from the US and developing countries. Nominated by: International Physics (FIP)

Orlandi, Paolo

University of Roma

Citation: For his contributions to the study of turbulence, vortex dynamics, and other areas of fluid mechanics, in particular through the application of low-order energy-conserving finite-difference numerical techniques. Nominated by: Fluid Dynamics (DFD)

Othmer, Hans

University of Minnesota

Citation: For fundamental contributions to the mathematical modeling of spatio-temporal phenomena in biology, leading to the development of new mathematics and yielding important insights into biology. Nominated by: Biological Physics (DBP)

Palffy-Muhoray, Peter

Kent State University

Citation: In recognition of his creative explorations and contributions to the understanding of light-matter interactions in liquid crystalline systems. Nominated by: Condensed Matter Physics (DCMP)

Pancheri-Srivastava, Giulia

INFN Lab Natl of Frascati

Citation: For her leadership in establishing an international network in theoretical and experimental particle physics at the DAPHNE phi-factory, and for her leading several networks of researchers from European universities for the training of young researchers. Nominated by: International Physics (FIP)

Pande, Vijay

Stanford University

Citation: For far-reaching contributions to the quantitative distributed simulation, analysis, and understanding of kinetics and thermodynamics of biomolecular conformations and interactions, especially in the areas of protein folding and the role of water in confined environments. Nominated by: Biological Physics (DBP)

Parker, Scott E.

University of Colorado

Citation: For seminal contributions to the numerical simulation of plasmas, including simulations demonstrating the ballooning-like structure of ITG turbulence, gyrokinetic particle simulations at realistic plasma beta, and gyrokinetic/MHD hybrid simulations. Nominated by: Plasma Physics (DPP)

Parsons, John

Columbia University

Citation: For his many contributions to the electronics of the ZEUS and D0 experiments and for his leading role in the calorimeter readout electronics and the management of the ATLAS experiment. Nominated by: Particles and Fields (DPF)

Pate, Brooks H.

University of Virginia

Citation: Brooks H. Pate is recognized for his contributions to understanding intramolecular vibrational dynamics and for the development of laser- and microwave spectroscopy techniques to probe molecular kinetics by dynamic rotational spectroscopy. Nominated by: Chemical Physics (DCP)

Pernisz, Udo

Dow Corning Corporation

Citation: For his contributions to making siloxane resins a commercial success as spin-on dielectrics in the IC industry, and his investigations of the luminescence of Si-containing organic and inorganic compounds that led to the development of novel materials for photonics applications. Nominated by: Industrial and Applied Physics (FIAP)

Petford-Long, Amanda

Argonne National Laboratory

Citation: For incisive electron microscopy and atom probe microscopy studies of structure-property relationships in thin films and nanostructures, with emphasis on magnetic nanostructures with applications in information storage technology. Nominated by: Materials Physics (DMP)

Petratos, Gerassimos

Kent State University

Citation: For numerous contributions to high energy electromagnetic physics, including the SLAC nucleon spin physics program, and the SLAC and Jefferson Lab few-body physics

programs. Nominated by: Nuclear Physics (DNP)

Phillips, Daniel

Ohio University

Citation: For his research on effective hadronic theories of few-nucleon systems, especially on the role of the Delta(1232) and the description of electromagnetic reactions on light nuclei, and their application in obtaining reliable information on neutron properties from experimental data. Nominated by: Few-Body Systems & Multiparticle Dynamics (GFB)

Phillipot, Simon R.

