APS NEWS

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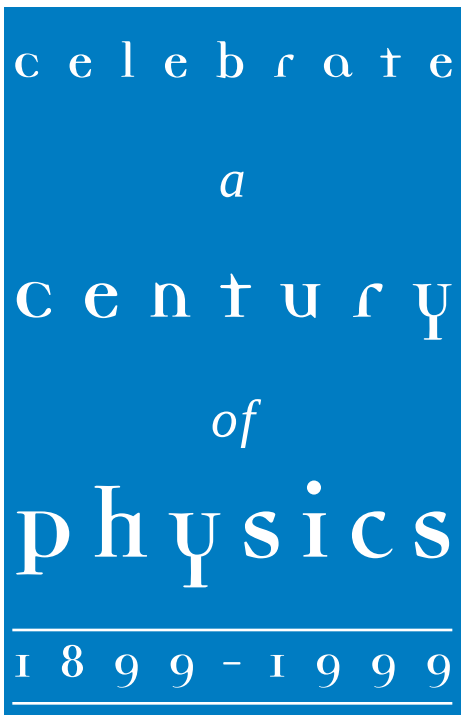
12 Months to Go

One Year Until APS Centennial Celebration in Atlanta

Plans are now underway in earnest for the upcoming APS Centennial Celebration a year from now. A large general meeting, combining the regular March and April meetings of the Society, will be held starting Saturday 20 March through Friday 26 March in Atlanta, Georgia, bringing together participants from all branches of physics in the US as well as representatives from foreign physical societies. As the largest physics meeting ever held, the occasion will provide the opportunity to honor the many great discoveries in physics in the last century, as well as highlight current ground-breaking work leading to the next century.

"The Centennial Celebration is a unique event in that it will bring the physics community, both nationally and internationally, together for a look back at the past and into the future," said APS President-Elect Jerome Friedman (Massachusetts Institute of Technology), who will serve as president during the Society's Centennial year. "It will also provide an opportunity for the APS to make the general public more aware of the accomplishments of physics research and the benefits it brings to society, and hence the importance of investing in physics in the future."



The meeting will feature the usual technical programming covering all topics in physics with symposia on the latest results in cutting-edge physics research. However, there will also be several special symposia and events in honor of the APS Centennial. For instance, the APS divisions, topical groups and forums are organizing special symposia showcasing both the major accomplishments in each discipline during the 20th century, and the many challenges and opportunities facing the field in the next century. A keynote address by President Clinton, opening remarks by APS Past President D. Allan Bromely (Yale University), and the annual retiring presidential address by Andrew Sessler (LBL) are also planned. A special Centennial advance program featuring all of the planned symposia and details of other special events will be available to members this September.

In addition, the Centennial Steering Committee — comprised of the APS presidential line and operating officers — has organized a series of special plenary sessions featuring numerous world-renowned scientists speaking on a wide range of topics. These include Steven Weinberg of the University of Texas, Austin, on the physics of the very large and very small; Harold Varmus, director of the National Institute of Health, on the impact of physics on biology and medicine; Joel Birnbaum, senior vice president of R&D at Hewlett-Packard, on physics and the information revolution; Mary Good, managing member of Venture Capital and former Under-Secretary for Technology at the US Department of Commerce, on physics and technology; Richard Smalley of Rice University on physics and materials; and Martin Klein of Yale University on 20th century physics and its cultural impact.

Aside from the technical program, there are currently plans for a wide range of special events designed to celebrate physics, honor those who have made an impact on the discipline, interest current and future scientists, and demonstrate the importance of physics and its place in daily life. These plans include a gala Sunday night (black-tie optional) dinner at Fernbank Museum of Natural History; a Saturday evening international banquet honoring the representatives from participating foreign physical societies; a retrospective on the Society's first 100 years; a special *Physical Review* exhibit; and Centennial exhibits organized by various APS units. It is also hoped that many universities and laboratories will organize "reunions" at the Centennial meeting inviting back former students, graduate students, and past and present faculty and staff.

There will also be an Atlanta-wide "physics festival," according to Brian Schwartz (Brooklyn College), Director of Centennial Programs, who chaired the 1995 Centennial Planning Committee. The core program will feature several public physics demonstrations for high school teachers, as well as weekday physics lectures for physics educators and students, and evening popular lectures for the general public. Schwartz hopes to supplement these core activities by coordinating science-related art exhibits at local galleries and museums, and organizing exhibits at the local science museums. A multimedia presentation and various performances in theater, music and dance would also enhance the activities for the general public.

An exhibition showcasing the Nobel Prize-winning work of approximately 75 scientists is being organized by Sherrie Preische, APS Associate Director for Special Projects. The exhibit will introduce visitors to Alfred Nobel and his legacy, with special emphasis placed on the physics prizes. The major part of the exhibit will stress the impact of physics on our daily lives, demonstrating how physics explores the wonders of Nature, saves lives in medicine and environmental physics, and drives technological development, closing with a look at unsolved problems for the future. There will also be a photo gallery of all Nobel laureates in physics, arranged chronologically from 1901. More than 40 Nobel laureates in physics have indicated that they plan to attend the meeting and exhibit opening, as well as participate in a special luncheon for local high school students and nationwide teachers. "Seldom have so many laureates gathered in one place, and never before have they been so accessible to the public," said Preische of the planned activities.

The Society is also developing several projects designed to enhance the celebration's impact beyond the meeting itself, including various educational projects and tools to be used throughout 1999 and beyond. These will include: *A Century of Physics* full-color eleven panel timeline wall chart and website, with text, research, and organization by Hans Christian von Baeyer (College of William and Mary) and Sidney Perkowitz (Emory University); a pictorial coffee table book depicting physics of the 20th century physics; a Centennial speakers-bureau booklet listing approximately 200 APS members who are excellent lecturers and who are available for special university colloquia throughout the 1998-1999 academic year; a special Centennial issue of *Reviews of Modern Physics*; and a photo collection of famous physicists presented in CD-ROM format. There are also tentative plans to produce a documentary on physics for cable television, as well as a multimedia and video display for the Centennial.

Inside...

A century of physics

Prologue: The Birth of an Era

by Hans Christian von Baeyer

Photo courtesy of Nells Bohr Library

Marie Curie

By the end of the 19th century, after more than 2,000 years of intellectual struggle that began with the Greek philosophers, physical scientists had reason to believe that they were beginning to understand the universe. Their theories of matter and energy, of electricity and magnetism, of heat and sound and light, were confirmed in laboratories throughout the world with increasing precision. Experimentation was the method, and mathematics the language, of a powerful, coherent body of knowledge called classical physics.

For a few years before and after the turn of the century, the world was taking a breather from war and rebellion. The monumental advances of science, technology and industry — such as the installation of a transatlantic telegraph cable — inspired hopes for a peaceful and prosperous future. But beneath the calm surface, in politics as well as in science, the roots of future turmoil were quietly gathering. Even the sturdy foundations of classical physics were developing alarming cracks.

Some discrepancies were found when experiments disagreed with theory. Perhaps the most unsettling of these was the failure to discover the ether. Classical physics seemed to require that the universe be filled with an invisible universal medium, the ether, to carry light waves the way air transmits sound waves. In July 1887, an ingenious experiment designed to detect this hypothetical fluid was performed in a

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Physicists Honored at the 1998 March Meeting

Eleven APS prizes and awards will be presented during a special ceremonial session at the 1998 APS March Meeting in Los Angeles, California, to be held later this month. 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].

LARS ONSAGER PRIZE

The Onsager Prize was established in 1993 by an endowment from Drs. Russell and Marian Donnelly. It recognizes outstanding research in theoretical statistical physics, including the quantum fluids.

Leo P. Kadanoff
University of Chicago

Citation: "For his numerous and profound contributions to statistical physics, including the introduction of the concepts of universality and block spin scaling that are central to the modern understanding of the critical phenomena."

Kadanoff received his PhD from Harvard University in 1960, and then did postdoctoral work at the Neils Bohr Institute in Copenhagen. He joined the faculty of the University of Illinois in 1962, during which his research focused on understanding the properties of matter, especially superconductivity. He moved to Brown University in 1969, conducting research in solid state physics and mathematical models for urban growth, and then to the University of Chicago in 1978, where he is presently engaged in understanding the development of chaos and of structures in simple mechanical and fluid systems. Kadanoff is best known for his development of the concepts of "block scaling" and "universality" as they applied to phase transitions.

BIOLOGICAL PHYSICS PRIZE

Established in 1981, the Biological Physics Prize recognizes and encourages outstanding achievement in biological physics research. Sponsors include Abbott Labs, Bio-Rad Microscience Division, Candela Laser Corp., Coherent Laser Products Group, Eastman Kodak Furumoto Research Foundation, Newport Corporation's Bio-Instruments Division, and Siemens AG's Medical Imaging Group.

Rangaswamy Srinivasan
UVTech Associates

Citation: "For the development of an understanding of the effects of intense ultraviolet light on biological materials, leading to an ability to 'phototech' tissue surfaces precisely and safely, and for his role in developing applications in angioplasty, ophthalmology, and dermatology."

Srinivasan received his PhD in physical chemistry from the University of Southern California in 1956. After postdoctoral work at the California Institute of Technology and the University of Rochester, he joined the research staff at the IBM T.J. Watson Research Center. His research as been devoted to fundamental investigations on the action of ultraviolet photons from mercury lamps, as well as excimer lasers on organic materials. He founded UVTech in 1990.

OLIVER E. BUCKLEY PRIZE

Endowed in 1952 by AT&T Bell Laboratories, the Oliver E. Buckley Prize recognizes and encourages outstanding theoretical or experimental contributions to condensed matter physics in America.

Donald M. Ginsberg
Dale J. Van Harlingen
University of Illinois

John Robert Kirtley
Chang-C. Tsuei
IBM/T.J. Watson Research Center

Citation: "For using phase-sensitive experiments in the elucidation of the orbital symmetry of the pairing function in high-T_c superconductors."

Ginsberg received his PhD from the University of California, Berkeley in 1960 and has been with the faculty of the University of Illinois ever since. His research has been devoted to performing and interpreting experiments on superconductors. His major interests include electromagnetic absorption and the penetration depth; the superconducting coherence length and proximity effects; effects of strong electron-phonon coupling and magnetic dopant atoms; and the motions of magnetic vortices.

Van Harlingen received his PhD from Ohio State University in 1977 and spent the following year as a postdoctoral fellow at Cambridge University's Cavendish Laboratory. While a postdoc at Berkeley, he worked on non-equilibrium superconductivity and dc SQUID electronics. He joined the faculty of the University of Illinois in 1981, where he is currently a professor of physics. His research is focused on the physics of superconductor materials and devices.

Kirtley received his PhD from the UC, Santa Barbara in 1976 and was a postdoctoral fellow at the University of Pennsylvania. Since 1978, he has been a research staff member at IBM T.J. Watson Research Center. His research interests include inelastic electron tunneling spectroscopy, non-equilibrium superconductivity, surface-enhanced Raman scattering, light emitting tunnel junctions, and low-temperature scanning tunneling microscopy. Since 1993, he has been developing the scanning SQUID microscope.

Tsuei received his PhD in materials science from the California Institute of Technology. After seven years on the faculty of that institution, he joined the research staff at IBM T.J. Watson Research Center in 1973. He made important contributions to the study of properties of various glassy metals, including amorphous superconductors and ferromagnets. His current research interests include the mechanism responsible for high T_c superconductivity, and phase sensitive tests of pairing symmetry.

HIGH POLYMER PHYSICS PRIZE

The High Polymer Physics Prize was established by the Ford Motor Company to recognize outstanding accomplishment and excellence in contributions to high polymer physics research.

Murugappan Muthukumar
University of Massachusetts

Citation: "For outstanding theoretical contributions to the fundamental understanding of the statistics of isolated chains, chain dynamics, critical phenomena and polymer self-assembly."

Muthukumar received his PhD from the University of Chicago in 1979 and spent two years as a postdoctoral fellow at Cambridge University's Cavendish Laboratory. After a two-year appointment as an assistant professor at Illinois Institute of Technology, he joined the faculty of the University of Massachusetts in 1983, where he is currently a professor of polymer science and engineering. His research addresses the statistical mechanics of synthetic and natural polymers, specifically the structure, recognition, dynamics and transport of polymer molecules, as well as self-assembly and kinetics of multi-domain polymer assemblies. He is a Divisional Associate Editor of *Physical Review Letters*.

FRANK ISAKSON PRIZE

Established in 1979 and sponsored by Elsevier Science Ltd., publisher of the journal *Solid State Communications*. The Isakson Prize recognizes and encourages outstanding contributions to the field of optical effects in solids.

Yuen-Ron Shen
University of California, Berkeley

Citation: "For his contributions to the basic understanding of the interaction of light with matter, and for his development of novel linear and nonlinear techniques for pioneering studies of semiconductors, liquid crystals, surfaces and interfaces."

Shen received his PhD from Harvard University in 1963 and remained there for postdoctoral work before joining the faculty of UC, Berkeley, where he has remained ever since. He was involved in the early development of nonlinear optics and their application to studies of materials of all phases. Most recently, he has focused on the development of surface nonlinear optical spectroscopies and their applications to surface science. In 1992 Shen was awarded the APS Arthur Schawlow Prize.

GEORGE E. PAKE PRIZE

Established in 1993 and endowed by the Xerox Corporation, the Pake Prize recognizes and encourages outstanding work by physicists combining original research accomplishments with leadership in the management of research or development in industry.

John Paul McTague
Ford Motor Company

Citation: "For insightful experiments and contributions to the understanding of 2-D phase transitions and orientation epitaxy; for major contributions in management of science in government, national laboratories, and industry; and championing new paradigms for collaboration, such as the Partnership for Next Generation Vehicles."

McTague received his PhD from Brown University and began his research career at Rockwell International in 1964, collaborating on the first observations of collision-induced Raman scattering. In 1970 he joined the chemistry faculty at UC, Los Angeles, and later held appointments at Riso and Brookhaven National Laboratory. After chairing BNL's National Synchrotron Light Source Department, he spent three years as deputy director, and then acting director of the Office of Science and Technology Policy. He joined Ford Motor Company in 1986, where he is presently vice president for technical affairs.

