APS Hands Out Awards and Prizes at March and April Meetings

The American Physical Society is giving out many awards, prizes, and medals at its annual March meeting, being held this year in Baltimore, Maryland (see page 54 for the meeting preview).

James Chelikowsky is receiving the David Adler Lectureship Award "for his creative and outstanding research in computational materials physics and for his effectiveness in communicating research results through lectures and publications," according to the APS citation. He is W. A. "Tex" Moncrief Jr Chair in Computational Materials within the Institute for Computational Engineering and Sciences at the University of Texas at Austin, where he is professor in the departments of physics, chemical engineering, and chemistry and biochemistry.

Michael A. Lieberman is receiving the Will Allis Prize "for his ground-breaking and insightful, experimental and theoretical work on the physics of electrical discharges and their applications to plasma processing." Lieberman is a professor in the graduate school of the electrical engineering and computer sciences department at the University of California, Berkeley.

Nathaniel Craig and **David Miller** are recipients of the LeRoy Apker Award for 2005 for research done at a PhD-granting institution. Currently a graduate student at Stanford University, Craig, who did his research as an undergraduate at Harvard University under the guidance of physics professor Charles Marcus, is receiving the award for research on "tunable nonlocal spin control in a coupled quantum dot system." Miller, who is working on the commissioning of the ATLAS Tile Calorimeter for the Large Hadron Collider at CERN and who plans to attend the graduate program in physics at Stanford University, was cited for his work on a "search for high energy axions with the CAST calorimeter" while an undergraduate in the Kavli Institute for Cosmological Physics at the University of Chicago.

Matthew Paoletti, currently a PhD student at the University of Maryland, College Park, is receiving the LeRoy Apker award for research done at a non-PhD-granting institution for his thesis entitled "Experimental Studies of the Effects of Chaotic Mixing on an Advection-Reaction-Diffusion System." He completed the work at Bucknell University under the supervision of Tom Solomon.

The Biological Physics Prize goes to **Alfred G. Redfield** "for his seminal contributions to the theory and technical development of nuclear magnetic resonance spectroscopy, and for pioneering applications of this technique to the study of biological molecules." Redfield is a professor emeritus of physics and biochemistry at the Rosenstiel Basic Medical Sciences Research Center at Brandeis University in Waltham, Massachusetts.

The Edward A. Bouchet Award is going to **Angel E. Garcia** "for his contributions to the understanding of the role of water in the dynamics and folding of proteins through computer simulations." Garcia is a senior constellation professor in the physics, applied physics, and astronomy department at Rensselaer Polytechnic Institute in Troy, New York.

Noel A. Clark and **Robert Meyer** are co-recipients of the Oliver E. Buckley Prize "for groundbreaking experimental and theoretical contributions to the fundamental science and applications of liquid crystals, particularly their ferroelectric and chiral properties," according to the APS citation. Clark is a physics professor and director of the Liquid Crystal Materials Research Center at the University of Colorado, Boulder. Meyer is a physics professor at Brandeis University.

C. Lewis Cocke is being awarded the Davisson–Germer Prize "for a sustained record of novel experimental developments and new insights into interactions of ion and photon beams with atoms and molecules." Cocke is University Distinguished Professor of physics and director of the J. R. Macdonald Laboratory at Kansas State University.

The John H. Dillon Medal for Research in Polymer Physics is going to **Kenji Urayama**, an associate professor in the materials chemistry department at Kyoto University in Kyoto, Japan. Urayama is receiving the medal "for insightful experiments that probe the nature of polymer networks."

The Frank Isakson Prize for Optical Effects in Solids goes to **Roberto Merlin** "for original contributions to spontaneous Raman and ultrafast spectroscopy of fundamental excitations in solids." Merlin is a professor in the physics and the electrical engineering and computer science departments at the University of Michigan, where he is also director of the optical physics interdisciplinary laboratory.

Frances Hellman is receiving the Joseph F. Keithley Award for "using emerging micromachining techniques to significantly extend the range of calorimetry into the realm of nanoscale science by construction of silicon-based microcalorimeters capable of operating in extreme environments with unprecedented sensitivity and accuracy." She is a professor in the physics and the materials science and engineering departments at UC Berkeley and a member of the materials sciences division at Lawrence Berkeley National Laboratory.

Hui Cao is receiving the Maria Goeppert-Mayer Award "for her groundbreaking contributions to the experimental studies of coherent light generation and transport in disordered media, including her invention of microlasers based on disordered media." Cao is an associate professor of physics and astronomy at Northwestern University.

The Nicholas Metropolis Award is going to **Joseph A. Barranco** "for the development of computational techniques to handle 3D compact vortices in rotating shear flows, and for the application of these techniques to solve longstanding problems in the theory of planet and star formation," according to APS. Barranco is an NSF astronomy postdoctoral fellow at the Kavli Institute for Theoretical Physics.