University of Florida

Citation: For sustained contributions to developing microscopic mechanistic understanding of interfacial phenomena in materials using atomic-level simulations methods, in particular thermal transport behavior. Nominated by: Materials Physcis (DMP)

Piecuch, Piotr

Michigan State University

Citation: For his outstanding contributions to electronic structure and quantum many-body theories, in particular developments in coupled-cluster theory, important advances in understanding molecular properties, chemical reactivities and intermolecular interactions as well as nuclear structure, through discerning use of computational methods. Nominated by: Chemical Physics (DCP)

Plesniak, Michael

Purdue University

For fundamental contributions to understanding complex turbulent shear flows including the effects of curvature, multiple strain rates, three-dimensional boundary layers, and non-canonical jets in crossflow. Nominated by: Fluid Dynamics (DFD)

Ploszajczak, Marek

Grand Accel Natl d’ions Lourds

Citation: For his seminal contributions to studies of open quantum systems, his formulation and implementation of the continuum shell model and Gamow Shell Model, and their use to describe weakly bound nuclear states and resonances. Nominated by: Nuclear Physics (DNP)

Poisson, Eric

University of Guelph

Citation: For important contributions to the theory of gravitational radiation from compact bodies orbiting black holes, to the theory of back-reaction of the emitted radiation on their motions, and to understanding the implications for gravitational-wave detection. Nominated by: Gravitation (GGR)

Porto, James V.

NIST

Citation: For seminal studies of ultra-cold atoms in optical lattices with applications to quantum information, many-body physics, and condensed matter models, and for the invention of optical lattice techniques including a super-lattice for patterned loading, and a re-configurable lattice of double wells. Nominated by: Atomic, Molecular, & Optical Physics (DAMOP)

Prezhdo, Oleg

University of Washington

Citation: Development of novel methodology for quantum mechanical dynamics with applications to elucidate chemical behavior in complex systems. Nominated by: Chemical Physics (DCP)

Qian, Yongzhong

University of Minnesota

Citation: For contributions to theoretical nuclear astrophysics, including the production of heavy elements via the rapid neutron capture process and to theoretical studies of collective neutrino flavor transformations in supernovae. Nominated by: Nuclear Physics (DNP)

Rao, Apparao M.

Clemson University

Citation: For developing methods of synthesizing carbon nanotubes with controlled morphologies, and for elucidating the properties of carbon nanotubes and photopolymerized C60 through Raman spectroscopy. Nominated by: Materials Physics (DMP)

Rao, Triveni

Brookhaven National Laboratory

Citation: For pioneering work on metal photo cathodes for high brightness RF injectors. Nominated by: Physics of Beams (DPB)

Reddy, Sanjay K.

Los Alamos National Laboratory

Citation: For fundamental contributions to our understanding of the roles of strangeness and superfluidity in dense matter, and their effects on neutrino transport in neutron stars and supernovae. Nominated by: Nuclear Physics (DNP)

Ren, Fan

University of Florida

Citation: For contributions to the development of device processing technologies for compound semiconductor devices based on GaAs, InP, ZnO and GaN. Nominated by: Industrial and Applied Physics (FIAP)

Robertson, Norna

Stanford University

Citation: For pioneering work in the field of interferometric gravitational wave detection, especially in the domain of the suspension and isolation of the test masses. Nominated by: Gravitation (GGR)

Rosenberg, Eli

Lawrence Berkeley National Laboratory

Citation: For outstanding contributions to the understanding of quantum electronic properties of nanophase and reduced dimensionality systems by creative applications of angle-resolved photoemission spectroscopy. Nominated by: Condensed Matter Physics (DCMP)

Rothstein, Ira Z.

Carnegie Mellon University

Citation: For contributions to the development of modern effective field theories, and applications to flavor physics, quarkonia and gravitational waves. Nominated by: Particles and Fields (DPF)

Ryan, James

University of New Hampshire

Citation: For his scientific discoveries with the COMPTEL instrument on the Compton Observatory and for his great service to the APS Division of Astrophysics. Nominated by: Astrophysics (DAP)

Saffman, Mark

University of Wisconsin

Citation: For pioneering research on spatial pattern formation and solitons in photorefractive crystals, and neutral atom quantum information processing. Nominated by: Atomic, Molecular, & Optical Physics (DAMOP)

Samuelson, Lars

Lund University

Citation: For his fundamental and wide ranging contributions to low-dimensional epitaxial semiconductor nanostructures and in particular semiconductor nanowires. His work has led to a fundamental understanding of the mechanisms governing nanowire growth and to the realization of radically new nanostructures with broad device applications. Nominated by: Materials Physics (DMP)

