

APS Announces 2014 Prize and Award Recipients

Thirty-Nine prizes and awards will be presented during special sessions at three spring meetings of the Society: the 2014 March Meeting, March 3-7, in Denver, CO, the 2014 April Meeting, April 5-8, in Savannah, GA, and the 2014 Atomic, Molecular and Optical Physics Meeting, June 2-6, in Madison, WI.

Citations and biographical information for each recipient follow. Additional biographical information and appropriate web links can be found at the APS web site (<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 pages 8 of this insert.

2014 Prizes and Awards

Will Allis Prize for the Study of Ionized Gases

David B. Graves

University of California, Berkeley

Citation: "For contributions to the science and technology of low temperature plasmas, plasma surface interactions and complex plasmas through fundamental measurements and modeling."

David Graves earned his PhD at the University of Minnesota. In 1983, he received the Electrochemical Society Young Author Award (with K.F. Jensen), the National Science Foundation Presidential Young Investigator Award in 1989, and the Tegal Thinker Award in 1998. Graves was chair of the Plasma Science and Technology Division of the American Vacuum Society (AVS) in 1995 and the 2000 Plasma Processing Science Gordon Research Conference. He was elected a Fellow of the AVS in 2001 and awarded the Plasma Prize by the Plasma Science and Technology Division of the AVS. He is a Fellow of the Institute of Physics, recipient of the Chaire d'excellence of the Nanoscience Foundation, Grenoble, France and Lam Research Corporation Distinguished Chair, UC Berkeley.



University of California, Berkeley during 1999-2001. In 2002, he joined in Department of Physics at Columbia University as a faculty member, where he is now professor of physics. The focus of Kim's group research is the mesoscopic investigation of transport phenomena, particularly, electric, thermal and thermoelectrical properties of low dimensional nanoscale materials.



A. Coolidge Chair in 1991.

The goal of Negele's research is to understand how the structure of matter arises from its underlying constituents and their interactions.



Fluid Dynamics Prize (2013)

Elaine S. Oran

U.S. Naval Research Laboratory

Citation: "For seminal contributions to the understanding of reactive flows through computational simulations, especially the deflagration-to-detonation transition in gases and supernovae."

Elaine S. Oran received her BA degree from Bryn Mawr College in 1966 in chemistry and physics, an MPH from Yale in physics in 1968, and a PhD from Yale in engineering and Applied Sciences in 1972. She began her scientific career at the U.S. Naval Research Laboratory in 1972 in the plasma physics division, subsequently becoming one of the founding members of the Laboratory for Computational Physics in 1978, and the NRL senior scientist for reactive flow in 1988. Her research has dealt with the dynamics of fluids on nano to astrophysical scales. Her particular interests now are strongly reactive, compressible, usually turbulent flows that occur in high-speed engines and astrophysical scenarios.



at the IBM Research Division in Yorktown Heights, NY, until he joined Columbia University in 1995. At Columbia, he has served as the chair of the department of electrical engineering, as well as the scientific co-director of the Columbia Nanoscale Science and Engineering Center and the Energy Frontier Research Center.

Peter Nordlander obtained his BS in 1980 and PhD in 1985 in theoretical physics at Chalmers University of Technology in Gothenburg in Sweden. After postdoctoral positions at IBM Thomas J. Watson Research Center at Yorktown Heights, AT&T Bell Laboratories at Murray Hill, and Rutgers University, in 1989 he joined the faculty at Rice University where he is currently a professor of physics and astronomy and electrical and computer engineering. He has been a visiting professor at University of Paris and at the Institute of Physics at the Chinese Academy of Sciences and is currently a visiting professor at Peking University. His research background is in theoretical condensed matter physics and nanophysics. His current research is focused on the theoretical and computational modeling of plasmonics and nanophotonics phenomena.



Davisson-Germer Prize in Atomic or Surface Physics

Nora Berrah

Western Michigan University

Citation: "For pioneering experiments on the interaction of atoms, molecules, negative ions and clusters with ionizing vacuum ultraviolet and soft x-ray photons."

Nora Berrah is a professor and head of the physics department at the University of Connecticut in Storrs. She received her Diplome D'étude Supérieure in theoretical physics from the Faculté des Sciences, USTHB, d'Alger, Algeria in 1979, and her PhD in experimental atomic physics from the University of Virginia in 1987. She was a distinguished faculty scholar at Western Michigan University from 1991 to 2013. Her research interests are in the investigation of the interaction of atoms, molecules, clusters and their ions with weak and strong electromagnetic fields produced by synchrotron facilities and lasers. Her recent interests are in the areas of non-linear physics, with emphasis on short wavelength radiation, ultrafast time scales and strong laser fields to probe physical and chemical processes that occur on ultrafast time scales.



Dannie Heineman Prize for Mathematical Physics

Gregory W. Moore

Rutgers University

Citation: "For eminent contributions to mathematical physics with a wide influence in many fields, ranging from string theory to supersymmetric gauge theory, conformal field theory, condensed matter physics and four-manifold theory."

Gregory W. Moore received his BA in physics from Princeton University in 1982 and his PhD in physics from Harvard University in 1985. He then joined the Harvard Society of Fellows and in 1987 became a five-year member at the Institute for Advanced Study in Princeton. In 1989 he joined the faculty at Yale University. He moved to the Department of Physics and Astronomy at Rutgers in 2000. He works on rational conformal field theories (with applications to condensed matter physics), two-dimensional quantum gravity and matrix models, topological field theories, string dualities and D-branes, applications of K-theory to string theory, connections between number theory and supersymmetric black holes, and the properties of BPS states of supersymmetric theories with an emphasis in recent years on their wall-crossing properties and relations to hyperkahler geometry.



Julius Edgar Lilienfeld Prize

Edward Ott

University of Maryland, College Park

Citation: "For pioneering contributions in nonlinear dynamics and chaos theory that have been uniquely influential for physicists and scientists in many fields, and for communicating the beauty and unifying power of these concepts to remarkably diverse audiences."

Edward Ott received his BS in electrical engineering from the Cooper Union in 1963 and his PhD in electrophysics from the Polytechnic Institute of Brooklyn in 1967. He was an NSF Postdoctoral Fellow at Cambridge University in the department of applied mathematics and theoretical physics in 1967 and 1968. Ott then joined the faculty of the department of electrical engineering at Cornell University. In 1979, he took up his present position as professor of physics and of electrical engineering at the University of Maryland in College Park. Ott's research has concentrated on applications and basic theory of chaos and nonlinear dynamics emphasizing issues that are of interest to scientists seeking to apply chaos concepts to their research.



Max Delbruck Prize in Biological Physics

Robert H. Austin

Princeton University

Citation: "For his wide-ranging contributions to biological physics encompassing all scales from the molecular to that of organismic populations. His early insights on how nanotechnology and microfabrication can be employed have uncovered both new physics and revolutionized the laboratory practice of biology."

Robert H. Austin received his BA in physics from Hope College in Holland, Michigan and his PhD in physics from the University of Illinois Champaign-Urbana in 1975. He did a postdoc at the Max Planck Institute for Biophysical Chemistry from 1976-1979 and has been with the Department of Physics of Princeton University from 1979 to the present, achieving the rank of Professor of Physics in 1989. In addition to his research he served as a president of the Division of Biological Physics of the American Physical Society, and chair of the U.S. Liaison Committee of the International Union of Pure and Applied Physics. He has served as the biological physics editor for *Physical Review Letters*, serves on numerous review panels for National Institutes of Health, National Science Foundation, the Burroughs Wellcome Fund and National Institute of Standards and Technology, and was the founding editor of the *Virtual Journal of Biological Physics* and a founding editor of *AIP Advances*.



Hans A. Bethe Prize

Karl-Ludwig Kratz

Max Planck Institute for Chemistry

Citation: "For his ground breaking and visionary work towards developing a cohesive picture of the r-process by employing novel experimental techniques to study the decay of nuclei far from stability, working with observations of astronomers, models of astrophysicists and nuclear theorists, and the geochemical analyses of meteorites."

Karl-Ludwig Kratz studied chemistry at the Johannes-Gutenberg University of Mainz. For his graduate studies (diploma in 1966; PhD in 1972 with "summa cum laude") he turned to the field of nuclear chemistry at the institute of Fritz Strassmann with its TRIGA reactor under the supervision of Günter Hermmann. The subject of his thesis work was the measurement of beta-delayed neutron properties of short-lived fission products obtained via ultra-fast chemical separations. Later, as postdoc and professor in Mainz (Habilitation in 1979; full professor in 1980), his interests evolved in time from experiments at the ILL high-flux reactor in Grenoble and various international accelerator facilities on isotopes relevant for the astrophysical r-process to include nuclear-structure theory, explosive nucleosynthesis modeling, astronomy, geochemistry and cosmochemistry.



Tom W. Bonner Prize in Nuclear Physics

William A. Zajc

Columbia University

Citation: "For his contributions to Relativistic Heavy-Ion Physics, in particular for his leading role in the PHENIX experiment, as well as for his seminal work on identical two-particle density interferometry as an experimental tool."

William Zajc received his bachelor's degree from the California Institute of Technology in 1975. He performed his graduate work with Kenneth Crowe at UC-Berkeley, where he applied identical particle interferometry to nuclear collisions at the Berkeley Bevalac. After obtaining his PhD in 1982, he worked at the University of Pennsylvania as a postdoctoral researcher and assistant professor, studying energy spectra, jet production and identical particle interferometry in nuclear collisions at the CERN ISR. He moved to Columbia in 1986, where he is currently Professor of Physics and Department Chair.



Oliver E. Buckley Condensed Matter Physics Prize

Philip Kim

Columbia University

Citation: "For his discoveries of unconventional electronic properties of graphene."

Philip Kim was born and raised in Seoul, Korea. He received his BS in physics at Seoul National University in 1990 and received his PhD in applied physics from Harvard University in 1999. He was Miller Postdoctoral Fellow in Physics from Uni-



Herman Feshbach Prize in Theoretical Nuclear Physics

John W. Negele

Massachusetts Institute of Technology

Citation: "For lifetime contributions to nuclear many-body theory including identifying mechanisms for saturation and relating the Skyrme interaction to fundamental nuclear forces; and for initiating and leading efforts to understand the nucleon using lattice QCD."

John Negele earned his BS in engineering sciences at Purdue University in 1965 and PhD in theoretical physics at Cornell University in 1969, and was a postdoctoral research fellow at the Niels Bohr Institute. He joined the MIT faculty in 1970, progressing to professor of physics in 1979, served as the director of the Center for Theoretical Physics from 1989 to 1998, and was appointed to the William



Frank Isakson Prize for Optical Effects in Solids

Naomi Halas

Rice University

Tony Heinz

Columbia University

Peter Nordlander

Rice University

Citation: "For seminal contributions to our understanding of the photophysics of low dimensional material systems, revealing the rich optical properties of plasmons, excitons, and electrons in confined geometries."

Naomi Halas obtained her undergraduate degree in chemistry in 1980 from La Salle University and her PhD in physics from Bryn Mawr College. She was a graduate research fellow at IBM Thomas J. Watson Research Center at Yorktown Heights and a postdoctoral fellow at AT&T Bell Laboratories at Holmdel, NJ. She joined the Rice University faculty in 1990. She is currently the Stanley C. Moore Professor of Electrical and Computer Engineering at Rice University, and holds appointments in the departments of chemistry, physics and astronomy, and bioengineering.

Tony F. Heinz is the David Rickey Professor in the departments of Physics and Electrical Engineering at Columbia University. Heinz received his BS in physics from Stanford University in 1978 and his PhD, also in physics, from the University of California at Berkeley in 1982. Heinz was subsequently



James Clerk Maxwell Prize for Plasma Physics (2013)

Phillip A. Sprangle

U.S. Naval Research Laboratory

Citation: "For pioneering contributions to the physics of high intensity laser interactions with plasmas, and to the development of plasma accelerators, free-electron lasers, gyrotrons and high current electron accelerators."

Phillip Sprangle is chief scientist for directed energy physics at the U.S. Naval Research Laboratory and professor of electrical and computing engineering and physics at the University of Maryland. He received his PhD in applied physics from Cornell University. His research covers a wide range of fields and includes the atmospheric propagation of high-energy lasers, laser driven accelerators, ultra-short pulse laser matter interaction and propagation, nonlinear optics and free electron lasers.

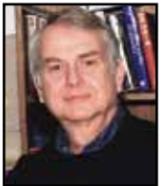


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James C. McGroddy Prize for New Materials

Zhong Lin Wang

Georgia Institute of Technology

Citation: "For seminal contributions to the synthesis, fundamental understanding, and applications of ZnO nanostructures in sensing, energy harvesting, and piezotronics."

Zhong Lin (ZL) Wang received his PhD from Arizona State University in 1987. He now is the Hightower Chair in Materials Science and Engineering and Regents' Professor at Georgia Tech. Wang has made original and innovative contributions to the synthesis, discovery, characterization and understanding of fundamental physical properties of oxide nanobelts and nanowires, as well as applications of nanowires in energy sciences, electronics, optoelectronics and biological science. His discovery and breakthroughs in developing nanogenerators established the principle and technological road map for harvesting mechanical energy from the environment and biological systems for powering personal electronics. His research on self-powered nanosystems has inspired the worldwide effort in academia and industry for studying energy for micro-nano-systems, which is now a distinct discipline in energy research and future sensor networks.



Lars Onsager Prize

Vladimir P. Mineev
CEA Grenoble

Grigory E. Volovik

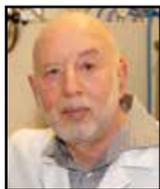
Aalto University School of Science

Citation: "For their contribution to a comprehensive classification of topological defects in condensed matter phases with broken symmetry, culminating in the prediction of half-quantum vortices in superfluid He-3 and related systems."

Vladimir Mineev graduated from Moscow Institute of Physics and Technology in 1969. He defended his PhD thesis in 1974 and Doctor of Science Degree in 1983 at the Landau Institute for Theoretical Physics in Moscow. Between 1992 and 1999 Mineev was vice-director of the Landau Institute and professor and head of the "Problems of Theoretical Physics" organization in the Moscow Institute of Physics and Technology. Since 1999 he has been the senior researcher at the Commissariat à l'Energie Atomique, Grenoble, France. He is author of the books *Topologically Stable Defects and Solitons in Ordered Media* and *Introduction to Unconventional Superconductivity*. His current main directions of the scientific activity are related to unconventional superconductivity in ferromagnetic compounds and non-centrosymmetric metals.



Grigory E. Volovik graduated from the Physical Technical Institute of Moscow in 1970 and defended his PhD at the Landau Institute for Theoretical Physics in 1973. Since then he has been a staff member of the Landau Institute while taking a position at the Low Temperature Laboratory at the Helsinki University of Technology in 1993 as well. Among the many subjects of his work, he studied the Weyl points in 3He-A and emergence of chiral fermions, gauge fields and gravity the edge states in topological 3He-B and the intrinsic quantum and spin-quantum Hall effect without magnetic field in terms of topological invariants.



Abraham Pais Prize for History of Physics

David C. Cassidy
Hofstra University

Citation: "For his foundational studies on the history of quantum mechanics and his nuanced examinations of physics in Germany and the United States, with special attention to the scientific work, personalities, and dilemmas of Heisenberg and Oppenheimer."