ANEESUR RAHMAN PRIZE

Established in 1992 with support from IBM Corporation and Argonne National Laboratory. The Rahman Prize recognizes and encourages outstanding achievement in computational physics research.

David M. Ceperley
University of Illinois

Citation: "For important and deeply methodological contributions to computational physics, and for highly significant research using those methods to multiple areas of physics."

Ceperley received his PhD in physics from Cornell University in 1976. After postdoctoral work at Rutgers University, he worked as a staff scientist at both LBL and LLNL. In 1987 he joined the faculty of the University of Illinois, where he is a professor of physics. An important work is his calculation of the energy of the electron gas, providing basic input for most numerical calculations of electronic structure. He was also a pioneer in the development and application of Path Integral Monte Carlo methods for quantum systems at finite temperature.

JOSEPH F. KEITHLEY AWARD

Established in 1997 by an endowment from Keithley Instruments, Inc., the Keithley Award is intended to recognize physicists who have been instrumental in the development of measurement techniques or equipment that have impact on the physics community by providing better measurements.

John Clarke
University of California, Berkeley

Citation: "For his experimental and theoretical studies of Superconducting Quantum Interference Devices (SQUIDS), advancing the state-of-the-art of measurement science by applying SQUIDS to many areas of both fundamental and applied physics, such as high T_c superconductor analyses, NMR amplifiers, and cryogenic comparators."

Clarke received his PhD in 1968 from Cambridge University. After a postdoctoral

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APS Announces Physical Review Special Topics Series

The APS has established a new peer reviewed electronic journal, *Physical Review Special Topics: Accelerators and Beams (PRST-AB).* To begin publication in April, the journal is the first in what will eventually become a series of Special Topics journals, according to APS Editor-in-Chief Martin Blume. PRST-AB will be distributed without charge, with no submittal or publication charges for the foreseeable future.

The new journal is the result of extensive study by the APS and its Division of the Physics of Beams, in recognition of the need for a wide ranging and widely distributed peer reviewed journal for their field. While some papers on particle accelerators appear in *Physical Review Letters* and *Physical Review E*, results on work in this field of a more technical nature usually are not deemed appropriate for those journals. As a result, the accelerator literature has been fragmented among many journals. *PRST-AB* is intended to consolidate the literature.

"We are delighted to be able to offer to the accelerator physics and technology community a journal in which the full range of accelerator science and technology is collected in one place, which will be widely distributed, and which will have the high standards and the name of the highly regarded *Physical Reviews*," said Blume.

The scope of the journal will cover the full range of accelerator science and technology: subsystem and component technologies; beam dynamics; applications of accelerators; and design, operation, and improvement of accelerators used in science and industry. This will include high energy and nuclear physics, synchrotron radiation production, spallation neutron sources, medical therapy, and intense beam applications, among others. Acceptance criteria for articles will maintain the high scholarly and technical standards of the other APS journals.

Robert Siemann of the Stanford Linear Accelerator Center will serve as editor of the new journal, along with a distinguished international group of experts in all areas of accelerator physics and technology who will serve as members of the Editorial Board. These members include Ilan Ben-Zvi, (Brookhaven National Laboratory), Michael Craddock (TRIUMF), Helen Edwards (Fermi National Accelerator Laboratory), John Galayda (Argonne National Laboratory), Chandrashekhar Joshi (University of California, Los Angeles), Peter Schmueser (DESY), and Shin-ichi Kurokawa (KEK).

All aspects of journal production will be handled electronically, from submittal through refereeing and copy editing, to production and distribution. The APS will ensure the continued availability of the electronic archive of these journals through future changes in electronic publishing technology. A suite of authoring tools will be made available, and article submissions will be accepted in a modified REVTeX and in Microsoft Word. Guidelines for authors and for referees will be available electronically through the APS publications home page (http://publish.aps.org) along with instructions for submittal. Papers may be submitted beginning March 1, 1998.

APS Forms Cooperative Agreement with LANL's xxx e-Print Archive

The APS and the Los Alamos xxx e-Print Archive have established a cooperative partnership designed to allow the physics community to take maximal advantage of the E-print archives. The agreement is in response to the major impact that e-prints are having on the communication of physics research. "With all of its journals now online, the APS is ready to explore how the journals can be more tightly integrated into the rapidly evolving, networked environment of physics literature," said APS Editor-in-Chief Martin Blume.

Founded by Paul Ginsparg in August 1991, the archive has grown to encompass all fields of physics, as well as many in mathematics. It now contains over 67,000 articles and the growth rate is approaching 2,000 new articles per month. The archive is funded by the National Science Foundation and is automatically mirrored in over a dozen countries via volunteer Web sites. Ginsparg envisions the e-print archives as an unfiltered, global, freely available database of research articles that can serve as a foundation for a rich set of possible overlays that provide filtered views of the physics literature. A similiar view of the electronic future was articulated by the APS Task Force on Electronic Information Systems, which issued its report in 1991.

E-prints are author-controlled versions of research articles that are freely circulated outside the traditional peer-reiew and publication process. Unlike the familiar paper preprints, the e-prints can be, and often are, updated by the author at any time, including after the peer-review process. The archives have already become a primary means of information exchange in fields such as high energy physics, general relativity and quantum cosmology, astrophysics, and other disciplines like quantum computing, chaos theory and nuclear physics. Condensed matter is one of the fastest growing areas of e-print usage, with almost a 50% increase in the number of submissions in 1997.

In addition to the possibility of developing a single, global electronic physics database, the APS expects to use the archives to improve the *Physical Review* publication process, while simultaneously lowering costs, according to Blume. The Society has already taken several steps towards that objective. For example, in 1997 the APS amended its copyright transfer statement to recognize explicitly the right of authors to circulate their work as e-prints, both before and after publication in *Physical Review*. It also enacted a uniform policy across all *PR* journals for including citations to e-prints, and allowed for submissions of articles to *PR* via e-print number. And *Physical Review D* began using the Los Alamos archive and its mirrors to provide electronic copies of manuscripts for referees.

"For the near-term, the APS strategy takes advantage of the extent to which the physics community has already jumped far ahead of other research disciplines in all of this, and helps move the Society towards development of substantial new electronic resources, to the ultimate benefit of both its membership and the physics community at large," said Ginsparg of the agreement. "The new copyright agreement… recognizes the vested rights and non-commercial interests of physicist authors and promotes their research communication needs."

In the coming year, the APS intends to expand the use of Los Alamos for referral to other journals, according to Blume, using it as the primary means of circulating public e-prints. The APS E-print server, which currently receives about 30 articles per month, will be transformed into a server for referees to receive manuscripts electronically. The APS also intends to implement better tracking of e-prints that become *Physical Review* articles, and to provide updates to Los Alamos for linking to the on-line journals, enabling researchers to locate the published versions of articles more easily. Finally, the Society will explore an alternative interface to the archives, the incorporation of archive indexes into APS search engines, and other ways Los Alamos can supplement APS activities, such as providing low-cost conference proceedings. "We are very happy to join in a broader utilization of Ginsparg's excellent archive which is a pivotal element of the communications revolution, " said Blume.

The Los Alamos e-Print Archive can be accessed at http://xxx.lanl.gov.

A century of physics

The Birth of an Era *(continued from page 1)*

basement laboratory in Cleveland, Ohio. When it plainly contradicted the ether hypothesis, physicists were dismayed. How could there be vibrations without something to do the vibrating?

Other puzzles cropped up by accident. On November 8, 1895, the German physicist Wilhelm Conrad Röntgen stumbled upon a way to make strange rays with the power to penetrate black paper, and even living flesh. Since x is the unknown in algebra, Röntgen called them X rays. By December, he had used them to take a picture of his wife's hand, and within a year their practical value was well understood. The rapid spread of the use of X rays throughout the world foreshadowed the way scientists, engineers and investors would turn fundamental discoveries into technological applications in the coming century. But no one knew where X rays came from.

The chance discovery of radioactivity finally signaled the beginning of a new era in physics. As the element polonium, identified by Polish-born Marie Curie in 1898, emits radiation, it changes spontaneously into lead. This discovery shattered the belief inherited from the Greeks that the elements are immutable and their atoms indestructible. What causes atoms to decay? What are they made of? What forces are at work inside them? Such questions were new to physics, and were to remain at its cutting edge throughout the 20th century. The answers would affect our lives in ways no one could imagine in the year 1900.

Editor's Note: As the APS begins its year-long countdown to the Centennial Celebration in Atlanta, APS News will feature brief monthly summaries of the last 100 years in physics and its times beginning in this issue with the dawn of modern physics at the turn of the century. Look for it here.

PhD 'Family-Tree' Contest

This month, *APS News* announces a special Centennial Ph.D. or "equivalent" lineage contest, in which entrants are asked to trace their professional "family tree" — i.e., the production of doctoral level physicists by their thesis advisors — as far back as possible. Prizes will be awarded to those who can trace their lineage back the farthest, who have the most "generations," the most Nobel Laureates, and other categories to be determined by the selection panel. Winners will receive prizes, and the most impressive or interesting lineages will be published in a future issue of *APS News*.

For example, current APS President Andy Sessler (Lawrence Berkeley Laboratory) can trace his professional genealogy back through four generations to 1922. He completed his doctoral thesis (in 1953) under Henry Foley, who trained in molecular spectroscopy, at the University of Michigan, under David Dennison and received his Ph.D. in 1943. Dennison in turn was supervised, also at Michigan,and received his Ph.D. in 1924, by Oscar Klein, known for the Kaluza-Klein 5 dimensional theory, the Klein-Nishina formula, and the Klein-Gordon equation. Klein considered Neils Bohr his mentor and received his degree (1922) at the University of Stockholm. Andy has professional children and grandchildren. Much to Andy's embarrassment, however,for he thought physicists always did things better than chemists, his son, Jonathan, a chemist, was able to trace his scientific lineage back twelve generations to Paris in 1725.

Please mark your calendars! Only 12 months to the APS Centennial Celebration in Atlanta, Georgia, March 20-26, 1999!!

CSWP Web-Based Survey

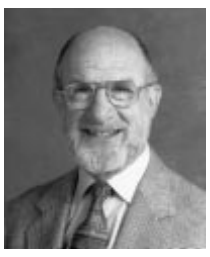
One of the larger challenges facing physicists today as they seek to achieve their career goals is the "two-body problem"—the difficulty of finding jobs for two scientists in the same location. Since many physicists are partnered with other scientists, creative ways to overcome this problem can enhance their success, especially that of women in physics. The APS Committee on the Status of Women in Physics has prepared a Web-based survey to document the scope of the problem and to discover creative solutions that have been tried by different institutions. All those who have experience with this challenge are urged to visit http://physics.wm.edu/survey and fill out the questionnaire. The responses will be kept entirely confidential, and summary results will be reported to the physics community when the survey is complete.

OPINION

APS VIEWS

Celebrating a Century of Physics in '99

by Andrew Sessler, APS President



The APS Centennial is coming up in 1999 and it affords us a good chance to look back as well as forward. We are planning a great party in March 1999, in Atlanta, Georgia, combining the March and April meetings for that year. More than 40 Nobel Laureates and about 40 representatives of foreign physical societies plan to be there, as well as representatives of other professional societies in the U.S. and, of course, politicians. I hope many of you will be there.

We are also planning a good number of items of lasting importance. One is *A Century of Physics* timeline wall chart, depicting chronologically, in over 26 feet, the major events in physics of the last century. We plan to distribute it to all the high schools and colleges in the nation. A second item is a special issue of *Reviews of Modern Physics*, with articles by some of the outstanding physicists of our time covering most of the sub-disciplines of physics. The articles are at the level of colloquia, and we hope that many of you will desire this volume to read and remember.

A third item is a coffee table book, which describes the contributions of physics both in concepts and in practical applications in carefully chosen words, and has lots of beautiful pictures. We hope that the general public — especially our spouses, children and parents — will be interested in this volume. A fourth item is a booklet with a list of excellent speakers available to give special centennial colloquia. And finally, there will be a collection of photographs of famous physicists from this past century. We expect these last to be used during the year, and beyond, in colloquia and general lectures on college campuses and in industry.

After all, this has been a revolutionary century of physics. There were significant intellectual advances, such as relativity, quantum mechanics, symmetry, and the expansion of the universe. The investigations these advances precipitated resulted in tremendous scientific and technological progress. For example, understanding atomic structure produced lasers, atomic clocks, solid state electronics, and much of condensed matter physics. Studies of nuclear structure yielded nuclear weapons, nuclear power and nuclear imaging. Physicists also made important discoveries in sub-nuclear structure, including quarks, the unification of weak and magnetic forces, and the standard model. Astrophysics research resulted in the discovery of phenomena such as jets, quasars and pulsars.

What will be the great themes of the next century? What will be the intellectual and technological advances? Physics is not finished, but there are important questions still to be answered, such as the following one: Why are we here? Why is there more matter than anti-matter in the universe? What is the origin of mass? Why are there so many neutrinos coming out of the sun? What is the nature of the dark matter that comprises as much as 85% of the universe?

We also want to convey to the public that pure and applied physics go hand in hand. They can't be separated; one drives the other. Often conceptual advances lead to practical devices, and just as often the reverse can be true. In the 19th century, conceptual advances in electricity and magnetism led to practical electric generation and power distribution, electric motors, and electric lights, while the practical steam engine led to the development of the conceptual structure of thermodynamics.

In the 20th century, the practical need to win a war drove the development of nuclear power, supersonic jets, rockets and radar. Radar alone led to the development of the transistor, large accelerators, nuclear magnetic resonance and the laser. At the same time, conceptual advances in condensed matter physics have led to magnetic imaging, computers and consumer electronics. We want to make sure that the public understands that much of the advances in medicine are due to physics, that physics has made possible modern communication and modern computers, that physics creates jobs and economic growth, and that physics contributes to solving the energy problem with conservation strategies, fission, fusion and solar collectors.