Santamaria, Jacobo

University of Complutense

Citation: For seminal contributions to the understanding the interplay of superconductivity and magnetism in oxide films and superlattices. Nominated by: Magnetism & Its Applications (GMAG)

Schmelcher, Peter

Institut fur Physikalische Chemie

Citation: For important contributions to the theory of strongly magnetized atoms and molecules, giant dipole states in combined electric and magnetic fields, and magnetic trapping of ultracold Rydberg atoms. Nominated by: Atomic, Molecular, & Optical Physics (DAMOP)

Selloni, Annabella

Princeton University

Citation: For her pioneering first-principles computational studies of surfaces and interfaces, which made possible the interpretation of complex experiments, and successfully predicted the physical, and chemical properties of broad classes of materials, including materials for photovoltaic applications. Nominated by: Computational Physics (DCOMP)

Sen, Surajit

SUNY-Buffalo

Citation: For the discovery of how solitary waves break and secondary solitary waves form in granular media, for his leadership in organizing forums to represent and recognize the physicists from India and for raising consciousness about the problems and the importance of rural science education in India and the developing world. Nominated by: International Physics (FIP)

Seryi, Andrei

Stanford University

Citation: For his leadership in developing beam delivery systems for linear colliders and his contributions to the theory of ground motion, vibration, and feedback accelerators and particularly linear colliders. Nominated by: Physics of Beams (DPB)

Sessoms, Allen

University of District of Columbia

Citation: For exceptional contributions to the global society in understanding and addressing the challenges posed by nuclear and other advanced energy technologies. Nominated by: Physics and Society (FPS)

Sherwin, Mark

University of California, Santa Barbara

Citation: For important experiments on non-equilibrium dynamics in semiconductor quantum structures driven by intense terahertz electric fields. Nominated by: Condensed Matter Physics (DCMP)

Shiltsev, Vladimir D.

Fermilab

Citation: For advancing the understanding of performance limitations in accelerators, in particular for seminal work on ground motion in electron-positron linear colliders and electron lens beam compensation in large hadron colliders. Nominated by: Physics of Beams (DPB)

Shin, Sung-Chul

KAIST

Citation: For his pioneering contributions to understanding of magnetization reversal dynamics, in particular critical scaling behavior of Barkhausen avalanches of 2D ferromagnets, and discovery of novel magnetic thin films and multilayers for high-density data storage. Nominated by: Magnetism & Its Applications (GMAG)

Shlomo, Shalom

Texas A&M University

Citation: For outstanding contributions in the study of nuclear correlations, giant resonances and the nuclear matter equation of state, and his many contributions to the development of international research and education in physics. Nominated by: International Physics (FIP)

Shvets, Gennady

University of Texas, Austin

Citation: For theoretical and computational investigations of the interaction of ultra-strong laser pulses and relativistic particle beams with plasmas, with applications to inertial confinement fusion, plasma-based particle accelerators, and novel radiation sources. Nominated by: Plasma Physics (DPP)

Siddons, David

Brookhaven National Laboratory

Citation: For his contribution to x-ray optics, x-ray physics, x-ray detectors, and the development of synchrotron radiation instrumentation and experimental techniques. Nominated by: Instrument & Measurement Science (GIMS)

Skodje, Rex

University of Colorado

Citation: For fundamental theoretical studies that have resulted in a great understanding of chemical reaction dynamics. Nominated by: Atomic, Molecular, & Optical Physics (DAMOP)

Smith, Leslie M.

University of Wisconsin, Madison

Citation: For important and insightful contributions to the understanding of turbulence in engineering and geophysical flows through theory and numerical simulations. Nominated by: Fluid Dynamics (DFD)

Soderlind, Per

Lawrence Livermore National Laboratory

Citation: For important contributions in electronic-structure theory for transition and actinide metals, particularly plutonium. Nominated by: Condensed Matter Physics (DCMP)

Solomon, Glenn S.