David C. Cassidy is a professor at Hofstra University in Hempstead, NY. He was previously assistant professor of history of science at the University of Regensburg, Germany, and associate editor of *The Collected Papers of Albert Einstein*. He received his BA and MS degrees in physics at Rutgers University, and his PhD at Purdue University in 1976 in physics in a joint program with the department of the history of science at the University of Wisconsin-Madison. He was a postdoctoral fellow in history of science at the University of California-Berkeley and a Humboldt Fellow at the University of Stuttgart, Germany. His publications include *Uncertainty: The Life and Science of Werner Heisenberg; Beyond Uncertainty: Heisenberg, Quantum Physics, and the Bomb; J. Robert Oppenheimer and the American Century; A Short History of Physics in the American Century*; and, with Gerald Holton and James Rutherford, the textbook *Understanding Physics*. His one-act play "Farm Hall" was presented in a staged reading during the March 2013 APS meeting.

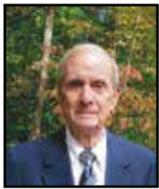


George E. Pake Prize

W. Dale Compton
Purdue University

Citation: "For exemplary leadership of corporate automotive R&D at a critical time for the industry and for important individual achievements in experimental solid state physics."

W. Dale Compton: All academic majors were in physics starting with a BA from Wabash College in 1949 followed by MS from the University of Oklahoma in 1951 and PhD from the University of Illinois in 1955. Employment activities included the University of Illinois from 1961 to 1970 as Associate Professor of Physics 1961-1964, Professor of Physics 1964-1970 including the Director of the Coordinated Science Laboratory 1965-1970; The Ford Motor Co. Research Staff from 1970-1986 as Director of the Physics Laboratories 1970-1972, Executive Director of Research 1972-1973 and Vice-President of Research 1973-1986; Senior Fellow National Academy of Engineering 1986-1988; followed by Purdue University 1988-2004 as Lillian Gilbreth Distinguished Professor of Industrial Engineering and Emeritus 2004-present.



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

Kam-Biu Luk

Lawrence Berkeley National Laboratory

Yifang Wang

Institute of High Energy Physics

Citation: "For their leadership of the Daya Bay experiment, which produced the first definitive measurement of the theta-13 angle of the neutrino mixing matrix."

Kam-Biu Luk is a professor at the University of California at Berkeley since 1989 and a faculty senior scientist of the Lawrence Berkeley National Laboratory. He received his BS from the University of Hong Kong in 1976 and PhD from Rutgers University in 1983. He was a postdoctoral fellow of the University of Washington at Seattle until 1986. He has worked on dimuon and hyperon physics. Besides introducing a technique for measuring the magnetic moment of the Omega-minus, he found the unexpected transverse polarization of the charged anti-Xi produced in unpolarized proton-nucleus collision. In 2000, he joined KamLAND, focusing on neutrino physics. A few years later, he initiated the Daya Bay experiment and has been actively involved in all phases.



Yifang Wang was born in Feb. 1963 in Nanjing, China. He obtained BSc in 1984 at Nanjing University, China, and PhD in 1991 at the University of Florence, Italy. He worked subsequently in MIT and Stanford University in the US and joined the Institute of High Energy Physics, China in 2001 as a researcher and became the Director in 2011. He was a member of L3, AMS, Palo Verde and KamLAND collaborations, and at IHEP, he led the design, construction and science efforts of the BESIII experiment as the project manager and spokesperson until 2011. He proposed the scheme of the Daya Bay experiment with a special modular arrangement and innovative detector design, to precisely measure the neutrino mixing angle θ_{13} . He is now leading the JUNO experiment to measure the neutrino mass hierarchy using reactor neutrinos.



Earle K. Plyler Prize for Molecular Spectroscopy

Lai-Sheng Wang

Brown University

Citation: "For advancing the chemistry and physics of metal clusters using photoelectron spectroscopy, and for innovative development of cluster sources and photoelectron techniques."

Lai-Sheng Wang received his bachelor's degree in chemistry from Wuhan University in 1982 and his PhD in physical chemistry from the University of California at Berkeley in 1990. He did postdoctoral research at Rice University before accepting a joint position between Washington State University and Pacific Northwest National Laboratory. He moved to Brown University in 2009 as professor of chemistry Wang is known for his photoelectron spectroscopic studies of atomic clusters, his pioneering work on free multiply-charged anions, and his development of cryogenic ion-trap technologies. Current research interests in his lab involve the investigations of large boron clusters, transition metal and actinide clusters, high resolution photoelectron imaging of cold cluster anions, and solution syntheses of atom-precise gold nanoclusters.



Polymer Physics Prize

Karl Freed

University of Chicago

Citation: "For outstanding theoretical contributions to the fundamental understanding of the statistics of isolated chains, polymer dynamics, phase behavior of blends, and equilibrium polymerization."

Karl Freed received a BS in chemical engineering from Columbia University in 1963, an AM (1965) in physics and a PhD in 1967 in chemical physics at Harvard University, and then was a NATO Postdoctoral Fellow from 1967 to 1968 in the department of theoretical physics at Manchester University, Manchester, England before joining the James Frank Institute and department of chemistry at the University of Chicago, where he currently is the Henry G. Gale Distinguished Service Professor, Emeritus, and a Senior Fellow in the Computation Institute. His current research interests include the influence of monomer molecular structure on glass-formation in polymers and the miscibility of polymer blends, equilibrium self-assembly and dynamics, solvation of polymers, proteins, and nucleic acids, the prediction of protein structure and the folding pathways without use of machine learning or homology, refinement of protein structures, and modeling the unfolded state of proteins.



Aneesur Rahman Prize for Computational Physics

Robert Swendsen

Carnegie Mellon University

Citation: "For multiple, groundbreaking algorithmic developments in computational statistical physics."

Robert Swendsen received his BS in physics from Yale University and his PhD in physics from the University of Pennsylvania. After postdoctoral work at the Universitat zu Koln, Germany, the Kernforschungsanlage in Jülich, Germany, and Brookhaven National Laboratory, he joined the IBM Zurich Research Center. In 1984 he assumed his current position as professor at Carnegie Mellon University, where he has served as head of the physics department and associate dean of the Mellon College of Science. Professor Swendsen has made fundamental contributions to computational physics through his work on the development of the Monte Carlo renormalization group method, cluster methods for simulations, histogram methods for the analysis of data from simulations, and optimization methods for the simulation of complex systems.



Andrei Sakharov Prize

Boris Altshuler

P.N. Lebedev Physical Institute

Citation: "For his life-long struggle for democracy in Russia and for his advocacy on behalf of the rights of neglected children."

Omid Kokabee

Evin Prison, Tehran, Iran

Citation: "For his courage in refusing to use his physics knowledge to work on projects that he deemed harmful to humanity, in the face of extreme physical and psychological pressure."

Boris Altshuler was born in 1939, in 1962 graduated from the physics department of the Moscow State University with a PhD in physics and defended his thesis in January 1969 in the P.N. Lebedev Physical Institute. From 1962 to 1974 he was a researcher in the All-Soviet Institute of Current Sources, and a teacher of physics from 1974 through 1982. However from 1982 to 1987 he was demoted to janitor because of pressure from the KGB. Since 1987 he has been the chief researcher in the P.N. Lebedev Physical Institute and a member of Scientific Council of the Theoretical Physics Department of the Institute. Fields of endeavors are cosmology, higher dimension theories, in the last years, a series of scientific papers on the study of the possibility of calculating the fundamental constants in the models of the throat-like solutions in supergravity.



Altshuler is a 40-year participant in the human rights movement in the former USSR. He is chief of the NGOs Movement without Frontiers and Right of the Child.

Omid Kokabee, 31, graduated from Iran's Sharif University of Technology and obtained a Master's degree from Barcelona's Institute of Photonic Sciences. In 2010 he transferred to the University of Texas at Austin (UTA) to pursue studies in laser physics. In his first semester, he worked as a teaching assistant and conducted research into the design and development of superfast lasers that can be controlled and tuned over a broad wavelength range. Kokabee was arrested at the Tehran airport in January 2011 as he was attempting to return to Texas and charged with "gathering and conspiring against the national security of the country." He was convicted and sentenced in May 2012 to ten years in prison for "cooperation with a hostile government," i.e., the United States. His



conviction was upheld on appeal in August 2012, and Kokabee subsequently had 91 days added to his sentence for earning money by teaching fellow inmates physics as well as Spanish, English and French. Since then he has been imprisoned in Evin Prison in Tehran. In 2013, he was declared a "prisoner of conscience" by Amnesty International.

J.J. Sakurai Prize for Theoretical Particle Physics

Zvi Bern

University of California, Los Angeles

Lance J. Dixon

SLAC

David A. Kosower

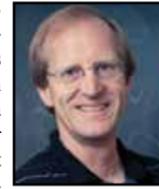
CEA-Saclay

Citation: "For pathbreaking contributions to the calculation of perturbative scattering amplitudes, which led to a deeper understanding of quantum field theory and to powerful new tools for computing QCD processes."

Zvi Bern is currently professor of physics at the University of California at Los Angeles. He received undergraduate degrees in physics and mathematics from the Massachusetts Institute of Technology and a PhD in theoretical physics from the University of California at Berkeley. He did postdoctoral work at the Niels Bohr Institute, Los Alamos National Laboratory, and the University of Pittsburgh before joining the UCLA physics department. He is interested in finding ever improved ways to understand how elementary particles scatter off each other, bypassing complexities inherent in Feynman diagrams.



Lance Dixon received his BS in physics and applied mathematics from Caltech in 1982, and his PhD in physics from Princeton University in 1986. He was a postdoctoral fellow at SLAC for one year before his appointment as an assistant professor at Princeton. In 1989 he returned to SLAC as a Panofsky Fellow. He became an associate professor at SLAC in 1992, and full professor in 1998. He has been a visiting professor at the Ecole Normale Supérieure and Durham University, a visiting fellow at Clare Hall, Cambridge, and a scientific associate at CERN. His current research in phenomenology focuses on precision calculation in quantum chromodynamics, as applied to the Large Hadron Collider at CERN. On the formal side, he is interested in the multi-loop properties of gauge and gravitational theories.



David A. Kosower is a particle theorist whose main interests are in scattering amplitudes in gauge theories. He received a BA in Physics from Harvard College in 1982, and stayed on at Harvard for his graduate work, receiving his PhD in 1986. He was a postdoctoral fellow at Columbia University from 1986 to 1988, at the Fermi National Accelerator Laboratory from 1988 to 1991, and at CERN from 1992 to 1993, before joining the staff of the now-Institut de Physique Théorique at the French Atomic Energy Commission's Saclay research center in 1993. He was one of the first recipients of an Advanced Grant from the European Research Council. His current research focuses on precision calculations in quantum chromodynamics.



Arthur L. Schawlow Prize in Laser Science (2013)

Robert Alfano

CUNY-CCNY

Citation: "For pioneering contributions to the field of ultrafast laser science, including the discovery of supercontinuum generation and new laser materials, as well as the study of pulse propagation in strongly scattering media."

Robert R. Alfano, Distinguished Professor of Science and Engineering at The City College of the City University of New York, has contributed significantly to the field of ultrafast laser science and is a pioneer in the application of light and photonics technologies to the study of biological, biomedical and condensed matter systems. His crowning research achievements include discovery of supercontinuum, development of new tunable Cr³⁺/Cr⁴⁺ lasers, advance of laser spectroscopic and optical imaging techniques, and study of ultrafast optical pulse propagation and imaging in scattering media. He received his BS and MS in physics in 1963 and 1964 respectively from Fairleigh Dickinson University and PhD in physics from New York University in 1972. He spent eight years at GTE Labs from 1964 to 1972 before joining CCNY in 1972.



Arthur L. Schawlow Prize in Laser Science (2014)

Mordechai Segev

Technion-Israel Institute of Technology

Citation: "For groundbreaking contributions to the study of light-matter interactions, in particular the discovery of optical solitons in photorefractive media, for milestone contributions to nonlinear waves in photonic lattices, and for the observation of Anderson localization of light."

Mordechai (Moti) Segev is a Distinguished University Professor, at the Technion - Israel Institute of Technology, Haifa, Israel. He received his BSc and DSc from the Technion, Israel in 1985 and 1990 respectively. Segev spent one year at Caltech as a postdoctoral fellow and two more years as a senior research fellow. He joined Princeton in September of 1994 as an assistant professor, becoming an associate professor in 1997, and a professor in 1999. In the summer of 1998, Moti Segev went back to his home country, Israel, and joined the Technion. In 2009, he was appointed as Distinguished University Professor, the highest rank at the Technion. Segev's research interests are mainly in nonlinear optics, solitons, sub-wavelength imaging, lasers and quantum electronics. Among his most significant contributions are the discoveries of photorefractive solitons, of random-phase solitons, the first observation of 2D lattice solitons, the first experimental demonstration of Anderson localization in a disordered periodic system, and demonstrating the first photonic topological insulator.



Prize for a Faculty Member for Research in an Undergraduate Institution

Thomas Solomon
Bucknell University

Citation: "For groundbreaking contributions to chaos and nonlinear dynamics through precise table-top experiments in fluid systems and for outstanding mentoring of undergraduate students at all levels."

Tom Solomon is a professor in the department of physics and astronomy at Bucknell University. He completed his ScB degree in physics at Brown University in 1984 and a PhD from the University of Pennsylvania in 1990, followed by a postdoctoral fellowship at the University of Texas at Austin from 1990 to 1993. He has collaborated with 40 undergraduate students on his research on chaotic fluid mixing and on the effect of fluid mixing on reaction fronts and patterns. Recently, he and his students have explored how fluid mixing (particularly chaotic mixing) affects the dynamics of reactions in a flow. They have found that reaction patterns tend to mimic the manifolds that describe passive mixing. They also found that chaotic mixing and "Levy flights" can synchronize oscillatory reactions in extended systems. Recent experiments on reactions in flow have demonstrated the existence of burning invariant manifolds that block the motion of reaction fronts.



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

Kwang-Je Kim
Argonne National Laboratory

Citation: "For his pioneering theoretical work in synchrotron radiation and free electron lasers that laid the foundation for both third and fourth generation x-ray sources."

Kwang-Je Kim received his BS in physics from Seoul National University, South Korea, in 1966 and PhD in physics from University of Maryland in 1970. He started his career as a theorist in elementary particle physics, working at the SLAC, Max-Planck Institute for Physics and Astrophysics in Munich, and Mainz University. He switched to accelerator physics when he joined Lawrence Berkeley Laboratory in 1978. Since 1998 he has been at Argonne National Laboratory, where he is currently an Argonne Distinguished Fellow. He is also a part time professor of physics at the University of Chicago. He made pioneering theoretical contributions to the understanding of photocathode electron guns, synchrotron radiation, and free electron lasers that laid the foundation of both the third and the fourth generation x-ray facilities.



AWARDS

David Adler Lectureship Award in the Field of Materials Physics

Paul Canfield
Iowa State University

Citation: "For his development and elucidation of superconductivity in magnesium diboride and iron pnictide compounds, and his outstanding mentoring and enthusiastic communication of the excitement and importance of Materials Physics."

Paul C. Canfield graduated with a BS in physics from the University of Virginia in 1983. He then performed his master's and PhD work at UCLA and received his PhD in experimental condensed matter physics in 1990. From 1990 to 1993 Canfield was a postdoctoral researcher in Los Alamos National Laboratory. In 1993 he went to Ames Laboratory and Iowa State University and, over the past 20 years, has become a senior physicist in Ames Laboratory and a distinguished professor of physics, hold-



ing the Robert Allen Wright Professorship. Canfield's research is centered on the design, discovery, growth and characterization of novel electronic and magnetic materials. He has made key contributions to the fields of superconductivity, heavy fermions, quantum criticality, quasicrystals, spinglasses, local-moment magnetism and metal-to-insulator transitions.