In short, physics is an exciting intellectual activity that sheds light upon the basic questions facing mankind, while simultaneously driving the economic engine of the world and improving the quality of life. That's a great story to tell, and I think we can tell it. We view the APS Centennial not as a one time event, or delta function, but rather, as an opportunity to take a step function forward in the activities of the APS. In order to help us "get this message out" we have hired a public relations firm. Our efforts we expect to be ongoing, and we expect that our activity will help reverse the significant and worrisome trend of ever fewer students going into physics, while, at the same time, increasing the public appreciation of our science and, hence, the support of physics.

So, please, read on about the event in this and coming issues of *APS News*, mark your calendars for March 20-26, 1999, and I look forward to seeing you in Atlanta.

LETTERS

APS Social Conscience has Long History

In the January issue of *APS News*, our new President of APS discusses the way in which the Society's interpretation of its mission has evolved in the last century. Dr. Sessler states "…in the 1980s we formed committees on women and minorities in physics." I would like to point out that the evolution of APS into "a society with a social conscience," or at least a social consciousness, began to occur rather earlier than Dr. Sessler recalls. The Committee on the Status of Women in Physics (CSWP) and the Committee on Minorities (COM) were formed in 1972. We have therefore had more than 25 years of this evolutionary process. APS members may wish to consider, as one measure of the social evolution of the Society, the degree to which these two segments of the population at large are presently represented among our membership. One might conclude (as I do) that there is still a great deal of transformation yet to be achieved, and that evolution occurs rather slowly when there is no direct intervention.

Laurie McNeil
1997 CSWP Chair

Products over Proliferation

I read with interest the article by Thomas Neff on Liquidating the Cold War.The HEU deal is but one of several programs that the US government has initiated with former Soviet Union (FSU) countries to prevent the proliferation of weapons of mass destruction (WMD). One such program, called the Initiative for Proliferation Prevention (IPP) was begun in FY 1994 by the Department of Energy (DOE). Its purpose is to stabilize personnel and resources that represent a proliferation risk. The objective of IPP is to identify and develop nonmilitary applications for defense technologies, and create jobs for weapons scientists and engineers in the high technology commercial marketplace.

To this end, DOE has directed its ten National Laboratories to collaborate with Institutes in Russia, Belarus, Ukraine and Kazakstan that have been responsible for the development of WPDs to redirect its staff towards industrial applications.The funds provided are split evenly between the DOE laboratories and the FSU (NIS) Institutes. To date, 250 Institutes in these four countries are engaged in 377 Thrust I projects (R&D) and 77 Thrust II projects (Commercial Applications). Over 4000 scientists and engineers are thus gainfully employed in the NIS countries along with several hundred scientists and engineers at the 10 DOE labs, most of whom are members of APS. From my vantage as chairman of the 10-DOE laboratory consortium, I believe IPP is one of the most viable nonproliferation efforts initiated by the US government, with the potential (already proven) of multiple-fold returns over the investment made by DOE ($30M /yr).

Kenell J. Touryan
Indian Hills CO

"Net Myths"

by Tracy Thompson, The Washington Post

Of course the JATO rocket story is untrue. This is beside the point. At this moment, it is circling the globe with a speed that would have seemed magical back when our ancestors were swapping gossip around the village well. The JATO rocket story is a "Netmyth." That is, it's circulating on the Internet, and it's an urban legend—a terrifically entertaining story presented as fact even though it isn't. Netmyths are of great interest to sociologists and computer experts, who say they are creating new rules about distinguishing between truth and fiction.

Netmyths differ from traditional urban myths in several important ways, say scientists and computer experts. Traditional urban myths get told and retold: The story about the microwaved poodle, for example, or the one about the American tourists in Mexico who buy a Chihuahua and find out it's a sewer rat, come in dozens of variations. But Netmyths explode instantly around the globe, duplicated word-for-word with the click of a computer mouse.

Urban myths that get on the Internet benefit from a subtly enhanced credibility, says Robert Park, a University of Maryland physics professor, APS Director of Public Information, and an authority on pseudo-science. "Rightly or wrongly, people have always assumed that which is printed has more credibility than that which is not," he says. "With the Internet, there's an enormous amount of information that hasn't been filtered through anything. It didn't have to find a publisher; it didn't have to go through any peer review to become available to enormous numbers of people."

That creates a data flow that bypasses institutions that have traditionally vetted the news—such as newspapers or scientific publications like the New England Journal of Medicine. When it comes to evaluating information in this brave new world, it's every man for himself.

But the Internet is an adaptable medium. Already, there are several newsgroups devoted to debunking all kinds of urban legends. If you browse through alt.folklore.urban, you can learn that Jamie Lee Curtis is not a hermaphrodite and that Albert Einstein did not do poorly in school; also that some

"But It Was Such a Good Story..."

Editor's Note: Several alert readers wrote to *APS News* about the "Zero Gravity" item in the January 1998 issue on supposed 1997 Darwin Award Winner Larry Waters, the lawn chair balloonist. The incident described actually occurred in 1982, and some details were inadvertantly altered or embellished in the retelling. For example, Walters took along a large bottle of soda, not beer, and only spent about two hours aloft, although he did reach an altitude of about three miles and was reported to the FAA by an airline pilot who spotted him. He did use a pellet gun to pop balloons to come back to earth, but did not float out to sea. Instead, his balloons draped over power lines, blacking out a Long Beach, CA, neighborhood for 20 minutes. Although Walters survived the incident, he later committed suicide in 1993.

The reference to the JATO rocket incident in the opening note apparently did not occur; it is an example of a "Net Myth", a phenomenon described above. More information about Walters, the Darwin Awards and other "Net Myths" can be found at the following URLs: [http://www.urbanlegends.com/misc/lawn_chair_balloonist/html] or [http://www.officialdarwinawards.com]

If you have a good example of a "Net Myth," or other likely candidate for a future "Zero Gravity" column, send it to Editor, *APS News*, One Physics Ellipse, College Park, MD 20740; email: letters@aps.org.

INSIDE THE BELTWAY

The President Delivers Big Time for Science and Engineering

by Michael S. Lubell, APS Director of Public Affairs

Can a leopard change its spots? Never in the kingdom of the wild, but in the realm of politics, it happens every day.

Take the case of Ben Nighthorse Campbell (R-CO). He was first elected to the Senate from Colorado as a Democrat in 1992. But in 1995, he became a Republican after Colorado voters began to tilt heavily toward the GOP agenda.

Then there's Connecticut Governor John Rowland, who served three terms as a pro-life member of Congress before making the run as a pro-choice candidate for the top job in the Nutmeg state. His honestly stated reason for the conversion: You can't win statewide office in Connecticut if you're pro life.

So last month when President Bill Clinton unveiled a budget that featured large increases for science and engineering, he joined a long list of politicians who are eventually swayed by public opinion.

According to Administration sources, the coalition of society leaders representing more than 3.5 million scientists, engineers and mathematicians did not go unnoticed by the White House. Nor did the bipartisan National Research Investment Act of 1998, submitted last October by Senators Gramm (R-TX), Lieberman (D-CT), Domenici (R-NM) and Bingaman (D-NM).

Of course it didn't hurt to have the support of the average voter either. Two years ago, the Roper survey organization asked Americans what they thought about science. Four out five respondents said that it inspired hope, satisfaction, wonder or excitement.

And then there were the undisputed facts that science and technology are the prime drivers of the economy, research is the underpinning of progress in medicine, and proficiency in high technology is the basis of our national security.

No doubt, Presidential Science Advisor John H. Gibbons, long a supporter of federal investments in research, used all the arrows in his quiver to make his case, including the many letters received by the White House in December from scientists of all stripes. And this year, unlike previous ones, Gibbons succeeded beyond all expectations.

President Clinton, who less than a year ago had been rebuked by Rep. George E. Brown, Jr. (D-CA)—former Chairman and now Ranking Democratic Member of the House Science Committee—for not making R&D a priority investment, delivered a blockbuster of a science budget. The numbers speak for themselves: NASA Space Science up 4%, NIST STRS (Core Programs) up 5.3%, DOD Basic Research (6.1 Program) up 6.6%, NIH up 8%, NSF up 10% and DOE Energy Research up 10%.

Just a week earlier, in his State of the Union Address, the President had provided a preview of his budget intentions. Although he had saved it for the end, he gave science a huge boost, just as White House insiders had promised. "Tonight," he said, "as part of our gift to the millennium, I propose a 21st Century Research Fund for path-breaking scientific inquiry—the largest funding increase in history for the National Institutes of Health, the National Science Foundation and the National Cancer Institute."

His seventy-two minute speech to Congress and the nation was punctuated by applause 102 times. Often, the response was partisan, but the science reference brought an ovation from both sides of the aisle.

However, first impressions often can be deceiving. As congenial and congratulatory as the President and Congress may be right now about science and engineering investments, they will have their mettle tested in the coming months.

The President's proposed budget contains more than $100 billion of spending on new programs over the next five years. It also assumes $65 billion in increased revenues from tobacco taxes. And his State of the Union Message stakes out a position that would commit any other federal revenues that exceed the projections of last year's balanced budget agreement to ensuring the future solvency of the Social Security System.

Republicans have staked out their own ground. They maintain that the government's priorities should be cutting taxes and paying down the national debt. They also say that a deal on tobacco taxes will likely founder this year. And any spending that exceeds last year's agreed upon budget caps is out of the question, whether or not the budget for the upcoming year is in the black. They're still high on research, but say, "Show me the money!"

So while the winds of science are blowing sweetly for the moment, they may turn into a gale within the coming months. Here are some of the possible scenarios.

- There is no tobacco settlement, and the Republicans stick to their guns on taxes and the debt. But they embrace the science issue, and cut other programs to make room for the President's 21st Century Research Fund. The President swallows hard and accepts the other cuts.
- There is no tobacco settlement, and the Republicans forego tax cuts and paying down the debt. They support increases for science.
- There is no tobacco settlement and the Republicans strike a deal with the President: they get some tax cuts but he has to accept trimming some programs, science included.
- There is a tobacco settlement and everyone goes home well satisfied. The Republicans get tax cuts, and the President gets Social Security relief. For next year the national debt stays where it is, and science gets a big boost.

If you believe that the last scenario is in the cards, encourage all your smoking friends to light up early and light up often. Their habit may kill them, but it could save science. If you have more compassion, tell them to quit but put in a good word for science with their elected representatives.

February 5, 1998

Dear Mr. President:

I want to commend you for identifying science and technology as priority investments of the federal government for the next millennium. The 21st Century Research Fund, which you highlighted in your State of the Union Address and featured in your Budget Request, not only provides well justified financial resources for science and engineering research, but also focuses attention on two key policy issues: long-term planning and the interconnectedness of the sciences. I applaud your wisdom in recognizing these essential elements and in recommending to Congress a balanced budget that strongly supports investments in research and education.

America's physics community has always stood ready to help our country achieve its goals: from energy to the environment; from medicine to space; from defense to education; from materials to information technologies. With 41,000 members, the American Physical Society is the world's largest organization of phyisicists. On their behalf, I offer you my assistance in realizing the science goals you have identified this week.

As a first step, our Society looks forward to working with your Administration and with members of Congress in both political parties to translate your visions into relevant appropriations. In this way we can secure our nation's vital science and technology future.

Very truly yours,
Andrew M. Sessler

Net Myths *(continued)*

people do indeed sneeze when exposed to bright light, and that fluorescent lamps will light up when held near a high-voltage line.

Debunking Netmyths isn't always easy. Some come with an impressive, if Dave Barry-ish, aura of authenticity. For example, the Darwin Award story. The Darwin Award, presented as a mordant take on real life, is supposedly given each year to the person who does the human gene pool a favor by eliminating himself in the dumbest possible way. The 1994 award supposedly went to the person responsible for the pile of smoldering metal some Arizona Highway Patrol officers found embedded in the side of a cliff in the desert, at a point where the road curved. The smoldering metal turned out to be the remains of a car. The Arizona crime lab, the story goes, figured out how it all happened: Somebody had gotten hold of a JATO, or jet-assisted takeoff unit, also known as a solid fuel rocket. This person had driven his Chevrolet Impala out into the desert, attached the JATO units to the back of his car, and fired that baby up. When he hit the curve, the crime lab estimated, he was going between 250 and 300 mph, a speed at which the ordinary Chevrolet Impala becomes a little hard to steer. The Chevy's brakes were completely burned away, according to the crime lab, indicating the driver may have had second thoughts about his experiment. Too late: Car meets cliff.

Yet despite the reference to the "Arizona State Patrol" and the authentic-sounding reference to JATO units, this story is not true. That's according to a spokesman for the Arizona Department of Public Safety, who should know. "We get a call on that about every 90 days," says Sgt. Dave Myers. "It keeps us on the map." It's impossible to keep track of all the Netmyths out there. There is, for instance, a very authentic-looking NASA memo that purportedly details a secret experiment on the logistics of having sex in space; also untrue, the space agency's Welch says.

Then there's the "Most Bizarre Suicide of 1994" story, supposedly recounted at the 1994 awards dinner for a group called the American Assn. for Forensic Science. According to this story, a man jumps from the 10th floor of a building, intending to commit suicide. On his way down, he is killed by a blast from a shotgun fired out a window on the ninth floor. Which was unlucky—or lucky, depending on your point of view—because a safety net had been erected below, and the would-be suicide's original plan would have failed. But…

The shooter on the ninth floor was an old man arguing with his wife, who said he often threatened her with the shotgun but said it was never loaded. Unbeknown to the old man, it was loaded—some six weeks earlier, by the couple's son, who was mad at his mother for disinheriting him and was hoping to trick his father into killing her. As the weeks went by, the son became despondent over the failure of his plan and became the man who tried to commit suicide by jumping from the building's 10th floor.

This farfetched tale is apparently bizarre enough to convince a few people that it is true, judging from the comments appended to it by Internet browsers. But unlike most Netmyths, it can be tracked to its author: one Don Harper Mills, past president of a real organization called the American Academy of Forensic Sciences.