NIST

Citation: For extensive contributions to the study of quantum optics with quantum dots. Nominated by: Condensed Matter Physics (DCMP)

Sondhi, Shivaji

Princeton University

Citation: For elegant work in the theory of strongly correlated electronic systems especially concerning spin textures in quantum Hall systems and spin-liquid states in frustrated quantum antiferromagnets. Nominated by: Condensed Matter Physics (DCMP)

Sorensen, Soren

University of Tennessee

Citation: For his important contributions to the field of relativistic heavy ion collisions, in particular for systematic studies of stopping and transverse energy production, and for his early leadership in the PHENIX offline computing framework and

in establishing the program of J/psi measurements at RHIC.

Nominated by: Nuclear Physics (DNP)

Spontak, Richard

North Carolina State University

Citation: For pioneering contributions in electron microscopy and electron microtomography of multiphase polymer materials. Nominated by: Polymer Physics (DPOLY)

Squires, Kyle

Arizona State University

Citation: For his role in discovering the mechanisms creating concentration fluctuations of inertial particles in turbulent flow, and for fundamental contributions to the computational modeling of wall turbulence in complex geometries. Nominated by: Fluid Dynamics (DFD)

Steinberg, Aephraim

University of Toronto

Citation: For pioneering theoretical and experimental contributions to the understanding of fundamental quantum phenomena including photon and atom tunneling and the quantum information stored in cold atomic gases. Nominated by: Atomic, Molecular, & Optical Physics (DAMOP)

Steiner, Richard

NIST

Citation: For his contributions to the development of the NIST Watt Balance, and landmark measurements of the Planck constant, the electron charge, and the Avogadro constant. Nominated by: Precision Measurement and Fundamental Constants (GPMFC)

Stolow, Albert

Stearie Institute

Citation: For contributions to ultrafast laser science as applied to molecular physics, including time-resolved studies of non-adiabatic dynamics in excited molecules, non-perturbative quantum control of molecular dynamics, and dynamics of polyatomic molecules in strong laser fields. Nominated by: Chemical Physics (DCP)

Stone, Michael

University of Illinois, Urbana-Champaign

Citation: For profound contributions to the physics of quantum fluids and to the application of modern quantum field theory to condensed matter physics. Nominated by: Condensed Matter Physics (DCMP)

Sulik, Bela

Hungarian Academy of Science

Citation: For numerous significant contributions, both theoretical and experimental, to the fundamental understanding of atomic and molecular collisions, and especially for his work on multi-electron and multiple scattering processes with ionic projectiles. Nominated by: Few-Body Systems & Multiparticle Dynamics (GFB)

Svistunov, Boris

University of Massachusetts

Citation: For pioneering contributions to the theory and practice of Monte Carlo simulations for strongly correlated quantum and classical systems, the invention of the worm algorithm and diagrammatic Monte Carlo techniques, and fundamental theoretical results on superfluid phenomena in quantum gases, liquids, and solids. Nominated by: Computational Physics (DCOMP)

Tabor, Samuel

Florida State University

Citation: For pioneering and sustained contributions to the understanding of the structure of f-p-g shell nuclei and pioneering measurements elucidating the effects of neutron excess on nuclear shell structure near N=16. Nominated by: Nuclear Physics (DNP)

Thornton, Geoffrey

University College of London

Citation: For the pioneering use of synchrotron radiation techniques and scanning probe methods to explore the surface chemical physics of metal oxides. Nominated by: Chemical Physics (DCP)

Tsybmal, Evgeny

University of Nebraska

Citation: For significant contributions to the understanding of spin-dependent transport in magnetic nanostructures. Nominated by: Magnetism & Its Applications (GMAG)

Ullrich, Joachim

Max Planck Inst Kernphys

Citation: For his contributions to the development and application of the Reaction Microscope and for spectroscopic studies of highly charged ions. Nominated by: Precision Measurement and Fundamental Constants (GPMFC)

Vane, Charles

Oak Ridge National Laboratory

Citation: For the elegant experimental elucidation of charge transfer and other fundamental inelastic processes in atomic, molecular, and bulk matter systems spanning interaction energies of milli-electron volts to tera-electron volts. Nominated by: Atomic, Molecular, & Optical Physics (DAMOP)

Vespignani, Alessandro

Indiana University

Citation: For his contributions to the statistical physics of complex networks, in particular his seminal work on the spreading of viruses in real networks. Nominated by: Statistical & Nonlinear Physics (GSNP)

Vogelsang, Werner

Brookhaven National Laboratory

Citation: For his outstanding contributions to the development of perturbative QCD and the theoretical methods of analysis of the spin structure of the nucleons. Nominated by: Nuclear Physics (DNP)

Nominated by: Chemical Physics (DCP)

Westbrook, Chris I.