LeRoy Apker Award (2013)

Guy Geyer Marcus
Wesleyan University

Thesis Title: "Rotational Dynamics of Anisotropic Particles in Turbulence: Measurements of Lagrangian Vorticity and the Effects of Alignment with the Velocity Gradient."

Hao Shi

Rochester Institute of Technology

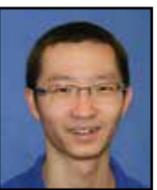
Thesis Title: "Torsional Optomechanics: A Dialogue Between Spinning Photons and Twisting Oscillators."

Guy Marcus graduated from Wesleyan University in May 2013 with a BA in physics and in science in society, and a certificate in informatics and modeling. For his honors thesis, he devised a method for 3D printing small anisotropic particles and developed new image processing algorithms to extract the particles' time resolved solid body rotation from experimental video data. Throughout his undergraduate years, Guy also worked on several theoretical and computational projects regarding the dynamics of charged particles in a Paul trap.



Guy began working towards his PhD in physics at Johns Hopkins University in Fall 2013.

Hao Shi received a BS in physics and a BS in mechanical engineering from the Rochester Institute of Technology in 2013. As part of a year-long research project in his senior year, he studied theoretical quantum optomechanics. Hao first studied the quantum mechanics of quadratically coupled optomechanical systems, both analytically, by employing the disentanglement of exponential operators using Lie algebras, and numerically, using a master equation approach. Subsequently, he worked on torsional and rotational optomechanics involving optical Laguerre-Gaussian beams.



Edward A. Bouchet Award

Luz Martínez-Miranda
University of Maryland, College Park

Citation: "For her pioneering research on liquid crystals, in particular on the interactions of ordered liquid crystals and nanoparticles and their applications and extensive effort in mentoring and increasing diversity in physics and materials science."

Luz J. Martínez-Miranda received her BS and MS in Physics from the Universidad de Puerto Rico in Río Piedras and her PhD from MIT. She received her BMus in music performance from the Conservatorio de Música de Puerto Rico. She did her postdoctoral work at the University of California at Berkeley. At present, she is an associate professor in the department of materials science and engineering at the University of Maryland in College Park. Martínez-Miranda's research involves the study of the interaction, both local and long-range, of ordered (smectic) liquid crystals with different nanoparticles, which is important for diverse applications, such as photovoltaics and biological applications. She has been a visiting professor at the Liquid Crystal Institute at Kent State University, at the Centre de Recherche Paul Pascal, CNRS, in France and at the University of Chile in Santiago because of her work with liquid crystals. Dr Martínez-Miranda is the president of the National Society of Hispanic Physicists.



Joseph A. Burton Forum Award

Michael M. May
Stanford University

Citation: "For his significant and sustained contributions to technical and policy issues pertaining to nuclear weapons, nuclear terrorism, energy and environmental impact; for mentoring generations of students and colleagues on these issues; and for efforts to increase public understanding and awareness on these issues."

Michael May is Professor Emeritus at the Stanford University School of Engineering and a senior fellow with the Freeman-Spogli Institute for International Studies at Stanford University. He is the former Co-Director of Stanford University's Center for International Security and Cooperation, having served seven years in that capacity through January 2000. May is director emeritus of the Lawrence Livermore National Laboratory. He has held a number of government advisory positions, and was a member of the US delegation to the Strategic Arms Limitations Talks. May's current research interests are in nuclear security, energy, environment and terrorism, and the relation of nuclear weapons and foreign policy. Currently he is working on follow-up to the Fukushima accident and other aspects of the future of the nuclear energy industry. He received his BA from Whitman College in 1944, served in the U.S. Army from 1944-



46, then received his PhD from the University of California, Berkeley in 1952.

Stanley Corrsin Award (2013)

Michael Brenner
Harvard University

Citation: "For his intellectual leadership in fluid dynamics and in particular for his seminal contributions to electrohydrodynamics and droplet splashing."

Michael Brenner received his undergraduate degree in physics and math in 1990 at the University of Pennsylvania and his PhD in physics in 1994 at the University of Chicago. In 1995 he was named the L.E. Dickson Instructor in Mathematics at the University of Chicago. From 1995 to 2001 he served as an assistant and associate professor of applied mathematics at MIT. Then starting in 2001 he became a professor at Harvard University. His research uses mathematical models to examine a wide variety of problems in science and engineering, ranging from understanding the shapes of bird beaks, whale flippers and fungal spores, to finding the principles for designing materials that can assemble themselves, to answering ordinary questions about daily life, such as why a droplet of fluid splashes when it collides with a solid surface.



John Dawson Award for Excellence in Plasma Physics Research (2013)

John R. Ferron
General Atomics

Thomas H. Osborne
General Atomics

Philip B. Snyder
General Atomics

Howard R. Wilson
University of York

Citation: "For experiments and theory that explained the limiting edge instabilities of high performance tokamak plasmas, including the key role of peeling-ballooning modes, thus enabling quantitative predictions of the edge pressure in fusion plasmas."

John R. Ferron received his BS in physics from the University of Wisconsin in 1974. He earned his PhD at the University of California, Los Angeles in 1982 with a thesis based on work in an axisymmetric magnetic mirror configuration. He was a member of the Phaedrus Tandem Mirror research team at the University of Wisconsin until 1988 when he joined the DIII-D tokamak group at General Atomics. At DIII-D, Ferron's research emphasis has been on high beta tokamak discharges and the effect of current and pressure profile shapes on stability and confinement. His current research focus is the development of steady-state advanced tokamak discharges utilizing off-axis neutral beam and electron cyclotron current drive in plasmas with a large fraction of self-driven bootstrap current.



Thomas H. Osborne grew up in Kansas City, Missouri and received his BS in physics from the University of Missouri-Rolla in 1976. He then attended the University of Wisconsin-Madison, where he joined the plasma physics group with Stewart Prager as his thesis advisor. There, Osborne carried out experimental research on the early poloidal divertor tokamak Tokapole II, receiving his PhD in 1984 with the thesis topic of "Disruptive Instabilities in a Poloidal Divertor Tokamak." From 1984 to present Osborne has been a scientist in the experimental group on the DIII-D tokamak at General Atomics in San Diego, California. His current research interests include the H-mode pedestal structure and ELMS, RMP ELM suppression, small ELM regimes, QH-mode and VH-mode.



Philip Snyder studied computational physics at Yale University, receiving his BS degree in 1993. He then completed an APS Summer Internship at Bell Labs, working with Greg Boebinger on numerical simulation of high field pulsed magnets.



He earned his PhD in plasma physics from Princeton University in 1999, supported by an NSF Fellowship. His dissertation research, advised by Greg Hammett, focused on theory and simulation of electromagnetic plasma turbulence and transport. He joined the General Atomics Theory and Computational Science Division in 1999, and became manager of the Turbulence and Transport group in 2010. His recent research has focused on the edge region of fusion plasmas, particularly the physics of the edge transport barrier ("pedestal") and edge localized modes in tokamaks.

Howard Wilson graduated with a degree in physics from the University of Durham, U.K. in 1985, and a PhD in theoretical particle physics from the University of Cambridge in 1988. He then joined UKAEA's Culham Laboratory as a theoretical plasma physicist in the U.K. fusion program, developing research interests spanning neoclassical tear-



ing modes, peeling-ballooning modes and the linear mode structure of toroidal micro-instabilities believed to be responsible for turbulence in tokamaks. He also led the physics basis for the design of a fusion power plant and components test facility based on the spherical tokamak. In 2005 he moved to the University of York to take a Chair in Plasma Physics. He established the York Plasma Institute in 2012 and serves as its Director.

John H. Dillon Medal for Research in Polymer Physics

Ryan C. Hayward

University of Massachusetts, Amherst

Citation: "For remarkably innovative and creative approaches to the design, realization, and analysis of responsive polymer gels and self-assembled systems."

Ryan C. Hayward is an associate professor of polymer science and engineering at the University of Massachusetts, Amherst. He received his bachelor's in chemical engineering from Princeton University in 1999 and his PhD from the University of California, Santa Barbara in 2004, and was a postdoctoral fellow in engineering and applied sciences at Harvard University from 2004 to 2005. His group's research covers a variety of topics in polymers and soft materials, with a particular focus on thin films and interfaces. Recent areas of interest include swelling-induced deformation of constrained and micro-patterned stimuli-responsive gels, and solution state self-assembly of polymer and particle-based nanostructures.



Excellence in Physics Education Award

Colleen Megowan

American Modeling Teachers Association and Arizona State University

David Hestenes

Arizona State University

Jane Jackson

Arizona State University

Citation: "For their impacts on physics teaching nationally through Modeling Instruction Workshops and curriculum materials, and for contributions to physics education research through Modeling Theory."

Colleen Megowan earned her BS in pre-medicine in 1973 from Loyola University of Los Angeles. She began teaching in 1978, starting with high school biology then moving to physics in 1989. She expanded the physics program at her high school and converted it to a Physics First program in 1994, growing the physics enrollment from 12 students to over 170 (in a school with just under 500 students—all girls) in less than 10 years. In 2004 she completed the Arizona State University Physics Department's master of natural science degree program for physics teachers and went on to earn a PhD in physics education research at ASU in 2007. She joined the faculty at ASU in 2008. In 2009 she secured funding to create a MNS degree program for middle school science and mathematics teachers. Her research interest is distributed cognition and how a situated group learning experience ultimately distills into individual student understanding in physics.



David Hestenes received his BA in philosophy from Pacific Lutheran University in 1954 and a PhD in physics from UCLA in 1963. He was a postdoc at Princeton from 1964 to 1966. He then joined the physics faculty at Arizona State University and continued there from 1966 until his retirement as professor emeritus in 2000. In collaboration with students and teachers, Hestenes developed a Modeling Theory of Physics Instruction, with evaluation instruments such as the Force Concept Inventory, and applied it extensively to introductory physics at both university and high school levels. Beginning in 1990, this provided the foundation for more than a decade of NSF funding for the Modeling Instruction Program: to cultivate high school physics teachers as leaders of nationwide reform in science teaching with technology.



Jane Jackson received a BS, MS, and PhD in physics from Arizona State University in 1965, 1966, and 1970, respectively. She taught physics for eight years at South Dakota State University, then for 10 years at Scottsdale Community College. For the past twenty years she has co-directed the Modeling Instruction Program in the department of physics at Arizona State University. She is a life member of the American Association of Physics Teachers and the American Modeling Teachers Association.



Joseph Keithley Award for Advances in Measurement Science

Franz J. Giessibl

Universitaet Regensburg

Citation: "For seminal contributions to the development and application of quantum metrological methods, in particular

of squeezed light sources and optical springs, enabling sensitive measurements beyond the standard quantum limit."

Franz J. Giessibl received his diploma in 1988 at the Technical University Munich in Germany after studies at ETH Zurich and TUM, with a thesis on Raman Scattering on Si/Ge superlattices. He received his PhD in 1992 at the IBM Group at Munich University on low temperature atomic force microscopy. In 1992, he designed an AFM that resolved the Si 7x7 surface for the first time at Park Scientific Instruments in Sunnyvale, California. From 1995, he was a senior associate with McKinsey & Company, performing benchmarking studies in the technology sector. At the same time, he invented a force sensor, "qPlus," in his home laboratory, utilizing tuning forks from quartz watches. Since 1997, he pushed spatial resolution of qPlus based AFM as well as combined scanning tunnelling and AFM and higher harmonic AFM in Jochen Mannhart's group in Augsburg. Since 2006, he holds a chair at the University of Regensburg, improving AFM in the fields of subatomic and spin resolution, low-temperature and ambient environments.



Maria Goepfert Mayer Award

Ana Maria Rey

University of Colorado

Citation: "For her pioneering research on developing fundamental understanding and control of novel quantum systems and finding applications for a wide range of scientific fields including quantum metrology and emerging interface between AMO, condensed matter, and quantum information science."

Ana Maria Rey was born in Bogotá, Colombia. She received her bachelor degree in physics in 1999 from the Universidad de los Andes, Bogota. She pursued her graduate studies at the University of Maryland at College Park and NIST-Gaithersburg and received a PhD degree in 2004. Rey was granted an ITAMP postdoctoral Fellowship from 2005 to 2008 and joined JILA, NIST and the University of Colorado at Boulder faculty in 2008. She is currently a JILA fellow and a research associate professor in the physics department. Rey's research is on how to control and manipulate ultra-cold atoms, molecules and trapped ions for use as quantum simulators of solid-state materials and for entanglement generation, quantum information and precision measurements. She has initiated a new direction of studies that involves the use of alkaline earth atoms.



Dwight Nicholson Medal for Human Outreach (2013)

E. Dan Dahlberg

University of Minnesota

Keivan Stassun

Vanderbilt University

Citation: "For his unique activities in conveying to the general public the excitement and value of physics predominantly through the creation and continued leadership of the program The Physics Force."

Citation: "For founding and leading model programs that successfully address the historic underrepresentation of minorities in PhD programs in physics and related fields."

E. Dan Dahlberg is a professor of physics at the University of Minnesota, is the director and PI of the Magnetic Microscopy Center at the University, and was the primary developer and leader of the highly acclaimed University of Minnesota's outreach program, The Physics Force. Dahlberg received a BS and MA in Physics from U.T. Arlington in 1970 and 1972 and a PhD in Physics from UCLA in 1978. His active research program involves efforts in both noise in magnetic dots and films and spin transport in magnetic tunnel junctions.



Keivan Stassun received his BA degrees in physics and astronomy from the University of California at Berkeley in 1994, his PhD from the University of Wisconsin in 2000, and a NASA Hubble postdoctoral fellowship before joining the Vanderbilt faculty in 2003. Stassun's research is on star formation, brown dwarfs, exoplanets, solar physics, and informatics. In 2007, the Vanderbilt Initiative in Data-intensive Astrophysics (VIDA) was launched with Stassun as its first director. He serves as chair of the Sloan Digital Sky Survey's executive committee and has served on the NSF Astronomy & Astrophysics Advisory Committee. Stassun also serves as founding co-director of the Fisk-Vanderbilt Master's-to-PhD Bridge Program, and served as chair of the American Astronomical Society's Committee on Minorities.



Henry Primakoff Award for Early-Career Particle Physics Research

Daniel A. Dwyer

Lawrence Berkely National Laboratory

Citation: "For innovative contributions to neutrino physics, particularly the broad and substantial role he played in commissioning, calibration and analysis in the Daya Bay measurement of the mixing angle theta-13."

Dan Dwyer's research explores the key roles of weakly-interacting particles in our universe. He earned his BS in physics at MIT in 2000 and completed his PhD at the UC Berkeley in 2007. His thesis focused on the precision measurement of reactor antineutrinos with the KamLAND experiment, which provided the most distinct evidence in support of the oscillation of massive neutrinos. As a postdoctoral scholar at Caltech he led the commissioning and data analysis efforts of the Daya Bay experiment, which discovered the short-distance oscillation of reactor antineutrinos due to the mixing angle θ_{13} . In 2012 he joined Lawrence Berkeley National Laboratory as a project scientist, coordinating the measurement of both the amplitude and frequency of the Daya Bay reactor antineutrino oscillation. He is now exploring future directions in weak-interaction physics: searching for the existence of sterile neutrinos using intense radioactive sources, probing the neutrino mass hierarchy with reactor and atmospheric neutrinos, and exploring whether weakly-interacting massive particles can explain the dark matter content of the universe.