"I made it up," Mills says proudly when asked about the truth of the tale. Only it wasn't in 1994. It was part of a speech he gave at the group's 1987 banquet, he says, and he did it strictly for entertainment. "I didn't expect it to get on the Internet," he says. So far, he's gotten more than 100 calls about it. Does this surprise him? "No, not really," he says. "It's a fabulous story."

The above article appeared in the Washington Post, February 2, 1996. Reprinted with permission.

Heard an interesting, science-related NetMyth? We'd like to hear about it. Send submissions to Editor, *APS News*, letters@aps.org.

Announcements

CALL FOR NOMINATIONS FOR 1999 APS PRIZES AND AWARDS

The following prizes and awards will be bestowed by the Society in 1999. Members are invited to nominate candidates to the respective committees charged with the privilege of recommending the recipients. A brief description of each prize and award is given below, along with the addresses of the selection committee chairs to whom nominations should be sent. Please refer to the APS Membership Directory, pages xxi-xxxvi, for complete information regarding rules and eligibility requirements for individual prizes and awards or visit the Prize and Awards page on the APS web site at http://www.aps.org.

PRIZES

HANS A. BETHE PRIZE

Endowed by contributions from the Division of Astrophysics, the Division of Nuclear Physics and friends of Hans A. Bethe.

Purpose: To recognize outstanding work in theory, experiment or observation in the areas of astrophysics, nuclear physics, nuclear astrophysics, or closely related fields.

Nature: The prize consists of $5000 and a certificate citing the contributions made by the recipient.

Send name of proposed candidate and supporting information before 1 July 1998 to: Virginia Trimble, Physics Dept, Univ of Calif., Irvine, Irvine, CA 92697-4575, Phone: (714) 824-6948, Fax: (714) 824-2174, Email: vtrimble@uci.edu.

HERBERT P. BROIDA PRIZE

Established by Friends of Herbert P. Broida.

Purpose: To recognize and enhance outstanding experimental advancements in the fields of atomic and molecular spectroscopy or chemical physics.

Nature: The prize consists of $5,000 and a certificate citing contributions made by the recipient.

Send name of proposed candidate and supporting information before 1 July 1998 to: John B Delos, Phys Dept, College of William & Mary, Williamsburg, VA 23185 , Phone: (804) 253-4471, Email: jbdelo@facstaff.wm.edu

TOM W. BONNER PRIZE IN NUCLEAR PHYSICS

Endowed by Friends of Tom W. Bonner.

Purpose: To recognize and encourage outstanding experimental research in nuclear physics, including the development of a method, technique, or device that significantly contributes in a general way to nuclear physics research.

Nature: The prize consists of $5,000 and a certificate citing the contributions made by the recipient.

Send name of proposed candidate and supporting information before 1 July 1997 to: Peter Paul, Dept of Phys, SUNY-Stony Brook, Stony Brook NY 11794-3800, Phone: (516) 246-5079, Email: paul@nuclear.physics.sunysb.edu

OLIVER W. BUCKLEY CONDENSED MATTER PHYSICS PRIZE

Endowed by AT&T Bell Laboratories.

Purpose: To recognize and encourage outstanding theoretical or experimental contributions to condensed matter physics.

Nature: The prize consists of $5,000 and a certificate citing the contributions made by the recipient(s).

Send name of proposed candidate and supporting information before 1 July 1998 to: Raymond E Goldstein, Dept of Phys, Univ of Arizona, Tucson, AZ 85721, Phone: (609) 258-4407, Fax: (609) 258 6360, Email: gold@physics.arizona.edu

DAVISSON-GERMER PRIZE

Established by AT&T Bell Laboratories, (now Lucent Technologies).

Purpose: To recognize and encourage outstanding work in atomic physics or surface physics.

Nature: The prize consists of $5,000 and a certificate citing the contributions made by the recipient(s). This annual prize will normally be awarded alternatively for outstanding work in atomic physics even-numbered years and for outstanding work in surface physics in odd-numbered years. The 1999 prize will be awarded for outstanding work in surface physics.

Send name of proposed candidate and supporting information before 1 July 1998 to: Ellen D Williams, Dept of Phys, Univ of Maryland, College Park, MD 20742-4111, Phone: (301) 405-6156, Fax: (301) 314 9465, Email: williams@surface.umd.edu

DANNIE HEINEMAN PRIZE FOR MATHEMATICAL PHYSICS

Sponsored by the Heineman Foundation for Research, Educational, Charitable, and Scientific Purposes, Incorporated.

Purpose: To recognize outstanding publications in the field of mathematical physics.

Nature: The prize consists of $7,500 and a certificate citing contributions made by the recipient.

Send name of proposed candidate and supporting information before 1 July 1998 to: Edward Ott, Dept of Phys & Astron, Univ of Maryland, College Park MD 20742, Phone: (301) 454-3180, Email: e_ott@umail.umd.edu

HIGH POLYMER PHYSICS PRIZE

Sponsored by the Ford Motor Company.

Purpose: To recognize outstanding accomplishments and excellence of contributions in high polymer physics research.

Nature: The prize consists of $5,000 and a certificate citing the contributions made by the recipient(s).

Send name of proposed candidate and supporting information before 1 July 1998 to: Eric J Amis, 224 B210 Polymers Div, NIST, Rte 270 & Quince Orchard Rd, Gaithersburg, MD 20899, Phone: (301) 975-6681, Fax: (301) 926 8012, Email: eric.amis@nist.gov

IRVING LANGMUIR PRIZE

Sponsored by the GE Fund.

Purpose: To recognize and encourage outstanding interdisciplinary research in chemistry and physics, in the spirit of Irving Langmuir.

Nature: This biennial Prize consists of $10,000 and a certificate citing the contributions made by the recipient.

Send name of proposed candidate and supporting information before 1 July 1998 to: William Klemperer, Dept of Chem, Harvard Univ, Cambridge MA 02138, Phone: (617) 495-4094, Fax: (617) 495-1792

JULIUS EDGAR LILIENFELD PRIZE

Sponsored by the Lilienfeld Trust.

Purpose: To recognize a most outstanding contribution to physics.

Nature: The prize consists of $10,000, a certificate citing the contributions made by the recipient, and expenses for three lectures by the recipient given at an APS general meeting, a research university, and a predominantly undergraduate institution.

Send name of proposed candidate and supporting information before 1 July 1998 to: Miles V Klein, Loomis Lab, UIUC, 1110 W Green St, Urbana, IL 61801, Phone: (217) 333-1744, Fax: (217) 244 2278, Email: Miles_klein@stcs.mrl.uiuc.edu

JAMES C. MCGRODDY PRIZE FOR NEW MATERIALS

Endowed by IBM.

Purpose: To recognize and encourage outstanding achievement in the science and application of new materials.

Nature: The prize consists of $5,000 plus a certificate citing the contribution of the recipient.

Send name of proposed candidate and supporting information before 1 July 1998 to: G. Slade Cargill, Dept of Materials Science, Lehigh University, Bethlehem, PA 18015-3195, Phone: (610) 758-4207, Fax: (610) 758-4244, Email: gsc3@lehigh.edu

LARS ONSAGER PRIZE

Endowed by Russell and Marion Donnelly.

Purpose: To recognize outstanding research in theoretical statistical physics, including the quantum fluids.

Nature: The prize consists of $10,000 and will include an allowance for travel to the meeting of the Society at which the prize is awarded, and a certificate citing the contributions made by the recipient.

Send name of proposed candidate and supporting information before 1 July 1998 to: Nigel David Goldenfeld, Loomis Lab of Phys, UIUC, 1110 W Green St, Urbana IL 61801-3080, Phone: (217) 333-8027, Fax: (217) 333 9819, Email: nigel@uiuc.edu

GEORGE E. PAKE PRIZE

Endowed by the Xerox Corporation.

Purpose: To recognize and encourage outstanding work by physicists combining original research accomplishments with leadership in the management of research or development in industry.

Nature: The prize consists of $5,000, and a certificate citing the contributions made by the recipient.

Send name of proposed candidate and supporting information before 1 July 1998 to: Cherry Ann Murray, 1D-334, Lucent Technologies, 7600 Mountain Ave, Murray Hill NJ 07974-0636, Phone: (908) 582-5849, Fax :(908) 582 4702, Email: camurray@bell-labs.com

W.K.H. PANOFSKY PRIZE

Endowed by the friends of W.K.H. Panofsky and the Division of Particles and Fields.

Purpose: To recognize and encourage outstanding achievements in experimental particle physics.

Nature: The prize consists of $5,000, an allowance for travel to the meeting at which the prize is bestowed, and a certificate citing the contributions made by the recipient.

Send name of proposed candidate and supporting information before 1 July 1998 to: Michael Zeller, Dept of Phys, Yale Univ, Box 208121, New Haven CT 06520-8121, Phone: (203) 432-3650, Fax: (203) 432- 6175, Email: Zeller@yalph2.physics.yale.edu

EARLE K. PLYLER PRIZE

Sponsored by the George E. Crouch Foundation.

Purpose: To recognize and encourage notable contributions to molecular spectroscopy.

Nature: The prize consists of $5,000, a certificate citing the contributions made by the recipient, and an allowance for travel to the meeting at which the prize is bestowed.

Send name of proposed candidate and supporting information before 1 July 1998 to: Roger Ervin Miller, Dept of Chem, Univ of North Carolina, CB 3290, Chapel Hill NC 27599, Phone: (919) 966-5433.

PRIZE TO A FACULTY MEMBER FOR RESEARCH IN AN UNDERGRADUATE INSTITUTION

Sponsored by the Research Corporation.

Purpose: To honor a physicist whose research in an undergraduate setting has achieved wide recognition and contributed significantly to physics and who has contributed substantially to the professional development of undergraduate physics students.

Nature: The prize consists of a $5,000 stipend to the awardee, a certificate citing the contribution of the recipient, and a separate $4,000 unrestricted grant for the research of the recipient to the awardee's institution. An additional allowance will be provided for travel expenses to the APS meeting at which the prize ceremony will take place.

Send name of proposed candidates and supporting information by 1 July 1998 to: Richard J Furnstahl, Dept of Phys, Ohio State Univ, 174 W 18th Ave, Columbus OH 43210, Phone: (614) 292-4830, Fax: (614) 292-7557, Email: FURNSTAH@MPS.OHIO-STATE.EDU

I. I. RABI PRIZE

Endowed by family, friends, and colleagues of I. I. Rabi.

Purpose: To recognize and encourage outstanding research in Atomic, Molecular and Optical Physics

Nature: The Prize consists of $7,500 and a certificate citing the contributions made by the recipient and an allowance for travel expenses of the recipient to the Society meeting at which the Prize is presented.

Send name of proposed candidate and supporting information before 1 July 1998 to: Stephen Rolf Lundeen, Dept of Phys, Colorado State Univ, Fort Collins, CO 80523, Phone: (970) 491-6647, Fax: (970) 491- 7947, Email: lundeen@lamar.colostate.edu

ANEESUR RAHMAN PRIZE

Sponsored by the IBM Corporation and Argonne National Laboratory

Purpose: To recognize and encourage outstanding achievement in computational physics research.

Nature: The prize consists of $5,000, an allowance for travel to the meeting of the Society at which the prize is awarded and at which the recipient will deliver the Rahman Lecture, and a certificate citing the contributions made by the recipient.

Send name of proposed candidate and supporting information before 1 July 1998 to: Gary D Doolen, B213, LANL, PO Box 1663, Los Alamos NM 87545, Phone: (505) 667-8994, Fax: (505) 665-3003, Email: gdd@lanl.gov

J.J. SAKURAI PRIZE FOR THEORETICAL PHYSICS

Endowed by the family and friends of J.J. Sakurai.

Purpose: To recognize and encourage outstanding achievement in particle theory by a young physicist.

Nature: The prize consists of $5,000, an allowance for travel to the meeting of the Society at which the prize is awarded, and a certificate citing the contributions made by the recipient.

Send name of proposed candidate and supporting information before 1 July 1998 to: Robert N Cahn, Rm 3115 Bldg 50A, Lawrence Berkeley Lab, Berkeley, CA 94720, Phone: (510) 486-4481, Fax: (510) 486- 6067, Email: rncahn@lbl.gov

ARTHUR L. SCHAWLOW PRIZE IN LASER SCIENCE

Endowed by the NEC Corporation.

Purpose: To recognize outstanding contributions to basic research that uses lasers to advance our knowledge of the fundamental physical properties of materials and their interaction with light.

Nature: The prize consists of $10,000, an allowance for travel to the meeting at which the prize is awarded, and a certificate citing the contributions made by the recipient.

Send name of proposed candidate and supporting information before 1 July 1998 to: Mark G Raizen, Dept of Phys, Univ of Texas, Austin TX 78712, Phone: (512) 471-4753, Fax: (512) 471-9637, Email: raizen@physics.utexas.edu

ROBERT R. WILSON PRIZE

Sponsored by friends of Robert R. Wilson.

Purpose: To recognize and encourage outstanding achievement in the physics of particle accelerators.

Nature: The prize consists of $5,000, an allowance for travel to the meeting at which the prize is awarded, and a certificate citing the contributions made by the recipient.

Send name of proposed candidate and supporting information before 1 July 1998 to: Hermann A Grunder, 12-C, Jefferson Laboratory, 12000 Jefferson Ave, Newport News VA 23606, Phone: (804) 249-7552, Fax: (804) 249:7398, Email: Grunder@CEBAF

AWARDS

DAVID ADLER LECTURESHIP AWARD

Established by friends of David Adler.

Purpose: To recognize an outstanding contributor to the field of materials physics who is noted for the quality of his/her research, review articles, and lecturing.

Nature: The lectureship consists of an award of no less than $1,000 as honorarium for the lecturer, and a certificate citing the contribution made by the recipient.

Send name of proposed candidate and supporting information before 1 July 1998 to: James W Davenport, Dept of Appl Sci Bldg 179A, Brookhaven Natl Lab, Upton NY 11973, Phone (516) 344-3789, Email DAVEN@BNL.GOV

APKER AWARD

Endowed by Jean Dickey Apker, in memory of LeRoy Apker.