Institut d'Optique Graduate School

Citation: For outstanding contributions to the development of methods to laser cool atoms below the Doppler limit, for the creation of a Bose-Einstein condensate of metastable helium atoms, and for pioneering experiments in quantum optics for measuring of atom-atom pair correlations in ultracold gases. Nominated by: Atomic, Molecular, & Optical Physics (DAMOP)

Whelan, David

Boeing Company

Citation: For over 25 years of innovation and research conducted in academic, national laboratory and industrial research environments, development of the B2 design and instrumentation, air to air synthetic aperture radar, multi-spectral radar imaging, and visionary technical leadership at both DARPA and The Boeing Company. Nominated by: Industrial and Applied Physics (FIAP)

Wilkening, Dean

Stanford University

Citation: For his extensive contributions to understanding ballistic missile defense, bioterrorism and civil defense, and for his training of the next generation of physicists involved in arms control. Nominated by: Physics and Society (FPS)

Williams, Clayton

University of Utah

Citation: For his pioneering and sustained contributions to the field of Scanning Capacitance Microscopy and to the development of the Scanning Capacitance Microscope for both quantitative two-dimensional carrier and dopant profiling, and for the characterization and failure analysis of semiconductor materials and devices (including VLSI products) on a nanometer scale.

Nominated by: Industrial and Applied Physics (FIAP)

Wodtke, Alec M.

University of California, Santa Barbara

Citation: For contributions to our understanding of the fundamental interactions of molecules with solid surfaces, by combining methods of laser spectroscopy, molecular beams and UHV surface science. Nominated by: Chemical Physics (DCP)

Xie, Sunney

Harvard University

Citation: Sunney (Xiaoliang) Xie is a pioneer in single-molecule biophysics and live cell optical imaging. Technically innovative, his work created new knowledge about enzymatic dynamics, and gene expression in living cells. He also developed Coherent Anti-Stokes Raman Scattering microscopy, a highly sensitive vibrational imaging tool for biomedicine. Nominated by: Biological Physics (DBP)

Xie, Xincheng

Oklahoma State University

Citation: For important contributions to the theoretical understanding of two-dimensional electron systems, tirelessly working for the advancement of physics in China, fostering collaborations between young physicists in China and the United States, and co-organizing a number of important international workshops and conferences. Nominated by: International Physics (FIP)

Yakhot, Victor

Boston University

Citation: For seminal contributions to turbulence and combustion modeling. Nominated by: Fluid Dynamics (DFD)

Yeh, Gong

Fermilab

Citation: In recognition of his work in building international collaborations in physics, including his leadership of the Taiwan group in the Collider Detector at Fermilab and acting as a Special Adviser to the Japanese government on the creation of the Institute of Science and Technology in Okinawa and for his contributions to the discovery of the Top Quark. Nominated by: International Physics (FIP)

Yildirim, Taner

NIST

Citation: For combining analytic theory, first-principles computations, and neutron scattering measurements to design, discover, and understand new materials with novel physics. Nominated by: Condensed Matter Physics (DCMP)

Zaenen, Jan

Leiden University

Citation: For fundamental contributions to the theory of the strongly interacting electron systems in high T_c superconductors and other doped Mott-insulators. Nominated by: Condensed Matter Physics (DCMP)

Zasadzinski, Joseph A.