Jonathan F. Reichert and Barbara Wolff-Reichert Award for Excellence in Advanced Laboratory Instruction

Gabriel C. Spalding

Illinois Wesleyan University

Thesis Title: "For introducing contemporary concepts and significant enhancements to "beyond-first-year" physics laboratory courses, and for playing a key role in organizing the nation-wide Advanced Laboratory Physics Association and being its first president."

Gabriel C. Spalding earned a BA in physics and mathematics from Washington University in 1983, a PhD from Harvard University in 1990, and is now a full professor at Illinois Wesleyan University. With Kishan Dholakia, he has chaired, for a decade, the largest conference in the field of optical trapping and optical micromanipulation. His contributions to some of the earliest work on holographic optical tweezing, which provides a dexterous optical means of controlling micro- and nano-components, are also highly cited and these methods have seen widespread adoption. He has organized sessions at nearly every national AAPT meeting for a decade and, through the Advanced Laboratory Physics Association, instigated two national conferences on laboratory instruction, is co-lead on another planned for 2015, helped initiate the ALPhA Immersion faculty-staff training program, and the sale of ALPhA's educationally priced single-photon detectors.



Leo Szilard Lectureship Award

Ramamurti Rajaraman

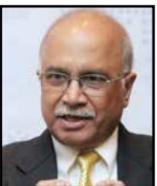
Jawaharlal Nehru University

M.V. Ramana

Princeton University

Citation: "For outstanding contributions to promote global security issues, through critical analyses of nuclear weapons and nuclear energy programs in India and associated risks in the subcontinent, and efforts to promote peace and nuclear security in South Asia through extensive engagements and writings."

R. Rajaraman is currently Emeritus Professor of Physics at Jawaharlal Nehru University and co-chair of the International Panel on Fissile Materials. He completed his B.Sc at Delhi University in 1958 and his PhD in theoretical physics in 1963 at Cornell. He has since worked at Cornell, the Institute for Advanced Study at Princeton, Delhi University, and the Indian Institute of Science, in addition to sabbaticals at Harvard, Stanford, MIT, CERN, and numerous summer visits to Princeton University. In addition he has done technical research on nuclear disarmament and nuclear energy and contributed to the public debate through articles and lectures. He has championed nuclear de-alert agreements and other confidence building measures at track II meetings with Pakistani and Chinese colleagues. He has calculated fissile material production and stocks in South Asia and analyzed the prospects for FMCT.



M.V. Ramana received his undergraduate degree in physics from the Indian Institute of Technology, Kanpur in 1988 and his PhD in theoretical physics from Boston University in 1994. He has held research positions at the University of Toronto, the Massachusetts Institute of Technology, and Centre for Interdisciplinary Studies in Environment and Development, Bangalore, and taught at Boston University, Princeton University, and Yale University. He is currently with the Nuclear Futures Laboratory and the Program on Science and Global Security at the Woodrow Wilson School of Public and International Affairs, Princeton University. Currently, he has been involved in the ongoing debates surrounding the expansion of nuclear power in the context of nuclear disarmament and climate change.



DISSERTATION AWARDS

Andreas Acrivos Dissertation Award in Fluid Dynamics (2013)

Bishakhdatta Gayen

University of California, San Diego

Thesis Title: "Turbulence and internal waves in tidal flow over topography."

Bishakhdatta Gayen received his bachelor of mechanical engineering from Jadavpur University in Kolkata, India in 2006, and MS in engineering science, majoring in fluid mechanics, from the Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, in 2007. He received an MS (2010) and PhD (2012) from University of California, San Diego. He pursued research work on "Turbulence and Internal Waves in Tidal Flow over Topography" under the guidance of Prof. Sutanu Sarkar. Bishakh is currently a Postdoctoral Fellow working with Ross Griffiths at the Australian National University in Canberra. His current research interests are nonlinear internal waves in the ocean, turbulent convection, modeling of Antarctic ice melting and Southern ocean dynamics.



Award for Outstanding Doctoral Thesis Research in Biological Physics (2013)

Shiladitya Banerjee

Syracuse University

Thesis Title: "Cell Mechanics: From cytoskeletal dynamics to tissue-scale mechanical phenomena."

Shiladitya Banerjee received his PhD in physics from Syracuse University in 2013. He studied the mechanics and shape of living cells and developed theoretical models to describe active stress generation in cells, tissues and their underlying cytoskeleton. The models predicted in a unified manner how intra-cellular force generation is coordinated across tissue length scales and defined their relationships with the extracellular physical properties. Shiladitya graduated with B.Sc. in physics from Chennai Mathematical Institute in India in 2008. Shiladitya is currently doing postdoctoral research at the James Franck Institute in the University of Chicago.



Outstanding Doctoral Thesis Research in Atomic, Molecular and Optical Physics Award (2013)

Yaroslav Dudin

Moscow Engineering Physics Institute

Thesis Title: "Investigations of Memory, Entanglement, and Long-Range Interactions Using Ultra-Cold Atoms."

Michael Foss-Feig
NIST and Joint Quantum Institute
Thesis Title: "Quantum simulation of many-body physics with neutral atoms, molecules, and ions."

Yaroslav Dudin was raised in Saransk, Russia. He studied physics at the Moscow Engineering Physics Institute, graduating with honors in 2007. While there, he investigated effects of coherent population trapping in atomic vapors and developed compact atomic clocks and magnetometers. He spent the summer of 2006 in Boulder, Colorado testing the local position invariance using the NIST-F1 cesium fountain. In 2007, Dudin moved to Atlanta to pursue his PhD at the Georgia Institute of Technology. There, Dudin developed optical-lattice-based quantum memories. He also studied the behavior of a cold atomic gas with strong many-body interactions introduced by highly-excited Rydberg electronic states. Yaroslav presently works on metrological instruments for KLA-Tencor.



Michael Foss-Feig was born and raised in Connecticut, and graduated from Farmington High School in 2002. In 2006 he received his bachelor's degree with honors from Amherst College, where he studied macroscopic tunneling phenomena in single-molecule magnets. He then moved on to the University of Colorado, becoming a research assistant in the group of Ana Maria Rey at JILA in 2009. His research at JILA pertained to a variety of topics in theoretical many-body physics, with a focus on exploiting the novel properties of alkaline-earth atoms, trapped ions, and polar molecules to explore interesting and/or poorly understood physics at experimentally relevant temperatures. Since graduating in 2012, he has moved back to the East Coast as a National Research Council postdoctoral fellow, splitting his time between the National Institute of Standards and Technology and the Joint Quantum Institute.



Outstanding Doctoral Thesis in Beam Physics Award 2013

Sebastien Corde

SLAC

Citation: "For outstanding experimental work in laser-driven plasma wakefield acceleration utilizing detailed measurements of betatron radiation spectra to reveal new aspects of plasma wakefield physics, and for demonstrating a novel, compact configuration of laser wakefield accelerator producing bright x-rays."

BIO unavailable at press time.

Nicholas Metropolis Award for Outstanding Doctoral Thesis Work in Computational Physics

Michael Wall

Colorado School of Mines

Citation: "For work on quantum dynamics of many-body systems including long-range interactions, in particular, the development of the molecular Hubbard Hamiltonian, study of fermion pairing and formation of weakly bound molecules in an optical lattice, and implementations of numerical algorithms for matrix product states."

Michael Wall was born and raised in Huntsville, Alabama. As an undergraduate at Auburn University, he studied few-body atomic dynamics. After graduating in 2006, he moved to the Colorado School of Mines. Wall's PhD research was focused in two main areas. The first was in deriving effective models that describe ultracold molecules trapped in optical lattices and identifying salient experimental signatures of many-body physics. The second was in developing generic quantum dynamics algorithms based on matrix product states, and also in open source implementation of such algorithms. Following graduation in August 2012, Michael stayed for a year as a postdoctoral fellow, nine weeks of which were spent as an invited participant at the Kavli Institute for Theoretical Physics. He now works at JILA, continuing to research ultracold atomic and molecular gases.



Dissertation Award in Nuclear Physics

Katherine Myers

Rutgers University

Thesis Title: "The First Determination of the Proton's Weak Charge Through Parity-Violating Asymmetry Measurements in Elastic e + p and e + Al Scattering."

Katherine Myers received her BS in physics from Lebanon Valley College in 2005. She attended graduate school at George Washington University, where she became involved in the Qweak experiment at the Thomas Jefferson National Accelerator Facility, which aimed to make a precise measurement of the proton's weak charge using parity-violating electron scattering and test the predictions of the Standard Model. She received her PhD in 2012 for her analysis of the first Qweak data. Myers is currently a postdoctoral associate at Rutgers. She is working on a new experiment that will make a precise simultaneous measurement of muon-proton and electron-proton scattering to provide new information in hopes of solving the "proton-radius puzzle."



Marshall N. Rosenbluth Outstanding Doctoral Thesis Award (2013)

Carlos Paz-Soldan

University of Wisconsin-Madison

Citation: "For experimental research that conclusively demonstrated effective stabilization of the deleterious resistive wall mode in a linear plasma column by rotating conducting shells, and for perceiving how error fields affect kink mode stability asymmetrically for differentially rotating walls."

Carlos Paz-Soldan received his BScE in engineering physics in 2007 from Queen's University in Kingston, Ontario. During his undergraduate career he held summer research positions in neutrino physics, superconductivity, and plasma physics.

Paz-Soldan completed his PhD in physics in 2012 at the University of Wisconsin-Madison, with his dissertation detailing the effects of rotating conductors on MHD stability in a linear plasma column. During his graduate work he was awarded graduate fellowships from the American Nuclear Society and the Canadian National Science and Engineering Research Council. After graduation Paz-Soldan joined the DIII-D Program at General Atomics as an ORISE postdoctoral fellow. His present work is centered on the effects and control of non-axisymmetric fields in tokamak discharges.



Mitsuyoshi Tanaka Dissertation Award in Experimental Particle Physics (2013)

David C. Moore

Caltech

Thesis Title: "A search for low-mass dark matter with the Cryogenic Dark Matter Search and the development of highly-multiplexed phonon-mediated particle detectors."

David Moore received his BS in physics and mathematics from Yale University in 2006. His doctoral research was performed at Caltech, where he worked on the Cryogenic Dark Matter Search and completing his PhD in physics in 2012. His thesis work focused on a search for interactions from low-mass dark matter particles in the CDMS detectors and significantly constrained possible dark matter signals reported by the DAMA/LIBRA, CoGeNT, and CRESST experiments. In addition, he developed novel sensors for highly pixelized phonon-mediated



particle detectors and provided the first demonstration of position and energy resolved particle detection with this technology. He is currently a postdoctoral researcher at Stanford University, where he is working to detect neutrinoless double beta decay as part of the EXO collaboration.

J.J. and Noriko Sakurai Dissertation Award in Theoretical Particle Physics

Roberto Vega-Morales (2014 Recipient)

Northwestern University

Citation: For his unique contributions to current and future investigations of the newly discovered 125 GeV Higgs boson.

Roberto Vega-Morales attended the University of Michigan from 2000-2004 where he received his bachelor's degree in physics. In 2006 he began his PhD in physical chemistry at Northwestern University before switching to theoretical high energy physics in 2008 and obtaining his PhD in 2013. During this time he also spent the last year of his graduate school career as part of the Fermilab graduate student fellowship program. It was while at Fermilab that he completed much of his work on studies of the Higgs boson. During



this time he also became involved with experimentalists in the CMS collaboration at CERN, where he helped to further the analysis framework for studying the Higgs boson in its decays to charged leptons. Upon graduation from Northwestern and completion of his fellowship at Fermilab, Vega-Morales began work as a postdoctoral researcher at Laboratoire de Physique Theorique d'Orsay in the suburbs of Paris, France. While there he has continued his involvement in studies of the Higgs boson as well as his collaboration with members of the CMS experiment.

APS Council Announces 2013 APS Fellows

The APS Council elected the following as Fellows of the Society at its November 2013 meeting. Nominations for fellowship are received at APS Headquarters throughout the year, and are forwarded for review to the appropriate division, topical group or forum fellowship committees. The deadlines for the various units appear on page 8 of this insert, and are posted on the web. Fellowship nomination forms may be completed on the web at <http://fellowship.aps.org/>. Information for completing the form is available at <http://www.aps.org/programs/honors/fellowships/nomination-requirements.cfm>.

Acosta, Darin E.

University of Florida

Citation: For searches for new lepton-quark couplings and compositeness at hadron colliders, and for contributions to the success of the CMS experiment at the LHC through leadership in the areas of detector commissioning, trigger, and coordination of the physics program. Nominated by: Division of Particles and Fields

Adams, Fred C.

University of Michigan

Citation: For major contributions to the theoretical descriptions of the radiative signature of star formation, circumstellar disks, the initial mass function, exoplanets, and the long term fate of the universe. Nominated by: Division of Astrophysics

Afanasjev, Anatoli

Mississippi State University

Citation: For his pioneering work on covariant nuclear density functional theory, and his contributions to the understanding of collective phenomena in atomic nuclei. Nominated by: Division of Nuclear Physics

Alpay, Pamir

University of Connecticut

Citation: For contributions to the understanding of domain phenomena and role of defects in ferroelectric thin films, the development of compositionally graded ferroelectrics for dielectrically tunable devices, and the fundamentals of infrared detectors and related devices. Nominated by: Forum on Industrial and Applied Physics

Anderson, Brian P.

University of Arizona

Citation: For his seminal contributions to the creation of quantized vortices in ultra-cold dilute Bose Einstein condensate (BECs), and for his inspired studies of their real-time dynamics. Nominated by: Division of Atomic, Molecular & Optical Physics

Appenzeller, Joerg

Purdue University

Citation: For pioneering contributions to the physics, technology, and modeling of one and two-dimensional transistors and circuits. Nominated by: Forum on Industrial and Applied Physics

Balents, Leon M.

University of California, Santa Barbara

Citation: For the theory of new topological quantum phases of electrons in condensed matter. Nominated by: Division of Condensed Matter Physics

Barbour, J. Charles

Sandia National Laboratories

Citation: For outstanding contributions to the science and engineering of ion-solid interactions and thin-film materials, for leadership in professional societies, and for visionary development and guidance of programs and organizations in energy and national-security science. Nominated by: Topical Group on Energy Research & Applications.

Bartels, Randy A.

Colorado State University

Citation: For advances in precision temporal, spatial and spectral control of optical and x-ray pulses, the control of quantum wave packets via sculpted light fields, and optical microscopy. Nominated by: Division of Laser Science

Beacom, John F.

Ohio State University

Citation: For his comprehensive work on the diffuse supernova neutrino background and for his wide-ranging work in neutrino astrophysics, which is directed at finding new sources and using their detections to probe neutrino properties and the physical conditions in the astrophysical sources. Nominated by: Division of Nuclear Physics

Beard, Matthew C.

NREL

Citation: For his seminal contributions to our understanding of exciton dynamics in quantum confined nanostructures. Nominated by: Topical Group on Energy Research & Applications

Belczynski, Krzysztof

University of Warsaw

Citation: For innovative and creative research in population synthesis modeling of compact binary systems in the universe. Nominated by: Division of Astrophysics

Belk, John H.