Purpose: To recognize outstanding achievement in physics by undergraduate students, thereby providing encouragement to young physicists who have demonstrated great potential for future scientific accomplishment.

Nature: The award to the winners consists of $5,000, an allowance for travel to the meeting of the Society at which the award is being presented, and a certificate citing the work and school of the recipient. Each of the finalists in the annual competition will receive an honorarium of $1,000 and a certificate as an Apker Award Finalist. Certificates and checks also will be presented to the home institutions of the finalists and of the winner. Two awards may be made in 1999, one to a nominee from an institution that offers a Ph.D. program in physics, the other to a nominee from an institution that does not.

Send name of proposed candidate and supporting information before 15 June 1998 to: Dr. Barrett Ripin, Administrator, Apker Award Selection Committee, The American Physical Society, One Physics Ellipse, College Park, MD 20740-3844, Phone: (301) 209-3233, Fax: (301) 209-0865,Email: ripin@aps.org.

EDWARD A. BOUCHET AWARD

Sponsored by the Research Corporation.

Purpose: Formerly known as the Visiting Minority Lectureship, the award is intended to promote the participation of under-represented minorities in physics by publicizing the lecturer's work and career development to the physics community, especially to young minority physics students.

Nature: The lectureship consists of a stipend of $3,000 plus support for travel to an APS general meeting where the recipient will receive the award and give his/her first address. In addition, the recipient will be invited to lecture at least three academic institutions where the impact of the visit on minority students would be significant.

Send name of proposed candidate and supporting information before 1 July 1998 to: Carlos Jose Bustamante, Inst. of Molecular Biology, Univ. of Oregon, Eugene, OR 97403, Phone: (541)346-1537, Fax: (541)346-5891, Email: carlos@alice.uoregon.edu,

AWARD FOR OUTSTANDING DOCTORAL THESIS RESEARCH IN BEAM PHYSICS

Supported by the Universities Research Association.

Purpose: To recognize doctoral thesis research of outstanding quality and achievement in beam physics and engineering.

Nature: The award consists of $1,500 and a certificate to be presented at an awards ceremony at the Division of Physics of Beams Annual Meeting, as well as an additional allowance of up to $500 for travel to the meeting.

Send name of proposed candidate and supporting information before 1 July 1998 to: Robert H Siemann, MS 26 SLAC, Stanford Univ, PO Box 4349, Stanford CA 94309, Phone: (415) 926-3892, Fax: (415) 926-4999, Email: SIEMANN@SLAC.stanford.edu

JOHN H. DILLON MEDAL

Sponsored by Elsevier Science, Oxford, UK., publishers of the journal, *Polymer*.

Purpose: To recognize outstanding accomplishments by young polymer physicists.

Nature: The award consists of $2,000, an allowance for travel to the meeting of the Society at which the award is being presented, a bronze medallion, and a certificate citing the accomplishments of the recipient

Send name of proposed candidate and supporting information before 1 July 1998 to: Eric J Amis, 224 B210 Polymers Div, NIST, Rte 270 & Quince Orchard Rd, Gaithersburg, MD 20899, Phone: (301) 975-6681, Fax: (301) 926-8012, Email: eric.amis@nist.gov

JOSEPH A. BURTON FORUM AWARD

Endowed in 1997 by Jean Dickey Apker

Purpose: To recognize outstanding contributions to the public understanding or resolution of issues involving the interface of physics and society.

Nature: The award consists of $3,000, a certificate citing the contributions of the recipient, and an allowance for travel to the meeting of the Society at which the award is presented

Send name of proposed candidate and supporting information before 1 July 1998 to: Mark Sakitt, Directors Office Bldg 460, Brookhaven Natl Lab, PO Box 5000, Upton NY 11973-5000, Phone: (516) 344-3812, Fax: (516) 344-5884, Email: sakitt@bnl.gov

JOSEPH F. KEITHLEY AWARD

Endowed by Keithley Instruments, Inc. and the Instrument and Measurement Science Topical Group (IMSTG).

Purpose: To recognize physicists who have been instrumental in the development of measurement techniques or equipment that have impact on the physics community by providing better measurements.

Nature: The prize consists of $5,000 and a certificate citing the contributions made by the recipient, plus travel to the meeting at which the prize is bestowed.

Send name of proposed candidate and supporting information before 1 July 1998 to: Alan F Clark, B258 Metrology, NIST, Rte 270 & Quince Orchard Rd, Gaithersburg MD 20899, Phone: (301) 975-2139, Fax: (301) 926-3972, Email: CLARK@EEEL.NIST.GOV

MARIA GOEPPERT-MAYER AWARD

Sponsored by the GE Fund.

Purpose: To recognize and enhance outstanding achievement by a woman physicist in the early years of her career, and to provide opportunities for her to present these achievements to others through public lectures.

Nature: The award consists of $2,500, plus a $4,000 travel allowance to provide opportunities for the recipient to give lectures in her field of physics at four institutions of her choice and at the meeting of the Society at which the award is bestowed.

Send name of proposed candidate and supporting information before 1 July 1998 to: Michael S Turner, Dept of Astronomy & Astrophysics, Univ of Chicago, 5640 S. Ellis Ave, Chicago, IL 60637, Phone: (773) 702-7974, Fax: (773) 702-8210, email: mturner@oddjob.uchicago.edu.

DISSERTATION IN NUCLEAR PHYSICS AWARD

Sponsored by the Division of Nuclear Physics.

Purpose: To recognize a recent PhD in nuclear physics.

Nature: The award consists of $1,000 and an allowance for travel to the annual APS Spring Meeting, where the award will be presented.

Send name of proposed candidate and supporting information before 1 July 1998 to: Stuart Freedman, Dept of Phys, UCB, Berkeley CA 94720, Phone: (510) 486-7850, Fax: (510) 486-7983, Email: sjfreedman@lbl.gov

SHOCK COMPRESSION AWARD

Endowed by friends of the Topical Group on Shock Compression in Condensed Matter.

Purpose: To recognize contributions to understanding condensed matter and non-linear physics through shock compression.

Nature: This Award consists of a cash award of $2,000, a plaque citing the accomplishments of the recipient, and an allowance for travel to the meeting at which it is to be presented.

Send name of proposed candidate and supporting information before 1 July 1998 to: Carter T White, Code 6179, Naval Research Laboratory, 4555 Overlook Ave. SW, Washington, DC 20375-5000, Phone: (202) 767-3270, Fax: (202) 404-8119, Email: white@alchemy.nrl.navy.mil

LEO SZILARD AWARD FOR PHYSICS IN THE PUBLIC INTEREST

Purpose: To recognize outstanding accomplishments by a physicist in promoting the use of physics for the benefit of society in such areas as the environment, arms control, and science policy.

Nature: The award consists of a certificate citing the contributions of the recipient, a sculpture to be held one year and passed on to the next winner, and an allowance for travel to the meeting of the Society at which the award is presented.

Send name of proposed candidate and supporting information before 1 July 1998 to: Mark Sakitt, Directors Office Bldg 460, Brookhaven Natl Lab, PO Box 5000, Upton NY 11973-5000, Phone: (516) 344-3812, Fax: (516) 344-5884, Email: sakitt@bnl.gov

JOHN WHEATLEY AWARD

Supported by the Forum on International Physics.

Purpose: To honor and recognize the dedication of physicists who have made contributions to the development of physics in countries of the third world.

Nature: The Award consists of a stipend of $2,000 and a certificate citing the contributions made by the recipient.

Send name of proposed candidate and supporting information before 1 July 1998 to: Raymond L Orbach, Chancellor's Residence, 4171 Watkins Dr, Riverside, CA 92507, Phone: (909) 787-5201, Fax: (909) 787-5587, Email: rayo@admin.ucr.edu

FRANCIS M. PIPKIN AWARD

Endowed by contributions from family members, friends, students, and colleagues of Frank Pipkin.

Purpose: To honor exceptional research accomplishments by a young scientist in the interdisciplinary area of precision measurement and fundamental constants and to encourage the wide dissemination of the results of that research.

Nature: The award to be given biennially consists of $2,000 plus support of travel expenses to the APS Meeting at which the Award is conferred.

Send name of poropsed candidate and supporting information before 1 July 1998 to: Louis W Anderson, Dept of Phys, Univ of Wisconsin, 1150 University Ave, Madison WI 53706, Phone: (608) 262-8962, Fax: (608) 265-2334, Email: lwanders@factstaff.wisc.edu.

NICHOLAS METROPOLIS AWARD FOR OUTSTANDING DOCTORAL THESIS WORK IN COMPUTATIONAL PHYSICS

Supported by Academic Press, publishers of the *Journal of Computational Physics*.

Purpose: The award is to recognize doctoral thesis research of outstanding quality and achievement in computational physics and to encourage effective written and oral presentation of research results.

Nature: The award consists of $1,500 and a certificate to be presented at an awards ceremony at the Division of Computational Physics annual meeting and an additional allowance of up to $500 to travel to the meeting.

Send name of proposed candidate and supporting information before 1 July 1998 to: David Landau, University of Georgia, Center for Simulation Physics, Athens, GA 30601, Phone: (706) 542-2908, Fax: (706) 542-2492, Email: dlandau@uga.edu.

APS Council Elects New APS Fellows

The APS Council elected 180 members as Fellows of the Society in 1997. Nominations for fellowship are received by the APS headquarters throughout the year, and are forwarded for review to the appropriate division, topical group or forum fellowship committees. These in turn forward their recommendations to the APS Fellowship Committee, chaired in 1997 by APS President-Elect Jerome Friedman, MIT. Fellowship nomination forms may be obtained from the January 1998 issue of *APS News*, from the APS websidte [www.aps.org under the fellowship button], or by writing to the APS Fellowship Office, One Physics Ellipse, College Park, MD 20740-3844.

Åberg, Teijo E.W.
Helsinki U. of Technology
DAMOP (Atomic, Molecular, Optical)
For seminal work and many contributions to the understanding of radiationless transitions and the development of a unified theory of atomic excitation and de-excitation processes.

Aeppli, Gabriel
NEC Research Institute, Inc.
DCMP (Condensed Matter)
For contributions to the understanding of highly correlated electron systems and exotic superconductors using neutron scattering.

Ashtekar, Abhay Vasant
The Pennsylvania State University
Gravitational Topical Group
For his various contributions to classical and quantum gravitational physics, in particular the new canonical variables and the development of rigorous techniques for the quantization of gravity and other non-Abelian field theories.

Bagger, Jonathan Anders
Johns Hopkins University
Particles & Fields
For his contributions to the theory and phenomenology of supersymmetry, supergravity and supercolliders.

Barrett, Joseph John
Allied Signal Inc.
Forum on Industrial and Applied Physics
For his pioneering contributions in the development and applications of new Raman and infrared techniques and, in particular, photoacoustic Raman spectroscopy for gas analysis and infrared sensors for avionics applications.

Bechert, Dietrich Wolfgang
DLR (German Aerospace Research Est.)
Fluid Dynamics
For seminal contributions in receptivity of shear flows, vortex sound absorption, amplification of jet noise, acoustic array application on high speed train, and ingenious experiments of viscous drag reduction by using riblets.

Bell, Michael George
Princeton
Plasma Physics
For contributions to plasma performance optimization and investigations of confinement and stability of tokamak plasmas and for contributions to the experiments which let to the production of 10.7 MW of D-T fusion power in TFTR in November 1994.

Bell, Kenneth Lloyd
Queen's University
Forum on International Physics
For his fundamental and enduring contributions to the theory of electron collisions with atoms and ions, photoionization and photodetachment, and to atomic structure with particular emphasis on transition probabilities.

Bevk, Joze
Bell Labs, Lucent Technologies
Materials Physics
For his pioneering studies of the ultrafine filamentary composites; of the seminal research of the Si-Ge monolayer superlattices and Si/SiO2 interfaces; and for the discovery of boron confinement and trapping mechanisms in Si-based heterostructures.

Boebinger, Gregory Scott
Bell Labs., Lucent Technologies
DCMP (Condensed Matter)
For experimental investigations of magneto-transport in quantum wells and the normal state of high temperature superconductors using pulsed magnetic fields.

Brandan, Maria-Ester
IFUNAM
Nuclear Physics
For her contributions to the theoretical understanding of the interaction between heavy ions, deduced from analyses of their scattering in terms of refractive phenomena.

Brennan, Joseph Michael
Brookhaven National Laboratory
Physics of Beams
For contributions to the design, construction, and implementation of synchrotron rf acceleration systems, and specifically the AGS.

Broughton, Jeremy Quinton
Naval Research Laboratory
Computational Physics
For outstanding contributions to large-scale numerical simulations of materials behavior, in both the classical and quantum domains.

Bruinsma, Robijn Fredrik
UCLA
DCMP (Condensed Matter)
For contributions to the understanding of membranes, complex liquids, and random-field Ising models.

Calleja-Pardo, Jose Manuel
Universidad Autónoma de Madrid
Forum on International Physics
For significant contributions to optical studies of semiconductor quantum structures and for his role in the advancement of experimental solid state research in Spain.

Cates Jr., Gordon D.
Princeton University
For his pioneering use of laser polarized gases to permit uniquely detained images of mammalian lungs.

Chandler, David W.
Sandia National Laboratories
Laser Science
For important contributions to molecular dynamics, in particular for his invention and applications of photofragment imaging and for his work using laser-induced gratings.

Chang, Hsueh Chia
University of Notre Dame
Fluid Dynamics
For his deep and elegant contributions to the mathematics and to the physical understanding of nonlinear waves on thin films.

Clark, Robert Beck
Texas A & M University
Forum on Education
For his contributions to establishing models for networks linking the national and the international physics communities and his exceptional support of physics teachers at all levels.

Coleman, Michael M.
Penn State University
High Polymer Physics
For spectroscopic characterization of miscible polymer blends.

Colestock, Patrick L.
Fermilab
Physics of Beams
For his pioneering application of plasma physics theoretical formalisms to explain observed nonlinear beam dynamics in particle accelerators, and using this nonlinearity as a powerful new beam diagnostic tool.