University of California, Santa Barbara

Citation: For applying physical principles of self-assembly, directed assembly and bio-mimicry to create well-controlled lipid structures such as unilamellar vesicles and "vesosomes" for biomedical applications such as targeted drug-delivery vehicles and treatments for respiratory diseases, and for developing new microscopies for characterizing their microstructure, molecular organization and interactions. Nominated by: Biological Physics (DBP)

Zatsarinny, Oleg

Drake University

Citation: For the development of the B-Spline R-matrix method

with non-orthogonal orbital sets for atomic structure calculations of exceptional accuracy and benchmark calculations for excitation and ionization of complex atoms and ions by photon and electron impact. Nominated by: Atomic, Molecular, & Optical Physics (DAMOP)

Zhang, Xiang

University of California, Berkeley

Citation: For the pioneering demonstration of the optical Superlens and Hyperlens for nano-optics; the development of concepts of metamaterials, plasmonic, and far IR magnetism; seminal contributions to the plasmonic lithography. Nominated by: Industrial and Applied Physics (FIAP)

Zheludev, Andrey

Oak Ridge National Laboratory

Citation: For elegant neutron scattering investigations of quantum magnetism and quantum critical phenomena, especially in spin-chain compounds. Nominated by: Condensed Matter Physics (DCMP)

Ziurys, Lucy M.

University of Arizona

Citation: For forefront contributions in molecular spectroscopy leading to new discoveries and understanding of molecules in interstellar and circumstellar environments. Nominated by: Atomic, Molecular, & Optical Physics (DAMOP)

Zucker, Michael E.

Massachusetts Institute of Technology

Citation: For development of fundamental techniques and practical instrumentation for interferometric gravitational wave detection and for leadership in LIGO during the transition from laboratory-scale to kilometer-scale devices. Nominated by: Gravitation (GGR)

Nomination Announcements

Call for Nominations for 2010 APS Prizes and Awards

Nomination Deadline is July 1, 2009, unless otherwise indicated.

PRIZES

Will Allis Prize

Michael Brunger, 5 Salibury Street, Unley 5061, Australia, Phone 61 8 8201 2958 Email Michael.brunger@flinders.edu.au

Hans A. Bethe Prize

John W. Negele, Massachusetts Institute of Technology, 6-315, 77 Massachusetts Avenue, Cambridge, MA 02139, Phone (617) 253-7707, Fax (617) 253-8674 Email negele@mitlns.mit.edu

Tom W. Bonner Prize

Bradley Sherrill, Michigan State University, NSCL, East Lansing, MI 48824, Phone (517) 333-6322, Fax (517) 353-5967 Email sherrill@nslcl.msu.edu

Herbert P. Broida Prize

NEXT PRIZE AWARDED IN 2011

Oliver E. Buckley Prize

David Awschalom, University of California, Santa Barbara, Department of Physics, Broida Hall, Santa Barbara, CA 93106, Phone (805) 893-2121, Fax (805) 893-4170 Email awsch@physics.ucsb.edu

Davisson-Germer Prize

Deborah S. Jin, University of Colorado, JILA Campus Box 440, Boulder, CO 80309, Phone (303) 492-0256 Email jin@jilau1.colorado.edu

Max Delbruck Prize

John Hopfield, Princeton University, Department of Molecular Biology, Carl Icahn Laboratory, Princeton, NJ 08544, Phone (609) 258-1239, Fax (609) 258-7599 Email Hopfield@princeton.edu

Einstein Prize

NEXT PRIZE AWARDED IN 2011

Fluids Dynamics Prize

Moshe Matalon, University of Illinois, Urbana-Champaign, Mechanical Science & Engineering, 1206 W. Green Street, Urbana, IL 61801, Phone (217) 244-8746 Email matalon@uiuc.edu

Dannie Heineman Prize

Marybeth Ruskai, 46 Lansdowne Road, Arlington, MA 02474, Phone (781) 646-9377 Email marybeth.ruskai@tufts.edu

Frank Isakson Prize

Lance Cooper, University of Illinois, Urbana-Champaign, Department of Physics, 1110 West Green Street, Urbana, IL 61801, Phone (217) 333-2589 Email slooper@uiuc.edu