Boeing

Citation: For ground breaking condensed matter research within aerospace and significant advancement of nanotechnologies applications within domestic and international industry. Nominated by: Forum on Industrial and Applied Physics

Benjamin, Ilan

University of California, Santa Cruz

Citation: For pioneering computational studies of liquid surfaces, including ion transport, energy relaxation, spectroscopy and chemical reaction dynamics at liquid/vapor and liquid/liquid interfaces. Nominated by: Division of Chemical Physics

Berger, Claire

Georgia Institute of Technology

Citation: For seminal contributions to the development of epitaxial graphene electronics. Nominated by: Division of Materials Physics

Beyea, Jan E.

Consulting in Public Interest

Citation: For more than three decades of public service through research, analysis, and presentations on issues of major societal concern, including environmental degradation, nuclear reactor safety, energy efficiency, and energy use. Nominated by: Forum on Physics and Society

Biedron, Sandra G.

Colorado State University

Citation: For her fundamental advancement of light sources, including the control of light and harmonic light generated from coherent electron beams and the development of high-power long wavelength sources. Nominated by: Division of Physics of Beams

Blair, David G.

University of Western Australia

Citation: For many significant and innovative contributions to gravi-

tational wave science and education, ranging from the NIOBE bar detector to investigations of instabilities in interferometers and the establishment of the Gravity Discovery Center. Nominated by: Topical Group in Gravitation

Boggess, Jr, Thomas F.

University of Iowa

Citation: For extensive and influential use of ultrafast optical probes to determine carrier dynamics in infrared semiconductors, superlattices, and quantum dots, especially in narrow-gap semiconductors, aiding their application to infrared detectors, lasers and scene projectors. Nominated by: Forum on Industrial and Applied Physics

Bravyi, Sergey

IBM T.J. Watson Research Center

Citation: For groundbreaking research in topological stabilization of quantum information, including no-go theorems for passive 2d quantum memory, possible 3d memories, and the techniques of magic state distillation and surface codes which have become central to efforts to build a practical quantum computer. Nominated by: Topical Group on Quantum Information

Cai, Yunhai

SLAC

Citation: For his important contributions to beam dynamics in areas of beam-beam, nonlinear dynamics, and microwave instability, and pioneering contributions to the development of ultra-low emittance storage rings for the future generation of synchrotron radiation. Nominated by: Division of Physics of Beams

Carroll, David

Wake Forest University

Citation: For pioneering studies in determining the electronic structure of nanoscale materials and their defects and interfaces through the use of scanning probes leading to applications in electroactive polymer nanocomposites. Nominated by: Division of Materials Physics

Cerjan, Charles

Lawrence Livermore National Laboratory

Citation: For seminal contributions to time-dependent Schrodinger equation propagation algorithms and their applications, the development of laser-produced plasma sources for advanced lithography, and the investigation of the basic mechanism of magnetic multilayer material response and its application to magnetic storage devices. Nominated by: Division of Atomic, Molecular & Optical Physics

Challener, William A.

General Electric Company

Citation: For contributions to the understanding of surface plasmon physics and its application to data storage and biosensing. Nominated by: Forum on Industrial and Applied Physics

Chandra, Premala

Rutgers University

Citation: For contributions to the theory of frustrated antiferromagnets and glasses, ferroelectrics and heavy fermion materials. Nominated by: Division of Condensed Matter Physics

Charles, Christine

Australian National University

Citation: For discovery of current-free double layers in helicon plasma sources, development of helicon ion beam generators, and their application to space propulsion and materials modification. Nominated by: Division of Plasma Physics

Chen, Hongyu

Dow Chemical Company

Citation: For pioneering contributions to the fundamental understanding of polymer viscoelasticity, phase behavior of polymer blends, deformation behavior of polymers, structure-property relationship of oriented polymers, and the application of polymer physics for product development. Nominated by: Division of Polymer Physics

Chen, Yang

University of Colorado

Citation: For the development of critically important models and algorithms used in gyrokinetic simulation, including the direct electromagnetic algorithm, the coarse-graining procedure and a rigorous collisional delta-f algorithm. Nominated by: Division of Computational Physics

Cheung, Kingman

National Tsing Hua University

Citation: For his influential contributions to collider physics in and beyond the Standard Model, especially the origin of electroweak symmetry breaking. Nominated by: Division of Particles and Fields

Cheung, Margaret S.

University of Houston

Citation: For her contributions to modeling and simulations necessary to achieve a comprehensive understanding of the folding, structure and function of a protein in a cellular environment. Nominated by: Division of Biological Physics

Chou, Thomas

University of California, Los Angeles

Citation: For his diverse contributions to the development and analysis of stochastic models for transport and cellular biophysics, and his elegant mathematical models in physical biology and biomedicine. Nominated by: Division of Biological Physics

Christensen, Kenneth

University of Illinois, Urbana-Champaign

Citation: For his fundamental and innovative contributions to the understanding of wall turbulence, including the character of spanwise vortices and the effects of surface roughness, the behavior of microfluidic systems, and the development of new PIV instruments. Nominated by: Division of Fluid Dynamics

Clemens, Noel

University of Texas, Austin

Citation: For the development and application of innovative experimental methods leading to fundamental understanding of shear flow mixing, turbulent flame structure and supersonic unsteady flows. Nominated by: Division of Fluid Dynamics

Collins, Robert W.

University of Toledo

Citation: For advancing the understanding of the optical properties and structures of thin film materials and devices, for innovations in real-time spectroscopic ellipsometry, and for leadership of research collaborations of industrial, government, and university laboratories. Nominated by: Forum on Industrial and Applied Physics

Cornish, Neil J.

Montana State University

Citation: For pioneering work in cosmology and gravitational-wave science, including the characterization of the topology of our universe, and the development of techniques for studying gravitational-wave sources with space-based low-frequency gravitational-wave detectors. Nominated by: Topical Group in Gravitation

Creton, Costantino

PPMD-ESPCI

Citation: For outstanding contributions to the physics of adhesion, fracture and deformation of polymeric materials and nanocomposites. Nominated by: Division of Polymer Physics

Curtarolo, Stefano

Duke University

Citation: For pioneering automatic high-throughput computational materials science, and for the creation of on-line materials development techniques, the ingredients of the Materials Genome Initiative. Nominated by: Division of Computational Physics

D'Ariano, Giacomo M.

Univ Degli Studi Di Pavia

Citation: For contributions to the advancement of Quantum Mechanics, in particular, for conceiving and developing the popular tomography method for quantum states and apparatuses and for developing the method of quantum combs which lead to a first information-theoretic axiomatization of the Quantum Theory. Nominated by: Topical Group on Quantum Information

Dahmen, Karin A.

University of Illinois, Urbana-Champaign

Citation: For establishment and exploring the deep connections between non-equilibrium phase transitions and avalanche phenomena in diverse fields encompassing materials, geophysics and neuroscience. Nominated by: Topical Group on Statistical and Nonlinear Physics

Dalibard, Jean

Ecole Normale Supérieure

Citation: For his seminal contributions to the physics of light-atom interactions and cold 2D atomic gases. Nominated by: Division of Atomic, Molecular & Optical Physics

Danilov, Viatcheslav V.

Oak Ridge National Laboratory

Citation: For fundamental and creative solutions to a wide range of accelerator physics issues, including laser stripping ring injection, integrable beam dynamics, space charge and instabilities. Nominated by: Division of Physics of Beams

De Lozanne, Alejandro L.

University of Texas

Citation: For spectroscopic imaging of complex materials using scanning tunneling microscopy. Nominated by: Division of Condensed Matter Physics

Detweiler, Steven L.

University of Florida

Citation: For his many and varied contributions to gravitational physics, which include the computation of black-hole quasinormal modes, the elucidation of pulsar timing to measure gravitational waves, and foundational contributions to the gravitational self-force. Nominated by: Topical Group in Gravitation

Dickhoff, Willem H.

Washington University

Citation: For development and application of the self-consistent Green's function method for attacking the nuclear many-body problem, yielding fundamental insights into the roles of nuclear correlations in experimentally accessible observables. Nominated by: Division of Nuclear Physics

Disko, Mark M.

ExxonMobil Research & Engineering Company

Citation: For contributions to advanced materials characterization at the nanoscale and novel gas sensing techniques, together with leadership, in an industrial setting. Nominated by: Forum on Industrial and Applied Physics

Dobrescu, Bogdan A.

Fermilab

Citation: For original and influential extensions of the Standard Model involving extra dimensions and new gauge dynamics, and for leadership in bridging the gap between new theoretical ideas and experimental tests. Nominated by: Division of Particles and Fields

Dolan, Jr, Paul J.

Northeastern Illinois University

Citation: For contributions to education in physics, including the physics of granular materials; and especially for leadership and service to organizations involved in physics education. Nominated by: Forum on Education

Drndic, Marija

University of Pennsylvania

Citation: For development of novel nanofabrication methods for graphene nanoelectronics and fast biomolecular analysis in solution. Nominated by: Division of Condensed Matter Physics

Dzuba, Vladimir

University of New South Wales

Citation: For development of new methods and original computer codes for high precision atomic calculations, accurate calculations of violation of fundamental symmetries (parity, time reversal) used to test unification theories in atomic experiments, effects of variation of fine structure constant and proposals of new atomic clocks. Nominated by: Division of Atomic, Molecular & Optical Physics

Fallon, Paul

Lawrence Berkeley National Laboratory

Citation: For use of gamma ray spectroscopic techniques to elucidate the behavior of atomic nuclei at the limits of existence, from the investigation of super-deformation at the highest angular momentum to studies of weakly bound states in light systems approaching the neutron drip-line. Nominated by: Division of Nuclear Physics

Fendley, Paul

University of Virginia

Citation: For applying the mathematics of integrable systems to low dimensional systems, including spin chains and fractional quantum Hall states. Nominated by: Division of Condensed Matter Physics

Feng, Jimmy

University of British Columbia

Citation: For pioneering studies of solid-liquid two-phase flows, interfacial dynamics of complex fluids, and phase-field modeling of the moving contact line. Nominated by: Division of Fluid Dynamics

Ferguson II, Charles D.

Federation of American Scientists

Citation: For applying technical knowledge to public policy on nuclear issues, including nuclear energy, nonproliferation, nuclear and radiological terrorism, and nuclear safety and security; and for communicating that knowledge to society. Nominated by: Forum on Physics and Society

Fiksel, Gennady

University of Rochester

Citation: For seminal contributions to the physics of magnetic self-organization and plasma transport from magnetic turbulence, and for the development of innovative plasma diagnostics, experimental techniques, and plasma sources. Nominated by: Division of Plasma Physics

Finkelstein, Alexander

Texas A&M University, College Station

Citation: For the theory of the metal-insulator transition in interacting disordered systems. Nominated by: Division of Condensed Matter Physics

Fisher, Ian R.

Stanford University

Citation: For pioneering research in the electronic properties and crystal growth of quantum materials. Nominated by: Division of Materials Physics

Flemming, Bonnie T.

Yale University

Citation: In recognition of her leadership in neutrino physics and her role in promoting the liquid argon techniques for neutrino detection. Nominated by: Division of Particles and Fields

Foss, John

Michigan State University

Citation: For fundamental experimentation of complex flows, novel surface topology analyses and for ground-breaking vorticity measurements. Nominated by: Division of Fluid Dynamics

Gade, Alexandra

Michigan State University

Citation: For her work in developing sensitive techniques based on gamma-ray detection to explore the properties of rare isotopes. Nominated by: Division of Nuclear Physics

Garanin, Dmitry

Lehman College

Citation: For his theoretical work that shaped research on molecular magnets and helped to develop a deep understanding of their magnetic properties. Nominated by: Topical Group on Magnetism

Gardner, Susan V.

University of Kentucky

Citation: For pioneering work in strongly interacting physics and its interplay with weak decays and for numerous insights into important tests of CP violation and the Standard Model of particle interactions. Nominated by: Topical Group Precision Measurement & Fundamental Constants

Garisto, Robert J.

American Physical Society

Citation: For his professionalism, diplomacy, high standards, and dedicated service as Editor of Physical Review Letters. Nominated by: American Physical Society

Gates, David

Princeton Plasma Physics Laboratory

Citation: For innovation and leadership in the understanding and control of limiting MHD phenomena in toroidal plasmas. Nominated by: Division of Plasma Physics

Giamarchi, Thierry

University of Geneva

Citation: For elucidating the role of interactions and disorder in low dimensional classical and quantum systems. Nominated by: Division of Condensed Matter Physics

Giannozzi, Paolo

Universita di Udine

Greenfield, Charles

General Atomics

Citation: For pioneering contributions in establishing the physics basis of high performance, internal transport barrier operation in H-mode plasmas and for outstanding leadership of national research teams in resolving key fusion science issues. Nominated by: Division of Plasma Physics

Grier, David

New York University

Citation: For development of the techniques of holographic trapping and optical microscopy and their use in condensed matter physics. Nominated by: Division of Condensed Matter Physics

Grossman, Jeffrey C.

Massachusetts Institute of Technology

Citation: For important contributions to the development and application of Quantum Monte Carlo methods for electronic structure calculations, and the use of first principles methods to predict the properties of materials and nanostructures at the microscopic level. Nominated by: Division of Computational Physics

Gruverman, Alexei

University of Nebraska

Citation: For pioneering contribution to the development of piezo-response force microscopy as a probing and controlling tool of nanoscale phenomena in ferroelectric and piezoelectric heterostructures. Nominated by: Division of Materials Physics

Guo, Hua

University of New Mexico

Citation: For the development of iterative methods for solving the nuclear Schrödinger equation and applications to molecular spectroscopy and dynamics of various gas phase and surface reactions. Nominated by: Division of Chemical Physics

Gwo, Shangjr F.

National Tsing Hua University

Citation: For his important contributions in developing innovative approaches for growth and fundamental studies of semiconductor surfaces, interfaces, and nanostructures, for his experimental breakthroughs in developing plasmonic metamaterials and plasmonic nanolasers, and for his promotion of international collaborations in physics. Nominated by: Forum on International Physics

Hall, David S.

Amherst College

Citation: For investigations of quantum vortices and other interesting features of Bose-Einstein condensates carried out at an undergraduate institution. Nominated by: American Physical Society

Harkay, Katherine

Argonne National Laboratory

Citation: For significant contributions to the understanding of the physics of electron cloud effects and the experimental investigation and understanding of collective effects, as well as for playing leading roles in development of photocathodes and superconducting undulator technology. Nominated by: Division of Physics of Beams

Hasan, Zahid

Princeton University

Citation: For the experimental discovery of three dimensional topological insulators. Nominated by: Division of Condensed Matter Physics

Heeger, Karsten M.

Yale University

Citation: For his contributions to the highest impact experiments in neutrino physics, especially for the major roles he played in the Daya Bay and KamLAND experiments. Nominated by: Division of Nuclear Physics

Hoff, Wouter D.

Oklahoma State University

Citation: For his fundamental contributions to elucidating the molecular mechanisms of protein folding and function especially using light-sensitive proteins as model systems. Nominated by: Division of Biological Physics

Holland, Stephen E.