Cornell, Eric Allin
JILA/NIST/Univ of Colorado
Laser Science
For pioneering research that led to the first observation of Bose-Einstein condensation in an atomic gas, an observation that has opened a new area of investigation in physics.

Drell, Persis S.
Cornell University
Particles & Fields
For her many important contributions to elementary particle physics, including a systematic program to understand semileptonic decays of b quarks and measure the CKM matrix element Vcb.

Dunford, Robert Walter
Argonne National Laboratory
DAMOP (Atomic, Molecular, Optical)
For extensive experimental studies in fundamental atomic physics, especially in characterizing the properties of few-electron heavy-ion systems, thereby adding significantly to the understanding of relativistic quantum mechanics and QED.

Dziuba, Ronald Francis
NIST
Inst. & Measurements Topical Group
For exceptional contributions to the realization of the ohm, the use of the quantum Hall effect as the primary resistance standard, and professional support to the metrology and scientific communities.

Ediger, Mark D.
University of Wisconsin
High Polymer Physics
For his insightful experimental and computational investigations of local polymer dynamics in solutions and melts.

Eklund, Peter Clay
University of Kentucky
DCMP (Condensed Matter)
For contributions to the synthesis and optical studies of carbon-based solids.

Ellison, Donald Charles
North Carolina State University
Astrophysics
For his pioneering work in applying computer Monte Carlo techniques to greatly further understanding of the acceleration of charged particles by astrophysical plasma shocks.

Ernst, Wolfgang Erhard
The Pennsylvania State University
Chemical Physics
For his contributions to high resolution laser spectroscopy of diatomic molecules at high sensitivity and definitive spectroscopic experiments on alkali trimers and their interpretation.

Estreicher, Stefan K.
Texas Tech. Univ.
Materials Physics
For his seminal contributions to our theoretical understanding of interstitial defects in semiconductors and their roles in such phenomena as diffusion, passivation, activation, and defect clustering.

Eyler, Edward E.
University of Connecticut
Fundamental Const. Topical Group
For precision spectroscopic measurements of simple atomic and molecular systems, especially molecular hydrogen.

Feenstra, Randall M.
Carnegie Mellon University
DCMP (Condensed Matter)
For contributions to the development of the Scanning Tunneling Microscope as a spectroscopic tool to probe semiconductor surfaces and surface phenomena.

Ferrone, Frank A.
Drexel University
Biological Physics
For development of novel instrumentation and methods to probe protein structure and assembly, and particularly for developing and elaborating a detailed physical picture of the polymerization of sickle hemoglobin.

Fischer, Erhard Wolfgang
Max Planck Institute for Polymer Res.
Forum on International Physics
For his many seminal contributions to the fundamental understanding of the structure and properties of solid polymers.

Fisher, Raymond Kurt
General Atomics
Plasma Physics
For innovative leading-edge contributions, including the first measurements of confined alphas and knock-on tails, the first observations of plasma resonance cones, and pioneering experiments on non-circular tokamaks.

Flatté, Stanley Martin
University of California, Santa Cruz
For work on meson spectroscopy and for work on wave propagation in random media with innovative contributions to ocean acoustics, atmospheric optics, seismology, and numerical simulation.

Flory, Curt A.
Hewlett-Packard Laboratories
Forum on Industrial and Applied Physics
For the imaginative use of theoretical physics in the analysis and creation of precision frequency standards, microwave sources, acoustic signal processing and sensing devices, and mass spectrometry instrumentation.

Fowles, G. Richard
Washington State University
Shock Compression Topical Group
For contributions to the education of shock compression scientists and for pioneering theoretical and experimental investigations in shock physics, including elastic-plastic shock compression.

Freund, Henry Philip
Science Applications Internat. Corp
Plasma Physics
For seminal contributions to the theory of collective radiation mechanisms in plasma and relativistic electron beans, and the application of the theory to runaway electron instabilities in tokamaks and to coherent radiation sources such as Free-Electron Lases and Cerenkov Masers.

Frieman, Joshua Adam
Fermilab
Astrophysics
In recognition of his many contributions in the application of particle physics to early-universe cosmology.

Fry, Edward S.
Texas A&M University
DAMOP (Atomic, Molecular, Optical)
For new optical probes and effects ranging from the foundations of quantum mechanics to ocean optics and lasing without inversion.

Fuda, Michael George
State University of New York, Buffalo
Few Body Systems Topical Group
For the development of techniques for the analysis of the nonrelativistic and relativistic quantum mechanics of few particle systems, and their applications to strongly interacting few particle systems.

Fuller, Robert G.
University of Nebraska
Forum on Education
For his development of video and computer materials for the teaching of physics and his leadership in introducing technology into the teaching of physics.

Gai, Moshe
University of Connecticut
Nuclear Physics
For his measurements of critical reaction rates in Nuclear Astrophysics using innovative experimental techniques, as well as his measurements of enhanced El decays in nuclei, with implications for the structure of reflexion asymmetric nuclei.

Ganguli, Gurudas
Naval Research Laboratory
Plasma Physics
For being a pioneer in the study of velocity shear-induced microinstabilities and the associated mesoscale effects on the global ionospheric and magnetospheric plasma state.

Garcia, Angel E.
Los Alamos National Laboratory
Biological Physics
For the systematic study of the folding, the stability, and the dynamics of biomolecules, in particular of the role of water, using sophisticated molecular dynamics computations.

Gaster, Michael
Queen Mary & Westfield College
Fluid Dynamics
In recognition of his fundamental contributions to the understanding of transition to turbulence, vortex shedding from bluff bodies and experimental aerodynamics.

George, Steven M.
University of Colorado, Boulder
Chemical Physics
For advancements in our understanding of gas-surface energy transfer dynamics, surface kinetics and diffusion processes, environmental chemistry at gas-surface interfaces, heterogeneous catalysis, and chemically controlled eptiaxy of novel thin film materials.

Glazman, Leonid I.
University of Minnesota
DCMP (Condensed Matter)
For contributions to theories of electron transport and correlations in mesoscopic and low dimensional systems,

Gleiser, Reinaldo Jaime
Universidad Nacional de Cordoba, Argenti
Forum on International Physics
For his role in the development of physics in Cordoba, and for his contributions to the application of exact solutions to Einstein equations and gravitational radiation theory.

Goodman, Jordan A.
University of Maryland
Astrophysics
For many important contributions to the ground-based studies of high-energy cosmic rays and gamma rays, in particular, the development and utilization of extensive air-shower detectors.

Gor'kov, Lev Petrovich
Florida State University
DCMP (Condensed Matter)
For the quantum field formulation of the theory of superconductivity.

Gould, Phillip L.
University of Connecticut
Laser Science
For his pioneering research in the use of lasers for diffracting and manipulating atoms, cooling trapped atoms to ultracold temperatures, ultracold atomic collisions and developing techniques for photoassociative molecular spectroscopy.

Grant, Paul Michael
Electric Power Research Institute
Forum on Industrial and Applied Physics
For contributions to the fields of organic conductors and high temperature superconductivity.

Hamilton, William Oliver
Louisiana State University
Inst. & Measurements Topical Group
For pioneering work and continuing leadership in developing gravitational-wave detectors, for back-action evading measurements of mechanical squeezed states, and for the development of techniques for magnetic shielding.

Hammett, Gregory W.
Princeton Plasma Physics Laboratory
Plasma Physics
For development of fluid-like models containing Landau damping and gyro-orbit averaging important in the simulation of drift wave turbulence, and for bounce averaged quasilinear theory of ion cyclotron heating.

Hannon, James Patrick
Rice University
DCMP (Condensed Matter)
For theories of Mössbauer gamma-ray optics and of resonant X-ray magnetic scattering.

Heenen, Paul Henri
Universite Libre de Bruxelles
Nuclear Physics
For his many contributions to our understanding of the nuclear mean field, especially for the development of self-consistent methods to study the static and dynamic aspects of nuclear motion.

Hellman, Frances
Univ. of Calif., San Diego
Materials Physics
For her studies on the interplay between magnetism and the surface phenomena inherent to vapor deposition growth.

Herman, Irving Philip
Columbia University
Laser Science
For distinguished accomplishments in laser physics, notably the development and application of laser techniques to probe and control materials processing.

Hess, Harald Frederick
Bell Labs., Lucent Technologies
DCMP (Condensed Matter)
For contributions in magnetic evaporative cooling of ions and scanning probe microscopy.

Ho, Yew Kam Eugene
Academia Sinica (Taiwan)
DAMOP (Atomic, Molecular, Optical)
For seminal contribution to the understanding of atomic resonances in two-electron systems, with and without the presence of electric field, through high precision applications of complex coordinate rotational method.

Hoffmann, William F.
University of Arizona
Astrophysics
For his pioneering work in the field of balloon-borne far-infrared astronomy and discovery of far-infrared radiation from Galactic Center; successful construction of the Multi Mirror Telescope (MMT) and application of infrared array technology to astronomy.

Horie, Yasuyuki
North Carolina State University
Shock CompressionTopical Group
In recognition of fundamental contributions to shock physics, including research on the shock synthesis of refractory and ceramic composites and the development of computational models of shocked reactive powders.

Hunter, Larry Russel
Amherst College
Fundamental Const.Topical Group
For his contributions to precise tests of fundamental physical laws and symmetries, and in particular for substantially improving the bound on the electric dipole moment of the electron.

Hussaini, Yousuff
Florida State University
Fluid Dynamics
For scientific leadership and innovative and pioneering research in the theory and application of computational fluid dynamics, particularly spectral methods, to problems in transition, compressible turbulence, shock-turbulence interaction, and aeroacoustics.

Isaac, Randall Duane
IBM T. J. Watson Research Center
Forum on Industrial and Applied Physics
For outstanding contributions to advanced bipolar technology and the 64Mb DRAM development.

Jackel, Lawrence David
AT&T Bell Labs
Forum on Industrial and Applied Physics
For sustained contributions to the fields of microscience and machine learning by increasing scientific understanding and by developing technology and applying it to systems with commercial and industrial significance.

Jain, Jainendra Kumar
SUNY - Stony Brook
DCMP (Condensed Matter)
For the "Composite Fermion" theory of the fractional quantum Hall effect.

Jiles, David Collingwood
Iowa State University
Magnetism & Its Application
For contributions to the understanding of ferromagnetic hysteresis and related magnetic phenomena.

Jose, Jorge V.
Northeastern University
DCMP (Condensed Matter)
For contributions to the understanding of low dimensional critical phenomena and quantum chaos.

Kanter, Elliot Paul
Argonne National Laboratory
DAMOP (Atomic, Molecular, Optical)
For innovative studies of molecular structure and dynamics and contributions to the development of Coulomb Explosion Imaging as a quantitative technique.

Ketterle, Wolfgang
MIT
Laser Science
For pioneering research in achieving Bose-Einstein condensation in an atomic vapor, and for seminal studies on the properties of the condensate.

Kisker, David William
IBM Research Division
Materials Physics
For contributions to the CVD growth of compound semiconductor thin films and direct real time x-ray scattering studies of the growth mechanism.

Kivelson, Steven Allan
UCLA
DCMP (Condensed Matter)
For theoretical contributions to the understanding of conducting polymers, the quantum Hall effect, and high temperature superconductivity.

Kolb, Charles E.
Aerodyne Research, Inc.
Chemical Physics
For his design and utilization of innovative methods to study gas phase and heterogeneous chemical kinetics and to monitor trace species concentrations and fluxes in environmental and industrial processes.

Kuech, Thomas Francis
University of Wisconsin
Materials Physics
For his seminal contributions to the fundamental understanding of vapor-phase growth of III-V compound semiconductors and his discovery of long-range order in compound semiconductors.

Kurfess, James Daniel
Naval Research Laboratory
Astrophysics
For broad contributions to High Energy Astrophysics, including gamma ray observations of solar flares, pulsars, supernovae, discrete and diffuse galactic sources and active galactic nuclei.

L'Huillier, Anne
Lund University
DAMOP (Atomic, Molecular, Optical)
For pioneering the understanding and development of high-order harmonic generation by short laser pulses in atomic gases.

Ladanyi, Branka Maria
Colorado State University
Chemical Physics
For her insightful contributions to the molecular theory of fluids and its applications to solvation, optical response and dielectric properties.

Lagendijk, Ad
University of Amsterdam
Forum on International Physics
For his pivotal experimental and theoretical contributions to electromagnetic waves propagation through strongly scattering media, highlighted by the demonstration of weak localization and extreme delay of classical wave propagation.

Lazarus, Edward Alan
General Atomics
Plasma Physics
For his insight and leadership in advanced plasma shape control for improving tokamak performance.

Lee, Richard W.
University of California, Berkeley
Plasma Physics
For technical contributions and outstanding outreach of codes for plasma spectroscopy.

Lee, Dung-Hai
Univ. of Calif., Berkeley
DCMP (Condensed Matter)
For contributions to the understanding of the phases and phase transitions in quantum Hall systems.

Lee, Shyh-Yuan
Indiana University
Physics of Beams
For important and creative contributions in both beam theory and experiments; in particular on the stability of beams with nonlinear perturbations, on the compensation of depolarizing resonances, and on the experimental study of complex beam phenomena.

Levinson, Yehoshua
Weizmann Institute of Science
Forum on International Physics
For key contributions to our understanding of highly excited electron and phonon systems, including electron population inversion in crossed electric and phonon population with frequency down-conversion.

Lightbody, John W.
National Science Foundation
Nuclear Physics
For his research studying nuclear systems using elastic and inelastic electron scattering techniques, and for his leadership in developing the nuclear physics program at the National Science Foundation.

Likharev, Konstantin Konstantin
SUNY Stony Brook
DCMP (Condensed Matter)
For contributions to the theory and applications of superconducting and single-electron devices.

Liu, Keh-Fei Frank
University of Kentucky
Nuclear Physics
For pioneering work in lattice gauge calculations which checked nuclear models quantitatively.