Hongjie Dai and **Alex Zettl** are co-recipients of the James C. McGroddy Prize for New Materials "for developing novel synthesis pathways for preparing carbon and boron nitride nanotubes and for pioneering applications of these for sensing, electronics and nanomechanics," the APS citation says. Dai is an associate professor of chemistry at Stanford University, and Zettl is a physics professor at UC Berkeley and a senior scientist at Lawrence Berkeley National Laboratory.

Rodney James Baxter is receiving the Lars Onsager Prize "for his original and groundbreaking contributions to the field of exactly solved models in statistical mechanics, which continue to inspire profound

developments in statistical physics and related fields." Baxter is an emeritus professor at the Mathematical Sciences Institute of the Australian National University in Canberra.

Charles B. Duke is the recipient of the George E. Pake Prize for his "groundbreaking theoretical contributions to the understanding of tunneling in solids, and inelastic scattering of low-energy electrons in solids, and for his outstanding contributions to Xerox corporate research both as an intellectual and research manager." Duke is vice president and senior research fellow in the Xerox innovation group, headquartered in Rochester, New York.

The Earl K. Plyler Prize for Molecular Spectroscopy is being given to **Mark Johnson** "for the applications of spectroscopic methods towards the understanding of solvation on the microscopic scale, especially the solvation of protons and hydroxide anions by water." Johnson is a chemistry professor at Yale University.

Ludwik Leibler, adjunct professor of soft matter and chemistry at École Supérieure de Physique et Chimie Industrielles in Paris, is the recipient of the Polymer Prize in Physics. He is being honored "for outstanding theoretical contributions to the fundamental understanding of self-assembly of diblock copolymers and gels, and wetting."

David Vanderbilt is receiving the Aneesur Rahman Prize "for his conceptual breakthroughs in his development of the ultrasoft pseudopotential and the modern theory of polarization, and their impact on first-principles investigations of the properties of materials." He is a professor in the physics and astronomy department at Rutgers University.

The Prize for Research in an Undergraduate Institute is being awarded jointly to **Rainer Grobe** and **Q. Charles Su** "for their outstanding effort at creating a successful and renowned optical theory research program at Illinois State University, and for their exemplary involvement of undergraduates in this research." Grobe is Distinguished Professor of Physics and Su is a professor of physics, both at Illinois State University.

The following awards, prizes, and medals will be distributed at the APS April meeting:

The late **Alastair G. W. Cameron**, professor emeritus at Harvard University, the Donald H. Menzel Research Professor of Astrophysics at Harvard, and a research scientist in the Lunar and Planetary Laboratory at the University of Arizona, will posthumously receive the Hans A. Bethe Prize. Cameron is cited "for his pioneering work in developing the fundamental concepts of nuclear astrophysics. These basic ideas, laid out almost 50 years ago, are still the basis of current research in this field."

John C. Hardy and **Ian S. Towner** are jointly receiving the Tom W. Bonner Prize "in recognition of their ultra-high precision measurements and extraordinarily detailed analyses of $0^+ \rightarrow 0^+$ nuclear beta decay rates to explore the unitarity of the Cabibbo-Kobayashi-Maskawa quark mixing matrix as a test of the electroweak Standard Model," according to the APS citation. Hardy is a professor of physics at Texas A&M University in College Station, Texas, and a group leader at the Cyclotron Institute there. Towner is an adjunct professor of physics at Queen's University in Ontario, Canada.

The Joseph A. Burton Forum Award is going to **David Albright** "for his tireless and productive efforts to slow the transfer of nuclear weapons technology. He brings a unique combination of deep understanding, objectivity, and effectiveness to this vexed area." Albright is founder and president of the Institute for Science and International Security in Washington, DC.

The Dissertation in Nuclear Physics Award goes this year to **Li-Bang Wang**, who is being honored "for his outstanding and innovative experimental work to precisely measure the charge radius of the exotic and short-lived isotope ^{6}He by laser spectroscopic studies of single atoms stored in a magneto-optical trap. The result helps to reveal the nature of weakly bound nuclei and serves as a key benchmark for nuclear models." He developed his thesis under the guidance of adviser Roy Holt at the University of Illinois at Urbana-Champaign. Wang currently is a postdoctoral fellow at Los Alamos National Laboratory.

The three recipients of the Dannie Heineman Prize for Mathematical Physics, which is jointly awarded by APS and the American Institute of Physics, are **Sergio Ferrara**, **Daniel Z. Freedman**, and **Peter van Nieuwenhuizen**, who are being honored "for constructing supergravity, the first supersymmetric extension of Einstein's theory of general relativity, and for their central role in its subsequent development." Ferrara is a senior staff member of the physics department at CERN, Freedman is a professor of applied mathematics and physics at MIT, and Nieuwenhuizen is Distinguished Professor of Physics at

the C. N. Yang Institute of Theoretical Physics at Stony Brook University.