Lawrence Berkeley National Laboratory

Citation: For the invention of the fully-depleted charge-coupled devices (CCDs) whose extended near-infrared sensitivity enables imaging and spectroscopic surveys of the Universe, detecting light that was emitted billions of years ago. This technology has also enabled new x-ray and gamma-ray instrumentation. Nominated by: Topical Group on Instrument and Measurement Science

Hu, Suxing

University of Rochester

Citation: For his contributions to attosecond probes of electron correlations in atoms, attosecond imaging of ultrafast atomic and molecular processes, relativistic laser acceleration of electrons, and the development of accurate numerical methods for intense laser interactions with atoms and molecules. Nominated by: Division of Atomic, Molecular & Optical Physics

Jackson, Thomas

University of Illinois, Urbana-Champaign

Citation: For pioneering research in reacting flows, especially stability analysis of compressible shear flows, and modeling and simulation of complex heterogeneous solid propellant combustion. Nominated by: Division of Fluid Dynamics

Jaffe, David E.

Brookhaven National Laboratory

Citation: For significant contributions to elucidating the flavor structure of the Standard Model through measurements on Kaons, B-mesons and neutrinos, including observation of K⁺->pi⁺ nu nu_{bar} in the low pion momentum region and observation of theta 13 through reactor electron antineutrino disappearance. Nominated by: Division of Particles and Fields

Jaluria, Yogesh

Rutgers University

Citation: For pioneering and lasting contributions to a wide variety of fundamental and applied areas in fluid mechanics, particularly to buoyancy-induced flows, computational fluid dynamics, microscale transport, fluid flow phenomena in materials processing, the spread and growth of fires in enclosed spaces, and environmental flows. Nominated by: Division of Fluid Dynamics

Jentschura, Ulrich D.

Missouri University of Science & Technology

Citation: For groundbreaking calculations of quantum electrodynam-ic energy shifts in simple atomic systems, and for his contributions to fundamental laser-dressed scattering and dynamical processes in atoms, notably, for the clarification of the role of cascades in two-photon decay. Nominated by: Division of Atomic, Molecular & Optical Physics

Johansson, Arne

Royal Institute of Technology

Citation: For pioneering and lasting contributions, using theory, numerical simulation and experiment, to our understanding of turbulent flows and turbulence modeling. Nominated by: Division of Fluid Dynamics

Jones, Thomas W.

University of Minnesota

Citation: For fundamental contributions to our understanding of thermal and non-thermal radiation from extragalactic sources, and the morphology and physics of radio sources. Nominated by: Division of Astrophysics

Kagan, Cherie R.

University of Pennsylvania

Citation: For innovative work in manipulating chemically and exploring physically the properties of inorganic and organic solid state materials, from colloidal nanocrystals and organic and organic-inorganic hybrid materials, and in exploiting these materials in electronic, optical, and optoelectronic devices. Nominated by: Division of Materials Physics

Kalantar-Nayestanaki, Nasser

University of Groningen

Citation: For leading a comprehensive experimental program on few-nucleon reactions that unveiled new effects of two- and three-body forces. Nominated by: Topical Group on Few-Body Systems

Kamenev, Alex

University of Minnesota, Minneapolis

Citation: For advancing the methods of quantum kinetic theory. Nominated by: Division of Condensed Matter Physics

Kaminski, Adam

Iowa State University

Citation: For angle-resolved photoemission spectroscopy studies of unconventional superconductors. Nominated by: Division of Condensed Matter Physics

Kas, Josef A.

University of Leipzig

Citation: For his seminal contributions to polymer biophysics, the development of new optical trapping techniques, and his pioneering role in the new area physics of cancer. Nominated by: Division of Biological Physics

Kastor, David

University of Massachusetts

Citation: For his influential work on a broad span of topics in gravitational physics, ranging from the formal definition of conserved quantities in General Relativity through new exact black hole solutions all the way to brane architectures relevant for string theory. Nominated by: Topical Group in Gravitation

Keidar, Michael

George Washington University

Citation: For major contributions to the physics of low-temperature plasma, resulting in a variety of novel devices and unique processes with applications to space propulsion, nanotechnology and biomedicine. Nominated by: Division of Plasma Physics

Kenyon, Scott J.

Harvard University

Citation: For his world-leading stature in observational and theoretical astrophysics including studies of the Symbiotic Variables, Star Formation, Recurrent and Classical Novae, Solar System Formation, and the Structure of the Galaxy. Nominated by: Division of Astrophysics

Kikkawa, James

University of Pennsylvania

Citation: For optical spectroscopy of excitations in nanomaterials. Nominated by: Division of Condensed Matter Physics

Kirchner, Tom

York University

Citation: For seminal contributions to the theoretical description of the few-particle dynamics of complex Coulomb systems. Nominated by: Division of Atomic, Molecular & Optical Physics

Kishek, Rami

University of Maryland

Citation: For ground breaking theory of multipactor discharge, and for contributions to the understanding of physics of space-charge-dominated beams. Nominated by: Division of Physics of Beams

Klima, Boaz

Fermilab

Citation: For significant contributions to hadron collider physics community, and leadership, especially in the discovery of the top quark. Nominated by: Division of Particles and Fields

Knight, Randall D.

Cal Poly

Citation: For the improvement of instruction in introductory physics by the writing of textbooks, student workbooks, and instructor guides that are grounded in physics education research. Nominated by: Forum on Education

Knudson, Marcus D.

Sandia National Laboratories

Citation: For pioneering experiments to understand matter at extreme dynamic compressions and having a broad impact on multiple areas of physics through exemplary equation of state results at high pressure. Nominated by: Topical Group on Shock Compression of Condensed Matter

Kokoouline, Viatcheslav

University of Central Florida

Citation: For his innovative solution of challenging theoretical problems, including novel treatments of the dissociative recombination of the triatomic ion of hydrogen and the ammonium ion and other low energy molecular processes. Nominated by: Division of Atomic, Molecular & Optical Physics

Kormos Buchwald, Diana L.

Caltech

Citation: For her pioneering work in the history of the physical sciences, especially her exemplary editorial leadership on The Collected Papers of Albert Einstein. Nominated by: Forum on the History of Physics

Korotky, Steven K.

Alcatel-Lucent

Citation: For sustained contributions to the advancement of optical fiber communications, particularly the use of lithium niobate technology for high speed modulators. Nominated by: Forum on Industrial and Applied Physics

Krishnamurthy, V.

George Mason University

Citation: For pioneering contributions to the physics of intraseasonal, interannual and decadal variability of South Asian monsoon and South American climate, the predictability of atmosphere as a nonlinear dynamical system, and the development of atmospheric physics in developing countries. Nominated by: Forum on International Physics

Krivanek, Ondrej L.

Nion Co.

Citation: For seminal contributions to advancing the microscopy and spectroscopy of materials through innovative electron optics. Nominated by: Division of Materials Physics

Kronik, Leeor

Weizmann Institute of Science

Citation: For path-breaking work relevant to central issues in interfacial and solid state science, which has led to new understandings in materials and interface physics. Nominated by: Division of Materials Physics

Le Gal, Patrice

CNRS

Citation: For original experimental research in geophysical fluid dynamics, notably the strato-rotational and elliptic instabilities, and for experimental research in pattern formation in Rayleigh-Benard convection, in wakes, and in fluids between rotating disks. Nominated by: Division of Fluid Dynamics

Lee, Seunghun

University of Virginia

Citation: For contributions towards understanding spin and orbital physics in geometrically frustrated magnets using neutron scattering. Nominated by: Division of Condensed Matter Physics

Lee, Yoonseok

University of Florida

Citation: For high-precision ultrasound measurements in quantum liquids, and discovery of the acoustic Faraday effect and broken spin-orbit symmetry in superfluid ³He-B. Nominated by: Division of Condensed Matter Physics

Lehnert, Konrad

University of Colorado

Citation: For developing experimental methods that enable the quantum control and measurement of micro-mechanical oscillators and for developing practical microwave amplifiers that operate at the quantum-limit. Nominated by: Topical Group on Quantum Information

Lempert, Walter

Ohio State University

Citation: For innovative and insightful contributions to the development and application of optical diagnostic methods for the study of nonequilibrium molecular plasmas and turbulent flows. Nominated by: Division of Plasma Physics

Li, Bao-An

Texas A&M University, Commerce

Citation: For his important contributions to our understanding of asymmetric nuclear matter, for his untiring efforts in promoting isospin physics worldwide, and for enhancing scientific contacts and collaborations with physicists in China. Nominated by: Forum on International Physics

Li, Baowen

National University of Singapore

Citation: For distinguished contributions to the field of “phononics”, particularly for conceiving phononic devices like thermal diodes, thermal transistors, logical thermal gates and memories and phonon transport in low dimensional systems. Nominated by: Forum on International Physics

Li, Qiang

Brookhaven National Laboratory

Citation: For his contributions to both basic and applied aspects of high-temperature superconductivity. Nominated by: Division of Materials Physics

Liebling, Steven L.

Long Island University

Citation: For many contributions to numerical relativity, especially in the areas of critical gravitational collapse, black hole binaries with matter and magnetic fields as well as infrastructure development. Nominated by: Topical Group in Gravitation

Liu, J. Ping

University of Texas

Citation: For pioneering work in research on advanced permanent-magnet materials, including innovative work on bottom-up approaches to fabrication of nanocomposite magnets with reduced rare-earth content via novel techniques. Nominated by: Topical Group on Magnetism

Liu, Jie

Duke University

Citation: For contributions to nanoscale chemistry, especially the controlled synthesis and chemical modification of carbon nanotubes with enhanced properties for numerous applications. Nominated by: Division of Materials Physics

Luijten, Erik

Northwestern University

Citation: For the development of algorithms that greatly accelerate the simulation of condensed-matter systems and for their application in elucidating the behavior of a broad range of self-assembly phenomena. Nominated by: Division of Computational Physics

Lysak, Robert

University of Minnesota, Minneapolis

Citation: For pioneering contributions to the theory of Alfvén wave processes, including kinetic effects, their role in magnetosphere ionosphere coupling in planetary magnetospheres and development of global models of MHD wave processes in dipolar geometries. Nominated by: Division of Plasma Physics

Maksimchuk, Anatoly

University of Michigan, Ann Arbor

Citation: For major contributions to the understanding of short pulse high intensity laser-plasma interactions, in particular for innovative experimental work in electron and ion acceleration and radiation generation. Nominated by: Division of Plasma Physics

Marston, John

Brown University

Citation: For contributions to the theory of quantum magnetism and to the statistics of fluid systems driven far away from equilibrium. Nominated by: Division of Condensed Matter Physics

Martensson, Nils

Uppsala University

Citation: For pioneering work in the field of photoelectron spectroscopy, who has contributed to many fundamental concepts to understand electronic processes of a wide variety of materials as well as to several revolutionary technical developments, thereby profoundly influencing this field with sustained contributions for more than four decades. Nominated by: Forum on International Physics

Mattoussi, Hedi

Florida State University

Citation: For development of concepts to interface inorganic nanoparticles with biological systems, with impact on nanomaterials and biotechnology. Nominated by: Division of Condensed Matter Physics

Mavrikakis, Manos

University of Wisconsin, Madison

Citation: For his outstanding contributions to the development and use of density functional theory in the fundamental understanding of the site-specific chemical reactions and the determination and design of new catalytic materials. Nominated by: Division of Chemical Physics

Mawhinney, Robert D.

Columbus University

Citation: For his pioneering contributions using lattice techniques to the quantitative description and understanding of the physics of quarks and their role in the weak interactions and QCD phase diagram. Nominated by: Topical Group on Hadronic Physics

McCarty, Kevin F.

Sandia National Laboratories

Citation: For pioneering experimental explorations of the dynamics of ceramic and metal surfaces. Nominated by: Division of Materials Physics

McCray, Patrick

University of California, Santa Barbara

Citation: For his outstanding scholarship on the history of modern physical sciences that explores relations between experts, amateurs, and enthusiasts, and for his service to the scholarly community, including institution-building and sustained public outreach. Nominated by: Forum on the History of Physics

Messier, Mark D.

Indiana University

Citation: For study of neutrino mass and mixing from discovery with atmospheric neutrinos by Super-Kamiokande, confirmation and precision measurements using MINOS, and leadership of the NOvA long-baseline experiment to further refine the fundamental nature of neutrino oscillation. Nominated by: Division of Particles and Fields

Mints, Roman

Tel Aviv University

Citation: For contributions to the theory of critical state in type-II superconductors, and prediction of non-quantized flux of Josephson vortices on grain boundaries in high-Tc cuprates. Nominated by: Division of Condensed Matter Physics

Mishra, Chandrashekhara

Fermilab

Citation: For exceptional achievement in the creation and stewardship of international collaborations in accelerator and particle physics, especially in the Indian-American Agreement for Cooperation in the Area of Accelerator and Particle Detector Research and Development for Discovery Science. Nominated by: Forum on International Physics

Mittleman, Daniel

Rice University

Citation: For contributions to the understanding of the ultrafast optical properties and terahertz spectroscopy of materials and the investigation of new techniques for imaging and spectroscopic measurements using terahertz radiation. Nominated by: Division of Laser Science

Moody, John

Lawrence Livermore National Laboratory

Citation: For pioneering experiments contributing to understanding propagation, scattering, transmission and redirection of high-intensity laser beams in large scale plasmas for Inertial Confinement Fusion. Nominated by: Division of Plasma Physics

Moore, Joel

University of California, Berkeley

Citation: For fundamental contributions to electronic structure theory of topological insulators. Nominated by: Division of Condensed Matter Physics

Morris, Jeffrey

CUNY-CUNY

Citation: For outstanding research in the flow of multi-phase mixtures, including the development of nonequilibrium microstructure in Stokes flow, constitutive modeling and bulk flow analysis, measurement of the particle pressure, and elucidating the influence of particle-scale inertia on rheology and flow. Nominated by: Division of Fluid Dynamics

Morrison, David P.

Brookhaven National Laboratory

Citation: For his scientific and technical contributions to Relativistic Heavy Ion Physics, determination of collision geometry and its effect on Quark Gluon Plasma observables, and his leadership on the PHENIX experiment at RHIC. Nominated by: Division of Nuclear Physics

Motter, Adilson E.

Northwestern University

Citation: For his contributions to the foundations of chaos and the study of nonlinear dynamics in complex networks, including the discovery of synthetic rescues and pioneering work on network synchronization phenomena, cascading failures, and the control of nonlinear network dynamics. Nominated by: Topical Group on Statistical and Nonlinear Physics

Nair, V. Parameswaran

CUNY-CUNY

Citation: For his contributions to theoretical high energy physics, including: the symmetries of gluon amplitudes, gauge theories in three space-time dimensions (especially involving Chern-Simons theories and anyons), non-commutative quantum mechanics, and the Quantum Hall effect in higher dimensions. Nominated by: Division of Particles and Fields

Narayanan, Ranga

University of Florida, Gainesville

Citation: For seminal contributions in research and education in the field of interfacial instabilities and for work in generating novel and revealing experiments on pattern formation. Nominated by: Division of Fluid Dynamics

Navratil, Petr

TRIUMF

Citation: For his seminal contributions to the development of ab initio nuclear structure and nuclear reaction theory including pioneering demonstrations of the critical role of realistic three-nucleon interactions. Nominated by: Division of Nuclear Physics

Neaton, Jeffrey B.

Lawrence Berkeley National Laboratory

Citation: For fundamental contributions to the understanding of phase behavior, electronic structure, and transport properties of condensed matter, particularly multiferroics, nanostructures, and materials for energy conversion and storage. Nominated by: Division of Materials Physics

Neumeier, John

Montana State University

Citation: For experiments on strongly correlated electron materials, and the development of ultrahigh-resolution thermal expansion measurements to study phase transitions in quantum materials. Nominated by: Division of Condensed Matter Physics

Nogues, Josep

Univ Autònoma de Barcelona

Citation: For his significant contributions to the understanding and development of exchange bias in thin films, nanostructures and nanoparticles. Nominated by: Topical Group on Magnetism

Nolas, George S.