Lockwood, David John
National Research Council
Forum on International Physics
For pioneering applications of inelastic light scattering spectroscopy to phase transition dynamics, antiferromagnetic excitations and optical excitations in low-dimensional semiconductors, and for contributions to international physics.

Luk, Kam-Biu
Lawrence Berkeley National Laboratory
Particles & Fields
For contributions to precision measurements of hyperon properties and studies of heavy-quark production in proton-nucleus collisions, and for leadership in pursuing novel approaches aimed at studying fundamental problems.

Lyding, Joseph W.
University of Illinois
DCMP (Condensed Matter)
For contributions to STM-based nanofabrication schemes using hydrogen and deuterium on silicon.

Madaras, Ronald John
Lawrence Berkeley National Laboratory
Particles & Fields
For his leadership in pioneering technical projects and in physics analysis with the Fermilab DØ detector, the PEP TPC and the SPEAR Lead-Glass Wall.

Maguire, Charles Felix
Vanderbilt University
Nuclear Physics
For his leading contributions to the area of non-equilibrium particle emission and for the direction of the simulation effort for the PHENIX detector at RHIC collaboration.

Majkrzak, Charles Francis
NIST
DCMP (Condensed Matter)
For the contributions to neutron reflectometry and its application to the physics of magnetic multilayers.

Maley, Martin Paul
Los Alamos National Laboratory
DCMP (Condensed Matter)
For contributions to the understanding of vortex dynamics and transport in superconductors.

Mandich, Mary L.
Bell Laboratories
DAMOP (Atomic, Molecular, Optical)
For the development and application of unique molecular beam and spectroscopic tools for the study of the electronic properties and chemistry of clusters.

Marriner, John Piper
Fermilab
Physics of Beams
For his important contributions to accelerator physics, especially in the area of stochastic cooling, which have led to record luminosities at the Fermilab Tevatron proton-antiproton collider.

Marshalek, Eugene Richard
University of Notre Dame
Nuclear Physics
For pioneering contributions to the microscopic theory of nuclear collective motion, especially development of boson mapping methods.

Martinis, John M.
NIST
DCMP (Condensed Matter)
For his experimental investigations into the fundamental quantum behavior of low-temperature electronic devices.

Marx, György Miklos
Eötvös Lorand Tudomanyegyetem (Hungary)
Forum on International Physics
For seminal work in neutrino physics, including lepton charge conservation and dark matter, his leadership in physics education world-wide and his impact on research and teaching in Hungary.

Matzen, M. Keith
Sandia National Laboratories
Plasma Physics
For pioneering work and leadership in the theory and experiments that produced energetic, intense pulsed-power-driven x-ray sources and demonstrated their applications in ICF and radiation physics

McCarthy, Robert L.
SUNY
Particles & Fields
For studies leading to a broader and more precise understanding of the strong interactions, and for innovative developments in particle detectors.

Meier, Robert R.
Naval Research Laboratory
For pioneering research in radiation transport theory and space-based optical observations leading to understanding of planetary coronae, magnetospheric imaging, interstellar hydrogen and helium and airglow on the earth, planets and comets.

Merritt, Frank S.
The University of Chicago
Particles & Fields
For studies of neutral current neutrino interactions and weakly decaying states produced in neutrino interactions, and for setting mass limits on the Higgs boson and heavy leptons at LEP.

Mori, Warren B.
UCLA
Plasma Physics
For his outstanding contributions to particle simulations of complex laser-plasma phenomena and of plasma based light sources.

Ning, Tak Hung
IBM T. J. Watson Research Center
Forum on Industrial and Applied Physics
For outstanding contributions to the understanding of hot electron effects in MOSFET devices and advances in bipolar technology.

O'Fallon, John R.
US Department of Energy
Particles & Fields
For his wise leadership of the Division of High Energy Physics within the Department of Energy, which has nurtured a broad and productive U.S. research program in particle physics.

Osgood, Richard M.
Columbia University
Chemical Physics
For pioneering work initiating and fundamental studies elucidating light-induced chemical reactions on surfaces.

Ourmazd, Abbas
Institute for Semiconductor Physics
Forum on Industrial and Applied Physics
For work on the characterization of semiconductor interfaces, the development of fast transistors, and service to the APS via his role in founding the Forum on Industrial and Applied Physics.

Paesler, Michael Arthur
North Carolina State University
DCMP (Condensed Matter)
For contributions to the physics of amorphous materials, and to the development of spectroscopic near field optical microscopy.

Park, Wonchull
Princeton Plasma Physics Laboratory
Computational Physics
For his pioneering contributions to resistive magnetohydrodynamic theory and to computational physics; and for his careful and extensive application and comparison of these calculations with experiments.

Parr, Albert Clarence
NIST
Inst. & MeasurementsTopical Group
For outstanding contributions to the development of innovative instruments and techniques for elucidating atomic and molecular photoionization processes and for defining national radiometric standards.

Pendrill, Ann-Marie Martensson
Chalmers Univ. of Technology
Forum on International Physics
For her contributions to the development and used of atomic many-body methods to explore relativistic effects and parity non-conservation in heavy atoms.

Peppas, Nicholas A.
Purdue University
High Polymer Physics
For exemplary research on the effects of structure and molecular relaxations of polymers on the diffusion and transport of penetrants and solutes and the development of theories of diffusion through polymers.

Petrou, Athos
SUNY - Buffalo
DCMP (Condensed Matter)
For optical studies of heterostructures and elucidating their band structure and optical properties.

Pine, David J.
University of California, Santa Barbara
DCMP (Condensed Matter)
For the development of light scattering techniques, including diffusing-wave spectroscopy, and their application to the study of complex fluids.

Polchinski, Joseph G.
Univ. of Calif., Santa Barbara
Particles & Fields
For his major contributions to the understanding of quantum field theory, supersymmetry and string theory.

Pollack, Edward
University of Connecticut
DAMOP (Atomic, Molecular, Optical)
For pioneering work in keV energy ion-molecule and atom-molecule collisions leading to a better understanding of electron capture and electronic and vibro-rotationally inelastic interactions.

Prescott, Charles Young
Stanford Linear Accelerator Center
Particles & Fields
For his major contributions to our knowledge of the weak neutral current and the spin structure of the nucleon through experiments using polarized electron beams.

Putterman, Seth
UCLA
Fluid Dynamics
For a sustained record of important discoveries in several areas of fluid dynamics including sonoluminescence, turbulence, and quantum hydrodynamics.

Pynn, Roger
Los Alamos National Laboratory
DCMP (Condensed Matter)
For a leadership role in neutron scattering and for developing new techniques for neutron scattering studies.

Radeka, Veljko
Brookhaven National Laboratory
Particles & Fields
For outstanding contributions both to electronics for detectors as well as detectors themselves used in particle physics and related fields.

Raizen, Mark G.
University of Texas - Austin
DAMOP (Atomic, Molecular, Optical)
For outstanding contributions to our understanding of quantum effects in optics, especially at thequantum-classical interface.

Ramirez, Arthur Penn
Bell Laboratories
DCMP (Condensed Matter)
For magnetic, thermal, and transport studies of correlated magnetism and superconductivity in low-dimensional and geometrically-frustrated magnets, heavy-fermion metals, fullerenes and colossal-magnetoresistance materials.

Rao, B. D. Nageswara
Indiana University Purdue University Ind
Biological Physics
For making effective use of high-resolution NMR methods to obtain reliable structural and dynamical characterization of enzyme-bound substrate complexes thereby contributing information critical to understanding the molecular basis of enzyme catalysis.

Rebka, Jr. Glen Anderson
University of Wyoming
Nuclear Physics
For pioneering contributions to experimental general relativity, nuclear physics with polarized protons and pion double charge exchange.

Renardy, Yuriko
Virginia Tech.
Fluid Dynamics
For her seminal contributions to the fluid dynamics of interfacial instabilities, through the mathematical analysis of viscous, viscoelastic and thermal effects.

Richter, Dieter
Institute for Solid State Research
Forum on International Physics
For his incisive neutron spin echo investigations enabling improved understanding of the fundamental influence of molecular weight and temperature on chain dynamics in the melt and glassy states.

Rolston, Steven Lloyd
NIST
Laser Science
For pioneering work applying laser cooling and trapping to the study of optical control of collisions, the quantum motion of atoms in optical lattices, and atomic properties in metastable states.

Saam, William Frederick
The Ohio State University
DCMP (Condensed Matter)
For theoretical predictions of interfacial structures and wetting transitions in classical and quantum systems.

Schriber, Stanley Owen
Los Alamos National Lab.
Physics of Beams
For his leadership in the R&D for high-current proton linear accelerators and for his support of the particle accelerator community.

Schultz, Jerold M.
University of Deleware
High Polymer Physics
For contributions to scholarship and education in understanding processing-structure-property relationships in polymer systems, particularly in the area of crystallization and structure development.

Shenoy, Gopal K.
Argonne National Laboratory
Materials Physics
For his contributions to the study of magnetic superconductors and his pioneering role and leadership in the development of the Advanced Photon Source.

Shifman, Mikhail A.
University of Minnesota
Particles & Fields
For his seminal contributions to nonperturbative dynamics in gauge theories (QCD and supersymmetric theories), and their observational consequences.

Shklovskii, Boris Ionovich
Theoretical Physics Institute
DCMP (Condensed Matter)
For contributions to the theory of transport in disordered electronic systems.

Shvarts, Dov
Nuclear Research Center - Negev
Forum on International Physics
For his penetrating insights in the development of theories for ion and electron transport, high-Z opacity, and multimode nonlinear mixing due to the Rayleigh-Taylor and Richtmyer-Meshkov instabilities.

Sibener, Steven J.
The University of Chicago
Chemical Physics
For elucidating physical and chemical processes at surfaces by inelastic helium scattering and other means.

Singh, David Joseph
Naval Research Laboratory
Computational Physics
For contributions to the understanding of complex materials using first principles calculations and for development of the tools for such calculations.

Skinner, James Lauriston
University of Wisconsin
Chemical Physics
For fundamental contributions to the theory of spectroscopy and dynamics in liquids, glasses, and crystals.

Skopik, Dennis Michael
University of Saskatchewan
Forum on International Physics
For his research in nuclear and nucleon structure using the electromagnetic interaction and his leadership role in the Saskatchewan Accelerator Laboratory 300 MeV electron facility.

Skuja, Andris
University of Maryland
Particles & Fields
For his leadership role in designing and developing complex particle physics experiments, especially the recent work on collider experiments, including the CMS at the LHC in CERN.

Smits, Alexander J.
Princeton University
Fluid Dynamics
For unique contributions that have increased our physical understanding of how turbulent boundary layers are influenced by Reynolds number, Mach number, curvature, shocks, and other perturbations.

Speziale, Charles G.
Boston University
Fluid Dynamics
For the rational analysis and modeling of turbulent flows that has enhanced our ability to compute complex flows of scientific importance.

Stanev, Todor Stefanov
University of Deleware
Astrophysics
For outstanding contributions to understanding the origin of cosmic rays at ultra-high energies and for pioneering research in the field of neutrino astrophysics.

Stratt, Richard Mark
Brown University
Chemical Physics
For major contributions to our understanding of the microscopic origins of collective vibrational motions (instantaneous norm modes) in liquids and their ramifications for ultrafast spectroscopy and liquid dynamics in general.

Strikman, Mark
Pennsylvania State University
Nuclear Physics
For developing light cone techniques for nuclear systems, applying these to deep inelastic scattering and for original contributions related to understanding and measuring the effects of color transparency.

Sutherland, Richard L.
Science Applications International Corp.
Forum on Industrial and Applied Physics
For his contributions to the understanding and application of non-linear optical materials and switchable volumetric holograms.

Sutter, David Franklin
US Dept. of Energy
Physics of Beams
For continuous support of the particle accelerator community through his leadership of U.S. D.O.E. programs of accelerator physics and technology.

Suzor-Weiner, Annick
Universite Paris-Sud
DAMOP (Atomic, Molecular, Optical)
For her pioneering development of the theory of dissociative recombination, and for many other contributions to atomic and molecular physics which have stimulated significant theoretical and experimental studies.

Swift, Gregory William
Los Alamos National Laboratory
Forum on Industrial and Applied Physics
For pivotal experiments leading to a new understanding of the superfluid state and for the development of thermoacoustic engines.

Tabak, Max
Lawrence Livermore National Lab
Plasma Physics
For his exceptionally inventive and broad contributions to the fields of laser and particle driven inertial fusion, and in particular for being the principal inventor of the fast ignitor concept.

Tang, Chao
NEC Research Institute
Statistical & Nonlinear Physics
For his pioneering contributions to the theory of Self-Organized Criticality, and many other original contributions in statistical and nonlinear physics.

Tarlé, Gregory
University of Michigan
Astrophysics
For his innovative work in measuring the antimatter content of cosmic rays and other important research that spans the boundaries of astrophysics, elementary particle physics and nuclear physics.

Tarter, Curtis Bruce
Lawrence Livermore National Laboratory
Astrophysics
For his pioneering research on the physics of photo-ionized plasmas near astrophysical and laboratory x-ray sources and for his leadership of the Lawrence Livermore National Laboratory, maintaining the highest scientific integrity for this major US institution in a time of intense change.

Thomas, John Edward
Duke University
DAMOP (Atomic, Molecular, Optical)
For fundamental studies of collisions in atomic vapors using methods of laser spectroscopy and for suboptical wavelength position measurements and atom imaging.

Toussaint, Doug
University of Arizona
Computational Physics
For innovative and broad ranging contributions to computational physics including the development of special purpose computers, numerical studies of strongly correlated electron systems, and especially quantum chromodynamics.

Tranquada, John M.
Brookhaven National Laboratory
DCMP (Condensed Matter)
For contributions to the understanding of copper-oxide superconductors by use of x-ray absorption and neutron scattering techniques.

Tycko, Robert
NIH
Chemical Physics
For contributions to the understanding of novel materials, to nuclear magnetic resonance methods for probing novel materials, and to the fundamental principles of magnetic resonance spectroscopy.