Irving Langmuir Prize

NEXT PRIZE AWARDED IN 2011

Julius Edgar Lilienfeld Prize

Richart Slusher, GTR/STL, 400 10th Street, CRB 604B, Atlanta, GA 30318, Phone (908) 832-7383, Fax (404) 407-6994 Email dick.slusher@etri.gatech.edu

James Clerk Maxwell Prize

Robert Merlino, University of Iowa, Department of Physics & Astronomy, Iowa City, IA 52242, Phone: (319) 335-1756, Fax (319) 335-1753 Email robert-merlino@uiowa.edu

James C. McGroddy Prize

M. Brian Maple, University of California, San Diego, Dept. of Physics 0319, 9500 Gilman Drive, LaJolla, CA 92093, Phone (858) 534-3968, Fax (858) 534-1241 Email mbmaple@ucsd.edu

Lars Onsager Prize

Leo Radzihovsky, University of Colorado, Department of Physics, 390 UCB, Boulder, CO 80309, Phone (303) 492-5436, Fax (303) 492-2998 Email radzihov@colorado.edu

Abraham Pais Prize

Laurie Brown, 1500 Hinman Avenue, Apt 402, Evanston, IL 60201, Tel: (847) 328-0067 Email lbrown@northwestern.edu

George E. Pake Prize

Mark Lee, Sandia National Laboratory, PO Box 5800, MS 1415, Albuquerque, NM 87185, Phone (505) 844-5462, Fax (505) 844-4045 Email mlee1@sandia.gov

W.K.H. Panofsky Prize

George Trilling, Lawrence Berkeley National Laboratory, MS 50B-6222, Berkeley, CA 94720, Phone (510) 486-6801, Fax (510) 486-4047 Email ght@lbl.gov

Earle K. Plyler Prize

David Perry, University of Akron, Department of Chemistry, Akron, OH 44325-3601 Phone (330) 972-6825, Fax (330) 972-6085 Email dperry@uakron.edu

Polymer Physics Prize

Russell J. Composto, University of Pennsylvania, 3231 Walnut Street, Philadelphia, PA 19104-6272, Phone (215) 898-4451, Fax (215) 573-2128 Email composito@seas.upenn.edu

I.I. Rabi Prize

NEXT PRIZE AWARDED IN 2011

Aneesur Rahman Prize

Christopher McKee, University of California, Berkeley, Department of Physics, MC 7300, Berkeley, CA 94720, Phone (510) 642-0805, Fax: (510) 642-3411 Email cmckee@astro.berkeley.edu

Andrei Sakharov Prize

Joel Primack, University of California, Santa Cruz, Department of Physics, Santa Cruz, CA 95064, Phone (831) 459-2580, Fax: (831) 459-3043 Email joel@physics.ucsc.edu

J.J. Sakurai Prize

R. Sekhar Chivukula, Michigan State University, Department of Physics & Astronomy, East Lansing, MI 48824, Phone (517) 355-9200, Fax (517) 355-6661 Email sekhar@msu.edu

Arthur L. Schalow Prize

Mark Kasevich, Stanford University, Varian Physics Building, Stanford, CA 94305 Phone (650) 723-4356, Fax (650) 723-9173 Email kasevich@stanford.edu

Prize to a Faculty Member for Research in an Undergraduate Institution

TBA

Robert R. Wilson Prize

Frank Zimmermann, CERN, AB Department, ABP Group, Geneva CH-1211, Switzerland, Phone 41 22 783 0552 Email frank.zimmermann@cern.ch

AWARDS, MEDALS & LECTURESHIPS

David Adler Lectureship

George Crabtree, Argonne National Laboratory, MSD 223, 9700 S. Cass Avenue, Argonne, IL 60439, Phone (630) 252-5509 Email crabtree@anl.gov

Leroy Apker Award

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

Edward A. Bouchet Award

Delia Cabrera, 8670 NW 6th Lane, 4-103, Miami, FL 33126, Phone (305) 326-6000 Email dcabrera2@med.miami.edu