University of South Florida

Citation: For pioneering studies of novel thermoelectric materials, especially cage-like compounds

Pan, Jian-Wei
University of Science & Technology

Citation: For his pioneering works on experiments of optical quantum communication, quantum computation, and multi-photon entanglement, and for his important role in international physics. Nominated by: Forum on International Physics

Pan, Xiaoqing
University of Michigan

Citation: For pioneering contributions and innovative application of electron microscopy to probe and understand the effects of boundary conditions on ferroelectricity, including polarization mapping and domain dynamics, with atomic resolution. Nominated by: Division of Materials Physics

Parmigiani, Fulvio
University of Trieste

Citation: For pioneering contributions in ultra-fast non-linear photo-emission in metals and broad-band time resolved optical spectroscopy of cuprates and high temperature superconductors, and for establishing a strong, international scientific user program at the world's first seeded free electron laser facility. Nominated by: Forum on International Physics

Patel, Pravesh
Lawrence Livermore National Laboratory

Citation: For pioneering contributions in the science of ultraintense laser-matter interaction and particle acceleration and applications to creating and probing high energy density plasma states, and for his leadership in advancing the fast ignition concept for inertial confinement fusion. Nominated by: Division of Plasma Physics

Perebeinos, Vasilii V.
IBM T.J. Watson Research Center

Citation: For pioneering contributions to the theory of optical and transport properties of carbon nanotubes and graphene. Nominated by: Forum on Industrial and Applied Physics

Petriello, Frank
Northwestern University

Citation: For pioneering new methods in the application of perturbative quantum chromodynamics to high-energy processes, and for computing high precision, fully exclusive production cross sections for electroweak vector bosons and Higgs bosons at hadron colliders. Nominated by: Division of Particles and Fields

Pfister, Olivier R.
University of Virginia

Citation: For his groundbreaking contributions to quantum optics applied to quantum information and precision measurements, including his discovery of the use of the quantum optical frequency comb of a single optical resonator as a support for massively scalable quantum information. Nominated by: Division of Atomic, Molecular & Optical Physics

Piilonen, Leo E.
Virginia Tech

Citation: For his important experimental contributions in the areas of lepton physics, CP violation, the CKM matrix, and quarkonia; and for his leadership of the Belle and Belle II Collaborations. Nominated by: Division of Particles and Fields

Plimpton, Steven J.
Sandia National Laboratories

Citation: For creating the Large-scale Atomic/Molecular Massively Parallel Simulator (LAMMPS) molecular dynamics package, open-source materials modeling software that has become widely-used by physicists and materials scientist worldwide. Nominated by: Division of Computational Physics

Pohl, Martin K.W.
Universitaet Potsdam

Citation: For significant scientific contributions to cosmic-ray theory, including modeling of cosmic-ray propagation, electron acceleration in supernova remnants, magnetic turbulence production in shocks and his collaborative work in observational gamma-ray astronomy. Nominated by: Division of Astrophysics

Powers, Thomas
Brown University

Citation: For pioneering, rigorous and creative contributions to our understanding of the dynamics of membranes and filaments in viscous flows, particularly regarding the theory of bacterial motility in viscous and viscoelastic media and the role of hydrodynamic interactions at low Reynolds number. Nominated by: Division of Fluid Dynamics

Prebys, Eric J.
Fermilab

Citation: For his important contributions to the physics of beams and his exceptional efforts to shape the US - CERN collaboration enabling successful physics programs at the LHC and charting a course for US involvement in future LHC upgrades. Nominated by: Forum on International Physics

Pu, Han
Rice University

Citation: For seminal contributions to basic research in ultracold atomic physics, particularly on spinor Bose-Einstein condensates, and dipolar and spin-orbit coupled quantum gases. Nominated by: Division of Atomic, Molecular & Optical Physics

Raman, Chandra
Georgia Institute of Technology

Citation: For pioneering contributions to the study of superfluidity in Bose-Einstein condensates, including vortex dynamics and spinor quantum fluids. Nominated by: Division of Atomic, Molecular & Optical Physics

Raoux, Simon
IBM T.J. Watson Research Center

Citation: For seminal contributions to the science and technology of phase change materials and phase change random access memory technology that opened up a whole new field of memory technology. Nominated by: Forum on Industrial and Applied Physics

Raschke, Markus B.
University of Colorado

Citation: For contributions to surface and near-field optics involving nanospectroscopy, optical control, thermal near-field spectroscopy, optical nanoantennas and adiabatic nanofocusing in nonlinear and ultrafast nanoimaging. Nominated by: Division of Laser Science

Register, Leonard F.
University of Texas

Citation: For contributions to semiconductor device theory, modeling and design. Nominated by: Forum on Industrial and Applied Physics

Rey, Alejandro
McGill University

Citation: For innovative mathematical modeling of polymers, fibers, liquid crystals, and biological membranes. Nominated by: Division of Polymer Physics

Richardson, Martin C.
University of Central Florida

Citation: For the development of high-power CO₂ fiber and solid-state lasers, and their application in the study of laser plasmas, laser fusion, EUV light generation, LIBS and sensing. Nominated by: Division of Laser Science

Riedo, Elisa
Georgia Institute of Technology

Citation: For atomic force microscopy studies of nanoscale friction, liquid structure and nanotube elasticity, and the invention of thermochemical nanolithography. Nominated by: Division of Condensed Matter Physics

Rizzo, Thomas G.
Stanford University

Citation: For developing novel frameworks for new physics, for identifying critical experimental tests of such frameworks, and for working closely with experimentalists to carry out such tests and interpret the results. Nominated by: Division of Particles and Fields

Roitberg, Adrian
University of Florida

Citation: For his contribution to the development of advanced sampling techniques in molecular dynamics, and his involvement in new force fields and computer programs to model biomolecular systems. Nominated by: Division of Biological Physics

Roland, Gunther M.
Massachusetts Institute of Technology

Citation: For his pioneering work on particle correlations in high-energy nuclear interactions, which led to the discovery of triangular flow, and his role in steering the PHOBOS and CMS heavy-ion physics programs. Nominated by: Division of Nuclear Physics

Rosenkranz, Stephan
Argonne National Laboratory

Citation: For contributions to the understanding of strongly correlated electron systems using neutron and x-ray scattering. Nominated by: Division of Condensed Matter Physics

Rosner, S. David
University of Western Ontario

*Citation: For the invention of the laser-*r*f double resonance spectroscopic method, and its application to a broad range of atomic, ionic, and molecular species. Nominated by: Division of Atomic, Molecular & Optical Physics*

Roth, Markus
Tech University Darmstadt

Citation: For outstanding experimental contributions in laser-produced proton and deuterium beams, and their application to fast ignition and neutron beam generation. Nominated by: Division of Plasma Physics

Saam, Brian T.
University of Utah

Citation: For unique contributions to the science, technology, and applications of polarized noble gases, in particular studies of relaxation phenomena and magnetic resonance imaging. Nominated by: Division of Atomic, Molecular & Optical Physics

Sagui, Celeste
North Carolina State University

Citation: For her fundamental contributions to the field of computational biophysics and statistical mechanics, her development of algorithms for simulating long-range electrostatic forces and free energies, and her insights into the understanding of biomolecular structure and nanoscale growth phenomena. Nominated by: Division of Computational Physics

Salomon, Christophe E.
ENS - Lyon

Citation: For foundational contributions to precision metrology with ultracold atoms. Nominated by: Division of Atomic, Molecular & Optical Physics

Sannibale, Fernando
Lawrence Berkeley National Laboratory

Citation: For contributions to the understanding of coherent synchrotron radiation in storage rings and the development of high brightness electron beam sources. Nominated by: Division of Physics of Beams

Schatz, Michael F.
Georgia Institute of Technology

Citation: For pioneering and creative experimental contributions to the characterization and control of complex fluid and pattern formation phenomena. Nominated by: Topical Group on Statistical and Nonlinear Physics

Schippers, Stefan E.
Justus Liebig University Giessen

Citation: For wide-ranging experimental studies of the interactions of ions with photons, electrons, atoms, and solid surfaces, providing new fundamental insights into their structures and dynamics as well as accurate reaction cross sections for applications in plasma physics and astrophysics. Nominated by: Division of Atomic, Molecular & Optical Physics

Schmidt, Christoph
Georg August University

Citation: For his fundamental contributions in the development and application of single-molecule techniques in biophysics as well as pioneering work in the microrheological and micromechanical probing of biomacromolecular assemblies. Nominated by: Division of Biological Physics

Schmidt-Rohr, Klaus
Iowa State University

Citation: For inventing and improving advanced solid-state NMR techniques that provide important new information about polymers, such as the Nafion used in fuel cells, those which occur naturally in plants and soils, and those which form nanocomposites in bone. Nominated by: Division of Polymer Physics

Schmitt, Andrew
Naval Research Laboratory

Citation: For major contributions to the theory and simulation of laser plasma interactions including pioneering work on the effects of laser beam smoothing and for advancing high-resolution simulations of laser high gain direct drive implosions. Nominated by: Division of Plasma Physics

Schneider, Marilyn Beth
Lawrence Livermore National Laboratory

Citation: For outstanding contributions to x-ray measurements from laser-produced plasmas. Nominated by: Topical Group on Instrument and Measurement Science

Schoenlein, Robert W.
Lawrence Berkeley National Laboratory

Citation: For seminal contributions to ultrafast science using lasers and synchrotron radiation. Nominated by: Division of Laser Science

Scholberg, Kate
Duke University

Citation: For work with atmospheric and accelerator neutrinos that established the phenomenon of neutrino oscillation, and for leadership in the worldwide effort of the supernova neutrino detection. Nominated by: Division of Particles and Fields

Schrittwieser, Roman
University of Innsbruck

Citation: For outstanding experimental contributions to the physics of double layers, potential relaxation instabilities, fireballs and probe diagnostics in tokamaks. Nominated by: Division of Plasma Physics

Schwegler, Eric R.
Lawrence Livermore National Laboratory

Citation: For important contributions to the development of linear scaling electronic structure theory, and the use of first-principles methods to examine the properties of aqueous solutions, nanomaterials and matter under extreme conditions. Nominated by: Division of Computational Physics

Seljak, Uros
University of California, Berkeley

Citation: For seminal contributions to theoretical and observational cosmology, including the theory of anisotropies in the cosmic microwave background gravitational lensing, galaxy formation and inflation. Nominated by: Division of Astrophysics

Shaddock, Daniel A.
Australian National University

Citation: For pioneering development of precision optical interferometry in space, particularly for the detection of gravitational waves and for mapping the gravitational field of the earth. Nominated by: Topical Group on Instrument and Measurement Science

Shan, Jie
Case Western Reserve University

Citation: For outstanding contributions in understanding the physics of electronic and optical phenomena in nanoscale materials through the development and application of novel optical probes. Nominated by: Division of Laser Science

Sheng, Donna
California State University

Citation: For insights into topological and strongly correlated phases of matter using computational methods. Nominated by: Division of Condensed Matter Physics

Sheng, Zheng-Ming
Shanghai Jiao Tong University

Citation: For his significant contributions to the physics of relativistic laser-plasma interaction and its applications in laser-driven particle beams, novel radiation sources, and inertial fusion energy research through theoretical and numerical investigations. Nominated by: Division of Plasma Physics

Shoemaker, Deirdre M.
Georgia Institute of Technology

Citation: For her leading role in the investigation of dynamical and binary black hole space-times and their observational signatures. Nominated by: Division of Computational Physics

Siepmann, Joern I.
University of Minnesota

Citation: For the development of efficient Monte Carlo algorithms and accurate force fields and for applications to predictive modeling of complex chemical systems. Nominated by: Division of Chemical Physics

Siwy, Zuzanna S.
University of California, Irvine

Citation: For her innovative use of nanopores in the development of biosensors and nanofluidic ionic circuits. Nominated by: Division of Biological Physics

Skinner, Charles
Princeton Plasma Physics Laboratory

Citation: For innovations in magnetic fusion issues including tokamak dust diagnostics and tritium management and seminal contributions to x-ray lasers and applications, non-linear optics, plasma spectroscopy, and plasma-lithium interactions. Nominated by: Division of Plasma Physics

Slafer, Dennis
MicroContinuum, Inc

Citation: For pioneering the development of nano-imprint technology and related roll-to-roll processes for use in optical and opto-electronic devices. Nominated by: Forum on Industrial and Applied Physics

Smith, Michael S.
Oak Ridge National Laboratory

Citation: For outstanding achievements in experimental nuclear astrophysics, including the first demonstration of the inverse-kinematic technique of measuring capture reactions on exotic beams with direct recoil detection, for advancing this technology, and for tireless efforts to convey the significance of such measurements to the general public. Nominated by: Division of Nuclear Physics

Snow, William M.
Indiana University

Citation: For his contributions to the understanding of fundamental nuclear and particle interactions through innovative studies employing very low energy neutrons and the development of measurement techniques in neutron science. Nominated by: Topical Group Precision Measurement & Fundamental Constants

Sofa, Jorge O.
Pennsylvania State University

Citation: For contributions to computational discoveries in transport, structural and optical properties of materials, including the prediction of graphane, a hydrogenated form of graphene, the properties of an ideal thermoelectronic material, thermoelectric properties of superlattices, and the development of efficient computer codes to determine the transport and optical properties of solids. Nominated by: Division of Computational Physics

Soldati, Alfredo
University of Udine

Citation: For his contribution to our understanding of the role of turbulence in multiphase flow processes and for nurturing and promoting the teaching and study of multiphase flow phenomena. Nominated by: Division of Fluid Dynamics

Spalding, Gabriel C.
Illinois Wesleyan University

Citation: For his work to create a community of physics educators focused on physics laboratory instruction beyond the first year; for creative efforts that have made photon-quantum mechanics affordable and accessible in the undergraduate laboratory; for curricular innovations that enhance the role of laboratory in undergraduate physics education. Nominated by: Forum on Education

Spergel, David N.
Princeton University

Citation: For his pioneering contributions to the understanding of our universe. David's work with the WMAP satellite led to discovery of the geometry, age, and total content of our universe. Nominated by: Division of Astrophysics

Steffen, Matthias
IBM T.J. Watson Research Center

Citation: For seminal contributions to the field of experimental quantum computing, specifically factoring 15 using liquid state NMR techniques and advances in design, coherence, and interactions of superconducting qubits. Nominated by: Topical Group on Quantum Information

Steinrueck, Hans-Peter
University of Erlangen-Nuemberg

Citation: For his groundbreaking work on photoelectron spectroscopy of ionic liquid surfaces as well as in-situ investigations of surface reactions coupling photoelectron spectroscopy and molecular beam techniques. Nominated by: Division of Chemical Physics

Stephanov, Mikhail
University of Illinois

Citation: For seminal contributions to the theory of high energy density strongly interacting matter, and to the understanding of strong interactions in the strong coupling limit and for being among the first to propose the use of fluctuations to search for phase transitions in heavy ion collisions, for which there is now an active experimental program at the RHIC accelerator. Nominated by: Division of Nuclear Physics