Mikhail Shifman is receiving the Julius Edgar Lilienfeld Prize "for contributions to theoretical high energy physics, in particular for the understanding of strong interactions and dynamics of supersymmetric gauge theories, and for communicating the excitement of science to the public." He is the Ida Cohen Fine Chair in Theoretical Physics at the William I. Fine Theoretical Physics Institute School of Physics and Astronomy at the University of Minnesota.

The Nicholson Medal for Human Outreach for 2005 is being handed out to **Padma Kant Shukla** "for his prodigious and successful efforts in encouraging young scientists from under-represented countries throughout the world, by his regular visits to their universities and by facilitating their participation in international meetings and workshops." Kant Shukla is a senior scientist on the faculty of physics and astronomy at Ruhr University in Bochum, Germany; a visiting professor in the physics department at Umea University, Sweden; an associate member of the Max Planck Institute for Extraterrestrial Physics in Garching, Germany; and a visiting professor in the physics department at the University of Strathclyde in Glasgow, Scotland.

The Abraham Pais Prize for History of Physics is being given to **John Lewis Heilbron** "for his groundbreaking and broad historical studies, ranging from the use of Renaissance churches for astronomy, through 17th- and 18th-century electrical science, to modern physics." Heilbron is a history professor and emeritus vice chancellor at the University of California, Berkeley; senior research fellow at Worcester College, Oxford, UK; and a visiting professor at Yale University.

William T. Ford, **John A. Jaros**, and **Nigel S. Lockyer** jointly receive the W. K. H. Panofsky Prize in Experimental Particle Physics. They are cited "for their leading contributions to the discovery of the long b-quark lifetime with the MAC and Mark II experiments at SLAC. The unexpectedly large value of the b-quark lifetime revealed the hierarchy of the Cabibbo-Kobayashi-Maskawa quark mixing matrix." Ford is a physics professor at the University of Colorado, Boulder; Jaros is a professor of experimental particle physics at SLAC, where he is group leader of the high-energy physics faculty; and Lockyer is a professor of physics and astronomy at the University of Pennsylvania.

The recipient of the Andrei Sakharov Prize is **Yuri F. Orlov**, who is being honored "for his distinction as a creative physicist and as a life-long, ardent leader in the defense and development of international human rights, justice and the freedom of expression for scientists." Orlov is a senior scientist at the F. R. Newman Laboratory for Elementary-Particle Physics at Cornell University in Ithaca, New York, and a consultant at Brookhaven National Laboratory.

Receiving the J. J. Sakurai Prize for Theoretical Particle Physics is **Savas Dimopoulos** "for his creative ideas on dynamical symmetry breaking, supersymmetry, and extra spatial dimensions, which have shaped theoretical research on TeV-scale physics, thereby inspiring a wide range of experiments." Dimopoulos is a physics professor at Stanford University.

The Arthur L. Schawlow Prize in Laser Science goes this year to **Paul B. Corkum**, who has made "seminal contributions to the development of ultrasoft, intense laser-field science, including his development of the recollision model for laser-matter interactions, and his leadership in the emerging field of attosecond laser science." Corkum is the femtosecond science program leader at the Steacie Institute for Molecular Sciences of the National Research Council of Canada in Ontario.

Paul G. Richards is the recipient of the Leo Szilard Lectureship Award "for work applying his expertise in geophysics to seismic detection of nuclear explosions. His developments in 'forensic seismology' are at the heart of the verification required for a test ban." Richards is the Mellon Professor of Natural Sciences at Columbia University.

Florencia Canelli is the winner of the 2005 Mitsuyoshi Tanaka Dissertation Award in Experimental Particle Physics "for developing a new technique for extracting the maximum information in top decay events in order to measure the W boson helicity." Canelli is a postdoctoral fellow at UCLA working on the CDF experiment at Fermilab.

The Robert R. Wilson Prize for Achievement in the Physics of Particle Accelerators is being handed out to **Glen R. Lambertson** "for fundamental contributions to accelerator science and technology particularly in the area of beam electrodynamics including the development of beam instrumentation for the feedback systems that are essential for the operation of high luminosity electron and hadron colliders." Lambertson is a retired senior physicist and group leader at the center for beam physics at Lawrence Berkeley National Laboratory.

The following awards and prizes were distributed during APS division meetings last fall.