Joseph A. Burton Award

Pavel Podvig, 220 College Avenue, Apt F, Falo Alto, CA 94306, Phone (650) 327-7968 Email podvig@stanford.edu

John Dawson Award for Excellence in Plasma Physics Research

Peter Catto, MIT Plasma Sci and Fusion Ctr, NW16-250, 167 Albany Street, Cambridge, MA 02139, Phone (617) 253-5825, Fax (617) 253-5805 Email catto@psfc.mit.edu

John H. Dillon Medal

Russell Composto, University of Pennsylvania, Department of Materials Science, 3231 Walnut Street, Philadelphia, PA 19104, Phone (215) 898-4451, Fax (215) 573-2128 Email composito@seas.upenn.edu

George E. Duvall Shock Compression Science Award

NEXT PRIZE AWARDED IN 2011

Excellence in Physics Education Award

Richard Peterson, Bethel University, Department of Phys-

ics, 3900 Bethel Drive, St Paul, MN 55112, Phone (651) 638-6465 Email petric@bethel.edu

Joseph F. Keithley Award

TBA

Maria Goeppert-Mayer Award

Natalie Meshkov, 5737 Carpenter Street, Downers Grove, IL 60516, Phone (630) 252-5234 Fax (630) 252-9281 Email meshkov@anl.gov

Nicholson Medal

E. Dan Dahlberg, University of Minnesota, Department of Physics, 116 Church Street, SE Minneapolis, MN 55455, Phone (612) 624-3506, Fax (612) 624-4578 Email dand@physics.umn.edu

Francis Pipkin Award

NEXT PRIZE AWARDED IN 2011

Leo Szilard Lectureship

Pavel Podvig, 220 College Avenue, Apt F, Falo Alto, CA 94306, Phone (650) 327-7968 Email podvig@stanford.edu

John Wheatley Award

NEXT PRIZE AWARDED IN 2011

DISSERTATION AWARDS

Andreas Acrivos

TBA

Mitsuyoshi Tanaka

TBA

Marshall Rosenbluth

Adil B. Hassam, University of Maryland, Institute for Applied Physics, College Park, MD 20742, Phone (301) 405-1417 Fax (301) 405-1678 Email hassam@umd.edu

Nuclear Physics Dissertation Award

Lawrence Cardman, Jefferson Laboratory, 12000 Jefferson Avenue, Suite 5, Newport News, VA, 23606, Phone (757) 269-7032, Fax (757) 269-5800 E-mail cardman@jlab.org

Outstanding Doctoral Thesis Research in Beam Physics Award

Sami G. Tantawi, SLAC, 2575 Sand Hill Road, MS 26, Menlo Park, CA 94025, Phone (650) 926-4454 Email tantawi@slac.stanford.edu

DAMOP Thesis Research Dissertation Award

Alex Cronin, University of Arizona, Department of Physics, 1118 East 4th Street, Tucson, AZ 85721, Phone (520) 465-8459 Email cronin@physics.arizona.edu

2009 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 submit-tal information see: <http://www.aps.org/programs/honors/fellowships/nominations.cfm>

Divisions

DAMOP	04/01/2009
DAP	04/01/2009
DBP	05/01/2009
DCMP (Deadline has passed)	02/02/2009
DCOMP	04/01/2009
DCP (Deadline has passed)	02/01/2009
DFD	03/29/2009
DLS	04/01/2009
DMP (Deadline has passed)	02/01/2009
DNP	04/01/2009
DPB	03/15/2009
DPF	04/01/2009
DPOLY	05/01/2009
DPP	04/01/2009

Forums

FEd	04/01/2009
FHP	05/01/2009
FIAP	05/01/2009
FIP	05/01/2009
FPS	04/01/2009

Topical Groups

GFB	04/01/2009
GGR	04/01/2009
GHP	04/01/2009
GIMS	04/01/2009
GMAG	04/01/2009
GPAP	04/01/2009
GPMFC	05/01/2009

GQI	04/01/2009
GSCCM	04/01/2009
GSNP	04/01/2009

General Nominations

APS	06/01/2009
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Note: 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.