Stone, James M.
Princeton University

Citation: For his leading role in the development of tools for computational magnetohydrodynamics and in advancing our understanding of the physics of accretion disks, the dynamics of disk driven winds, and the dynamics of molecular clouds. Nominated by: Division of Astrophysics

Sung, Hyung Jin
KAIST

Citation: For contributions to turbulence, fluid-structure interaction and opto/micro fluidics to find the fundamental physics of these flows and their applications using various numerical and experimental techniques. Nominated by: Division of Fluid Dynamics

Tait, Timothy M.P.
University of California, Irvine

Citation: For seminal contributions to studies of theories beyond the Standard Model and for pioneering work at the interface of particle physics and astrophysics, developing connections between the physics of the colliders and dark matter detection. Nominated by: Division of Particles and Fields

Tanatar, Makariy
Iowa State University

Citation: For studies of the superconducting and normal states of unconventional superconductors using directional charge and heat transport measurements. Nominated by: Division of Condensed Matter Physics

Tauber, Uwe C.
Virginia Tech

Citation: For seminal and sustained contributions to the understand-

ing of non-equilibrium, universal properties of reaction diffusion processes and driven diffusive systems, with applications in materials science and biological systems. Nominated by: Topical Group on Statistical and Nonlinear Physics

Thacker, Harry B.
University of Virginia

Citation: For contributions to the study of nonperturbative quantum field theory and Lattice QCD. Nominated by: Division of Particles and Fields

Thompson, Ian J.
Lawrence Livermore National Laboratory

Citation: For the development and application of all-order treatments of nuclear-cluster dynamics in peripheral reactions; leading to a new understanding of halo nuclei within a few-body framework. Nominated by: Division of Nuclear Physics

Timmes, Francis X.
Arizona State University

Citation: For his leadership (both in computation and physics) in and contributions to nuclear astrophysics throughout all aspects of stellar explosions of both types of supernovae from progenitors, explosions and nucleosynthetic yield dispersal in the universe. Nominated by: Division of Astrophysics

Tobias, Douglas J.
University of California, Irvine

Citation: For his major contributions to the physical understanding of heterogeneous atmospheric chemistry, in particular of ions at water/air interfaces and of the molecular structure of salt solutions, also for his findings on the hydration and molecular structure of biological membranes. Nominated by: Division of Chemical Physics

Todadri, Senthil
Massachusetts Institute of Technology

Citation: For insights into exotic phases of matter and phase transitions beyond the Landau paradigm. Nominated by: Division of Condensed Matter Physics

Turkevich, Leonid A.
NIOSH/CDC

Citation: For seminal contributions in condensed matter phase behavior, complex fluids (colloidal aggregation, microemulsions) and finely divided matter (aerosols, dust); and for utilizing those physical insights to solve complex problems in petroleum extraction and in occupational safety and health (air filtration, inhalation hazards). Nominated by: Forum on Industrial and Applied Physics

Valles, James
Brown University

Citation: For experimental contributions to the understanding of the relationship between structure and the 2-dimensional superconducting-insulating transition. Nominated by: Division of Condensed Matter Physics

van der Hart, Hugo W.
Queen's University of Belfast

Citation: For innovative theoretical developments in the field of multi-photon processes, particularly in the context of ultra-short laser pulses, and for their successful application in the solution of problems involving electron-electron interactions. Nominated by: Division of Atomic, Molecular & Optical Physics

Van Ruitenbeek, Jan
University of Leiden

Citation: For studies of the transport properties of small junctions and molecules. Nominated by: Division of Condensed Matter Physics

Verzicco, Roberto
University of Roma

Citation: For his seminal contribution to the development of algorithms for direct numerical simulations of thermally driven turbulence, vortex flows, and complex flows, for the resulting deep physical understanding of these flows, and for his collaborative attitude which has strongly served the fluid dynamics community. Nominated by: Division of Fluid Dynamics

Vinals, Jorge
University of Minnesota

Citation: For his contributions to pattern formation in nonequilibrium systems, especially quasi crystalline patterns in Faraday waves, domain coarsening in modulated phases, and the general study of coarse grained fluids described by an order parameter. Nominated by: Division of Fluid Dynamics

Vishwanath, Ashvin
University of California, Berkeley

Citation: For fundamental contributions to theory of quantum phase transitions and topological phenomena in quantum matter. Nominated by: Division of Condensed Matter Physics

Vogelaar, Robert B.
Virginia Tech

Citation: For significant contributions to neutrino physics and underground science, especially through his leadership in calibrating theorexino detector, with the first real-time detection of 7Be solar neutrinos, and his creation of the Kimballton Underground Research Facility, which is opening up new opportunities for fundamental physics experiments. Nominated by: Division of Nuclear Physics

Vokos, Stamatis
Seattle Pacific University

Citation: For using physics education research to help improve the learning of physics in Washington State, for leading the multi-year efforts of the Task Force on Teacher Education in Physics, and for serving as a nexus of multiple productive collaborations. Nominated by: Forum on Education

Vos, Willem
University of Twente

Citation: For contributions to our understanding of multiple scattering of light in photonic band gap crystals and random media. Nominated by: Division of Condensed Matter Physics

Wang, Jian
University of Hong Kong

Citation: For his fundamental contributions to quantum transport theory that has led to state-of-the-art computation methods for nanoelectronic device modeling. Nominated by: Division of Computational Physics

Wang, Wei-Hua
Chinese Academy of Science

Citation: For significant contributions to the understanding of the physical properties of metallic glasses, in particular, the development of the microscopic mechanisms of metallic glass formation and their mechanical properties. Nominated by: Division of Materials Physics

Wark, Justin S.
University of Oxford

Citation: For seminal contributions towards understanding matter at extreme conditions through his pioneering development of advanced ultra-fast x-ray diffraction and x-ray spectroscopy. Nominated by: Topical Group on Shock Compression of Condensed Matter

Wells, James D.
University of Michigan

Citation: For his many fundamental contributions to theories of new physics beyond the Standard Model, including the role of electroweak symmetry breaking, Higgs boson physics, and collider searches for supersymmetry and extra dimensions. Nominated by: Division of Particles and Fields

Wen, Hai-Hu
Chinese Academy of Science

Citation: For investigations of unconventional pairing mechanisms in high temperature superconductors and elucidation of their vortex dynamics. Nominated by: Division of Condensed Matter Physics

Wereley, Steven
Purdue University

Citation: For pioneering contributions to the development of microPIV and microfluidics, authoring broadly-used monographs on PIV and microfluidics, and meritoriously representing the fluid dynamics com-

community in the Deepwater Horizon Oil Spill. Nominated by: Division of Fluid Dynamics

Wesfreid, Jose
ESPCI

Citation: For pioneering experiments in pattern formation as well as transition and flow control, and for scientific leadership in France and building partnerships with Latin America. Nominated by: Division of Fluid Dynamics

Westerhoff, Stefan
University of Wisconsin, Madison

Citation: For contributions to particle astrophysics covering gamma ray, neutrino and cosmic ray experiments, especially to the commissioning of a new generation of experiments. For elucidating the statistics of the search for anisotropies in the cosmic ray flux and mapping the arrival directions of Galactic cosmic rays in the southern sky using IceCube data. Nominated by: Division of Astrophysics

Wilson, Angela K.
University of North Texas

Citation: For her work in the understanding, development, and application of ab initio methods and basis sets. Nominated by: Division of Chemical Physics

Wyslouch, Boleslaw
Massachusetts Institute of Technology

Citation: For his leadership role in the PHOBOS experiment and in creating a world-class heavy ion research program within the CMS Collaboration at the LHC. Nominated by: Topical Group on Hadronic Physics

Yan, Yijing
Hong Kong University of Science & Technology

Citation: For his pioneering and seminal investigations of the fundamental theory for quantum dissipative dynamics of open systems, together with applications to the systems involved in laser manipulation and detection, time-dependent quantum transport, nonlinear optical spectroscopy, and strong electron-electron interactions. Nominated by: Division of Chemical Physics

Yuan, Chien-Peng
Michigan State University

Citation: For original contributions to the theory of single top-quark production, the development of QCD resummation techniques, the global analysis of parton distribution functions, and their application to hadron collider physics. Nominated by: Division of Particles and Fields

Zhao, Jiang
Chinese Academy of Science

Citation: For imaginative and successful applications of single-molecule fluorescence spectroscopy to polymer physics issues ranging from polyelectrolytes to chain crystallization. Nominated by: Division of Polymer Physics

Zinkle, Steven J.
Oak Ridge National Laboratory

Citation: For significant contributions to the fundamental understanding of radiation effects in metallic and ceramic materials. Nominated by: Division of Materials Physics

Zuo, Jian-Min
University of Illinois, Urbana-Champaign

Citation: For major contributions to the development of electron nanodiffraction and coherent diffraction for quantitative atomic structural analysis, and to their applications in fundamental understanding of nanoscale structural physics in solids, solid interfaces and surfaces. Nominated by: Division of Materials Physics

Call for Nominations for 2015 APS Prizes and Awards

To nominate a candidate for any of the APS prizes or awards, visit the appropriate link under the prize name to complete a nomination form. Nomination deadline is July 1, 2014, unless otherwise indicated on the website.

PRIZES						
Hans A. Bethe Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=BETHE	George E. Pake Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=PAKE	Leroy Apker Award APKER@APS.ORG	Thomas Stix Award http://prizes.aps.org/prizes/login.cfm?PRIZE=STIX			
Tom W. Bonner Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=BONNER	W.K.H. Panofsky Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=PANOFSKY	Edward A. Bouchet Award http://prizes.aps.org/prizes/login.cfm?PRIZE=BOUCHET	Leo Szilard Lectureship http://prizes.aps.org/prizes/login.cfm?PRIZE=SZILARD			
Herbert P. Broida Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=BROIDA	Earle K. Plyler Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=PLYLER	Joseph A. Burton Award http://prizes.aps.org/prizes/login.cfm?PRIZE=BURTON	John Wheatley Award http://prizes.aps.org/prizes/login.cfm?PRIZE=WHEATLEY			
Oliver E. Buckley Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=BUCKLEY	Polymer Physics Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=POLYMER	Stanley Corrsin Award http://prizes.aps.org/prizes/login.cfm?PRIZE=CORRSIN	DISSERTATION AWARDS			
Davisson-Germer Prize http://prizes.aps.org/prizes/login.cfm?PRIZES=DAVISSON	I.I. Rabi Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=RABI	John Dawson Award for Excellence in Plasma Physics Research http://prizes.aps.org/prizes/login.cfm?PRIZE=PLASMA	Andreas Acrivos http://prizes.aps.org/prizes/login.cfm?PRIZE=ACRIVOS			
Einstein Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=EINSTEIN	Aneesur Rahman Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=RAHMAN	John H. Dillon Medal http://prizes.aps.org/prizes/login.cfm?PRIZE=DILLON	Biological Physics Dissertation Award Jennifer Ross, University of Massachusetts, Amherst, Department of Physics, 666 N. Pleasant Street, Amherst, MA 01003 Email: DBIO.info@gmail.com			
Herman Feshbach Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=FESHBACH	Andrei Sakharov Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=SAKHAROV	George E. Duvall Shock Compression Science Award http://prizes.aps.org/prizes/login.cfm?PRIZE=DUVALL	Dissertation Award in Nuclear Physics Robert Tribble, Texas A&M University, Cyclotron Institute, College Station, TX 77843 Email tribble@comp.tamu.edu			
Fluid Dynamics Prize http://prizes.aps.org/prizes/login.cfm?prize=FLUID	J.J. Sakurai Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=SAKURAI	Excellence in Physics Education Award http://prizes.aps.org/prizes/login.cfm?PRIZE=EDUCATION	Marshall N. Rosenbluth Dissertation Award http://prizes.aps.org/prizes/login.cfm?PRIZE=ROSENBLUTH			
Dannie Heineman Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=HEINEMAN	Arthur L. Schalow Prize http://prizes.aps.org/prizes/login.cfm?prize=SCHALOW	Joseph F. Keithley Award http://prizes.aps.org/prizes/login.cfm?PRIZE=KEITHLEY	Outstanding Doctoral Thesis Research in Beam Physics Award Eric Colby, SLAC, Building 041, RM 136C, 575 Sand Hill Road, Menlo Park, CA 94025 Email ecolby@slac.stanford.edu			
Irving Langmuir Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=LANGMUIR	Prize for Industrial Applications of Physics http://prizes.aps.org/prizes/login.cfm?PRIZE=INDUSTRIAL	Landau-Spitzer Award http://prizes.aps.org/prizes/login.cfm?PRIZE=LANDAU	Nicholas Metropolis Dissertation Award Salman Habib, Argonne National Laboratory, Mathematics and Computer Science, 9700 S. Cass Avenue, Argonne, IL 60439 Email: habib@anl.gov			
Julius Edgar Lilienfeld Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=LILIENFELD	Prize to a Faculty Member for Research in an Undergraduate Institution http://prizes.aps.org/prizes/login.cfm?PRIZE=UNDERGRADUATE	Maria Goeppert Mayer Award http://prizes.aps.org/prizes/login.cfm?PRIZE=MGM	Mitsuyoshi Tanaka Dissertation Award Vivek Sharma, University of California, San Diego Email: vsharma@ucsd.edu			
James Clerk Maxwell Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=MAXWELL	George E. Valley, Jr Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=VALLEY	Nicholson Medal http://prizes.aps.org/prizes/login.cfm?PRIZE=NICHOLSON				
James C. McGroddy Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=MCGRODDY	Robert R. Wilson Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=WILSON	Francis M. Pipkin Award http://prizes.aps.org/prizes/login.cfm?PRIZE=PIPKIN				
Lars Onsager Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=ONSAGER	AWARDS, MEDALS & LECTURESHIPS					
Abraham Pais Prize http://prizes.aps.org/prizes/login.cfm?PRIZE=PAIS	David Adler Lectureship http://prizes.aps.org/prizes/login.cfm?PRIZE=ADLER	Henry Primakoff Award http://prizes.aps.org/prizes/login.cfm?PRIZE=PRIMAKOFF				
		Jonathan F. Reichert and Barbara Wolff-Reichert Award http://prizes.aps.org/prizes/login.cfm?PRIZE=REICHERT				

2014 APS Fellowship Nomination Deadlines

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

DIVISIONS

Astrophysics	06/01/2014
Biological Physics	06/01/2014
Chemical Physics	04/01/2014
Computational Physics	06/01/2014
DAMOP (Atomic, Molecular, Optical)	04/01/2014
DCMP (Condensed Matter)	PAST
Fluid Dynamics	04/01/2014
Polymer Physics	06/01/2014
Laser Science	04/01/2014
Materials Physics	PAST
Nuclear Physics	04/01/2014
Particles & Fields	04/01/2014

Physics of Beams	04/01/2014
Plasma Physics	04/01/2014
FORUMS	
Education	04/01/2014
History of Physics	06/01/2014
Industrial and Applied Physics	06/01/2014
International Physics	05/15/2014
Outreach and Engaging the Public	PAST
Physics & Society	06/01/2014
TOPICAL GROUPS	
Energy Research & Applications	04/01/2014
Few Body	05/31/2014

Gravitation	06/01/2014
Hadronic Physics	06/01/2014
Instrument & Measurement Science	05/01/2014
Magnetism and Its Applications	06/01/2014
Plasma Astrophysics	04/01/2014
Precision Measurement & Fund. Const.	05/01/2014
Quantum Information	05/01/2014
Shock Compression	04/01/2014
Statistical & Nonlinear Physics	05/01/2014

APS GENERAL.....06/01/2014

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.