Nathaniel Fisch was honored with the 2005 James Clerk Maxwell Prize for Plasma Physics. Fisch was cited "for theoretical development of efficient radiofrequency-driven current in plasmas and for greatly expanding our ability to understand, to analyze, and to utilize wave–plasma interactions." He is a professor of astrophysical sciences and director of the program in plasma physics at Princeton University, an associated faculty member in the mechanical and aerospace engineering department, and the associate director for academic affairs at the Princeton Plasma Physics Laboratory.

Howard Milchberg has received the 2005 Excellence in Plasma Physics Research Award "for the conception and first realization of hydrodynamic shock-formed plasma channels, and for the development of diagnostics for their characterization." Milchberg is a professor in the Institute for Physical Science and Technology, the electrical and computer engineering department, and the physics department, all at the University of Maryland, College Park.

Ronald J. Adrian was honored with the 2005 Fluid Dynamics Prize "for his advancement of experimental techniques and their integration into experiments that have led to new insight into complex flows," according to the APS citation. Adrian is the Ira A. Fulton Professor of Mechanical and Aerospace Engineering at Arizona State University, Tempe.

Receiving the Marshall N. Rosenbluth Outstanding Doctoral Thesis Award for 2005 was **Stefan P. Gerhardt** "for insightful theoretical modeling and innovative experimental measurement of plasma flows in three-dimensional toroidal geometries and demonstration of reduced parallel viscous damping with quasi-symmetry." Gerhardt is a researcher at the Magnetic Reconnection Experiment at the Princeton Plasma Physics Laboratory.

The Andreas Acrivos Dissertation Award has gone to **Silas D. Alben**, a lecturer in Harvard University's engineering and applied sciences department. According to the society's citation, he received the award "for elegant mathematical and numerical analysis of fluid-structure interaction to elucidate deformation-induced drag reduction of flexible membranes in a wind and induction of forward flight

by the symmetry-breaking flapping of wings."

Pinkerton Is ACA Vice President for 2006

Entreating the American Crystallographic Association to support the newest generation of crystallographers, **A. Alan Pinkerton** took office 1 January as the society's vice president for 2006.

Chair of the chemistry department at the University of Toledo and a 1966 graduate of the Royal Institute of Chemistry in the UK, Pinkerton earned his PhD from the University of Alberta in 1971 and did postdoctoral work in crystallography during the next five years at prominent universities in the UK, Switzerland, and France.

Pinkerton

Pinkerton, who also has joint appointments in Toledo's medicinal and biological chemistry department and physics and astronomy department, joined the university in 1984. He also has an adjunct faculty position at Bowling Green State University.

In a prepared statement, Pinkerton said ACA must provide aid and support to young scientists.

"The next generation of crystallographers . . . is our future," Pinkerton said in the society's summer 2005 newsletter. "Perhaps the heaviest responsibility of the ACA is to ensure their education and participation in our activities."

In the past 30 years, Pinkerton has published some 200 papers that apply crystallographic ideas and techniques to many topics. He has acquired research funding for projects involving lanthanide chemistry, charge-density studies of biologically active compounds, energetic materials, and cryogenic cooling of protein crystals. His recent research has focused on developing methods for data quality in small-molecule and protein data, and on applying those methods to charge-density studies.

Pinkerton has served on ACA's committees for development, apparatus and standards, and nominations, and has chaired the association's small-molecule special interest group. He also was a member of the American Institute of Physics development committee from 1995 to 1997.

In other ACA elections news, **Andrew J. Howard** (Illinois Institute of Technology, Chicago) was elected to a four-year term on the data, computing, and standards committee. **William J. Pennington** (Clemson University, Clemson, South Carolina) won a four-year term on the communications committee and **Christopher L. Cahill** (George Washington University, Washington, DC) was elected to a four-year term on the continuing education committee.

AAPT Honors Two

The former head of the American Institute of Physics is one of two physics educators who have been honored this year by the American Association of Physics Teachers for their work in introducing physics concepts to students and the public.

Kenneth W. Ford is the recipient of the Oersted Medal, AAPT's most prestigious award. The retired executive director and chief executive officer of AIP, where he served from 1987 to 1993, Ford last worked as a consultant to the John Templeton Foundation in West Conshohocken, Pennsylvania, from 2001 to 2002. As part of the award, which was bestowed at a January ceremony during AAPT's winter meeting in Anchorage, Alaska, he received a certificate and $10 000, and presented a talk, "Love Them to Death," which focused on his teaching odyssey and the experience and importance of teaching science and physics to students at every level.

Ford

Neil Ashby, an emeritus physics professor at the University of Colorado at Boulder, will receive AAPT's Richtmyer Memorial Award. An affiliate at NIST, Ashby is also a mentor to about 30 graduate students and postdocs who work at NIST and are employees of the University of Colorado. Ashby received a certificate

Ashby