Vainshtein, Arkady
University of Minnesota
Particles & Fields
For his seminal contributions to the confrontation of the Standard Model with experiment, and contributions to nonperturbatic methods, among them QCD sum rules, and exact results in SUSY gauge theories.

Van de Walle, Chris G.
Xerox PARC
Materials Physics
For innovative contributions to the theoretical understanding of interfaces, defects, and impurities in semiconductors through the application of first-principles calculations.

Verdon, Charles Peter
University of Rochester
Plasma Physics
For developing ICF targets for direct drive that self-consistently incorporate beam smoothing and hydrodynamic stability constraints, and for developing a quantitative understanding of Rayleigh-Taylor instability for direct drive.

Victora, Randall Harry
Kodak Research Laboratories
Materials Physics
For quantitatively accurate predictions of magnetic hysteresis, innovative calculations of the magnetic and electronic structure for heterogeneous systems, and the extension of these results to the development of practical materials.

Vignale, Giovanni
University of Missouri
DCMP (Condensed Matter)
For contributions to density functional theory.

Voloshin, Mikhael Boroso
University of Minnesota
Particles & Fields
For development of new methods of analysis of nonperturbative properties of quantum fields and elementary particles and applications of these in studies of experimentally observed phenomena.

Voth, Gregory Alan
University of Utah
Chemical Physics
For his pioneering work on the theory of condensed phase processes, including quantum dynamics, interfacial electron transfer and quantum and classical activated dynamics.

Wang, Wen I.
Columbia University
Materials Physics
For outstanding contributions in high mobility materials, Schottky barriers, heterostructure physics, and long-range order in semiconductor alloys.

Wang, Shi-Qing
Case Western Reserve University
High Polymer Physics
For his seminal contributions to our knowledge of molecular mechanisms for flow instabilities, extrudate distortions and wall slip in capillary extrusion of polymer melts.

Weerts, Hendrick Josef
Michigan State University
Particles & Fields
For contributions to the building, commissioning and operation of the D-Zero detector at the Fermilab Tevatron collider, and using data to confront QCD predictions in new regions of phase space.

West, Geoffrey B.
Los Alamos National Laboratory
Particles & Fields
For contributions to the understanding of scaling in Deep Inelastic Scattering and for the elucidation of glueball spectrum in QCD.

Wilkerson, John Franklin
Univ. of Washington
Nuclear Physics
For the rigor he has brought to experimental neutrino physics, in the first experiments on the low-energy solar neutrino flux and high-resolution measurements of the beta decay of free molecular tritium.

Williams, Hugh Harrison
University of Pennsylvania
Particles & Fields
For experimental contributions to the establishment of the electroweak theory, including measurements of neutral current processes in neutrino interactions, measurements of the W and Z bosons, and discovery of the top quark.

Williams, Claudine
College de France
High Polymer Physics
For fundamental contributions to the understanding of the structure of poly-electrolyte solutions and ion-containing polymers, and for pioneering novel techniques for their characterization.

Wilson, Jack M.
Rensselaer Polytechnic Institute
Forum on Education
For his leadership in the development of computer assisted learning environments and physics education materials that enhance the students' interaction with the physics and substantially improves their opportunities for learning.

Wootton, Alan James
University of Texas - Austin
Plasma Physics
For extraordinary leadership in the experimental investigation and understanding of turbulent processes in tokamaks and for guiding the development of new methods for diagnosing tokamak plasmas.

Yurke, Bernard
Lucent Technologies
Laser Science
For theoretical and experimental research in quantum states of light, especially the generation of squeezed light in cavities and Schroedinger cat states.

Zajc, William A.
Columbia University
Nuclear Physics
For his landmark contribution to experimental studies of two-boson correlation in relativistic heavy-ion collisions.

Zangwill, Andrew Mark
Georgia Institute of Technology
Materials Physics
For diverse theoretical contributions to surface and thin-film physics, most particularly, the kinetics of morphological evolutions during epitaxial growth.

Zelevinsky, Vladimir G.
Michigan State University
Nuclear Physics
For his seminal contributions to many-body theory, including, the theoretical foundations for fermion-boson mapping, discovery of the O(5) dynamic symmetry for soft nuclei, and the elucidation of many-body quantum chaos.

Zollman, Dean A.
Kansas State University
Forum on Education
For producing innovative multi-media materials that have demonstrated great value in teaching physics and for leadership in training and encouraging physics teachers at all levels to use technology.

RECENT REPLIES TO INVITATIONS TO THE APS CENTENNIAL

- Pierre and Marie Curie were radiating enthusiasm.
- Einstein thought it would be relatively easy to attend.
- Volta was electrified and Archemedes, buoyant at the thought of it.
- Ampere was worried he wasn't up to current research.
- Ohm resisted the idea at first.
- Boyle said he was under too much pressure.
- Edison thought it would be an illuminating experience.
- Watt reckoned it would be a good way to let off steam.
- Stephenson thought the whole idea was loco.
- Wilbur Wright accepted, provided he and Orville could get a flight.
- Dr Jekyll declined - he hadn't been feeling himself lately.
- Morse's reply: I'll be there on the dot. Can't stop now, must dash.
- Heisenberg was uncertain if he could make it.
- Hertz said in the future he planned to attend with greater frequency.
- Henry begged off due to a low capacity for alcohol.
- Audubon said he'd have to wing it.
- Hawking said he'd try to string enough time together to make a space in his schedule.
- Darwin said he'd have to see what evolved.
- Schrodinger had to take his cat to the vet - or did he?
- Mendel said he'd put some things together and see what came out.
- Descartes said he'd think about it.
- Newton was moved to attend.
- Pavlov was drooling at the thought.
- Gauss was asked to attend because of his magnetic personality.

IN BRIEF

Callfor NSF Scholar-in-Residence at NIH

The Directorates for Mathematical and Physical Sciences and Engineering of the National Science Foundation and the National Institutes of Health are co-sponsoring a new activity, NSF 98-48: NSF Scholar-in-Residence at NIH. This activity provides support for mathematical and physical scientists and engineers to develop research collaborations within the intramural research environment at the NIH. It is designed to help bridge the interests of the research communities served by NSF and the NIH, and to catalyze productive interactions which can enrich both. The full announcement of this activity, together with contact information for interested individuals, is accessible electronically through the NSF web page at: http://www.nsf.gov/pubs/1998/nsf9848/nsf9848.htm

Comprehensive Test Ban Treaty

In January, J. Robert Schrieffer, a past President of the APS, and APS President-Elect Jerome Friedman sent a joint letter to all Nobel laureates in physics, urging them to write to their Congressional representatives and endorse the APS Council Statement on the Comprehensive Test Ban Treaty (CTBT), unanimously approved last April. (see *APS News*, July 1997) The APS statement maintains that "continued nuclear testing is not required to retain confidence in the safety, reliability, and performance of nuclear weapons in the U.S. stockpile, provided science and technology programs necessary for stockpile stewardship are maintained." The U.S. Senate began reviewing the CTBT in early January in anticipation of an upcoming vote on its ratification. "We believe that this treaty is a vital step in advancing nuclear nonproliferation and is of extraordinary importance to world security," the APS officers wrote in their letter. APS members wishing to add their support should contact Francis Slakey, APS Associate Director of Public Affairs, 202-662-8700; slakey@aps.org.

Lev Okun Honored as Humanitarian

In December, Lev Okun, head of the Laboratory of Particle Theory at the Institute of Theoretical and Experimental Physics (ITEP) in Moscow, was honored by the George Soros and the Open Society Institute for his humanitarian contributions in the effort to preserve and maintain a strong community of scientists and science in Russia and the former Soviet Union. In the U.S. as a visiting lecturer at the Stanford Linear Accelerator Center, Okun received a special prize of $25,000 "in recognition of his dedicated and selfless devotion to the cause of Russian Scientists." Aside from his distinguished reputation as one of the outstanding theoretical particle physicists of our time, and decision to remain in Russia to keep the ITEP alive, Okun was a member of the Executive Board of Soros' International Science Foundation, evaluating grant proposals to ensure that funds went to the best scientists.

Deutch Appointed to PCAST

In January, President Clinton announced his appointment of John M. Deutch, a professor in the Department of Chemistry at the Massachusetts Institute of Technology and an APS Fellow, as a Member of the President's Committee of Advisors on Science and Technology (PCAST). Deutch served as Undersecretary of Defense from March 1993 to April 1994, Deputy Secretary of Defense from April 1994 to May 1995, and Director of Central Intelligence from May 1995 to December 1996. He obtained undergraduate degrees at Amherst College and MIT, and obtained his Ph.D. in Physical Chemistry from MIT in 1965. PCAST was established on November 23, 1993. It was created to advise the President on matters involving science and technology, and to assist the National Science and Technology Council in securing private sector involvement in its activities.

New Editorial Board Members for PR and PRL

The following individuals were appointed or reappointed as members of the Editorial Boards of *Physical Review* and *Physical Review Letters* in 1998:

Physical Review A

Keith Burnett, University of Oxford
Howard Carmichael, University of Oregon
Gordon W.F. Drake, University of Windsor, Canada
M. Yu Ivanov, National Research Council of Canada
Eugen Merzbacher, University of North Carolina
Robert F. O'Connell, Louisiana State University
Jean-Michel Raimond, Laboratoire Kastler Brossel, France
Janine Shertzer, College of the Holy Cross

Physical Review B

Hidetoshi Fukuyama, University of Tokyo
Patricia M. Mooney, IBM/T.J. Watson Research Center
J.B. Pendry, Imperial College
Jose A. Riera, Universidad National de Rosario, Argentina (currently at Universite Paul Sabatier, France)
B. Sriram Shastry, Indian Institute of Science

Physical Review C

Walter Benenson, Michigan State University
Barbara V. Jacak, State University of New York, Stony Brook
Che Ming Ko, Texas A&M University
Richard G. Milner, Massachusetts Institute of Technology
Anthony W. Thomas, University of Adelaide

Physical Review D

Keijo Kajantie, CERN
V.A. Rubakov, Russian Academy of Sciences(currently at University of Tokyo)
Davison E. Soper, University of Oregon

Physical Review E

Joseph A. Bisognano, Thomas Jefferson National Accelerator Facility
David Griffiths, Reed College
Martin C. Gutzwiller, IBM/T.J. Watson Research Center
E.J. Hinch, University of Cambridge
Yu Kivshar, Austrailian National University
Andrea Liu, University of California
S.R. Nagel, University of Chicago

Physical Review Letters

Ian Affleck, University of British Columbia
Israel Bar-Joseph, Weizmann Institute of Science
Alexander Fetter, Stanford University
Jerome L. Friedman, University of Wisconsin
Ulrich Heinz, Universitat Regensburg, Germany
David A. Huse, Princeton University
Stephan W. Koch, Philipps University, Germany
Kurt Kremer, Max Planck Institut fur Polymerforschung
M. Stone, University of Illinois

Physicists To Be Honored

(continued form page 2)

appointment in the physics department at UC, Berkeley, he joined the faculty of that institution in 1969, and has remained there ever since. He has worked extensively on the theory and practice of low-T_c dc-SQUIDs and applied them to such diverse areas as charge imbalance in superconductors, geophysics and nuclear magnetic resonance. His group is currently using SQUIDs for biology, NMR and nondestructive evaluation, as well as developing gradiometers for magnetocardiology.

JOHN H. DILLON MEDAL

The John H. Dillon Medal was established in 1983 by the Division of High Polymer Physics and sponsored by Elsevier Science, publisher of the journal *Polymer,* to recognize outstanding research accomplishments by a young polymer physicist.

Spiros H. Anastasiadis
F.O.R.T.H., Crete

Citation: "For pioneering studies of the structure and dynamics of polymer solutions, melts, interfaces, and thin films."

Anastasiadis received his PhD in chemical engineering from Princeton University in 1988 and did postdoctoral research at the IBM Almaden Research Center. He is currently an associate professor in the physics department at the University of Crete, and a research staff member at the Institute of Electronic Structure and Lasers at the Foundation for Research and Technology, Hellas, in Greece. His main research interests include polymer surfaces/interfaces and thin films, the structure and dynamics of polymer blends, co-polymers, and anchored chains.

DAVID ADLER LECTURESHIP AWARD

The David Adler Lectureship Award was established in 1988 by contributions from friends of David Adler. Its purpose is to recognize an outstanding contributor to the field of materials physics, who is noted for research, review articles, and lecturing.

Joe Greene
University of Illinois

Citation: "For outstanding research and lecturing on the physics and chemistry of thin films."

Greene received his PhD in materials science from the University of Southern California in 1971 and joined the University of Illinois, where he is presently a professor and head of the Electronic Materials Division. The focus of his research has been the development of an atomic-level understanding of atom/surface interactions during vapor-phase crystal growth.

1997 Apker Award

Editor's Note: **Anna Lopatnikova**, recipient of the 1997 Apker Award for undergraduate achievement in a PhD granting department will also be honored at the ceremonial session at the March Meeting. See January 1998 issue of *APS News* for a description of Lopatnikova's achievements.

CAUGHT IN THE WEB

Notable additions to the APS Web Server. The APS Web Server can be found at http://www.aps.org

APS News Online latest edition
- APS News Education & Outreach Special Issue

APS Committees and Governance
- APS Council minutes
- APS Committee Annual Reports

Journals
- RMP Affiliate prices revised

Units
- DMP Newsletter
- DAMOP Newsletter and meeting announcement

Meetings
- March Meeting Program
- Meeting Calendar updated
- Four Corners Section call for papers

GOTTA JOB? GETTA JOB!

Preparing Physicists For Work is a newly published book on career development and job-seeking resources for physics graduates holding Bachelors through PhD degrees. The book grew out of Career Workshops conducted at AIP Member Society meetings. It contains sections on motivation and skills assessment, resume writing, networking, researching companies, interview preparation, and negotiating. The book also contains employment statistics and profiles of physicists in the workplace. This book is an invaluable resource and guide for physics students and graduates. It is available for $10, plus shipping, from the Career Services Division, American Institute of Physics; tel: 301-209-3190; fax: 301-209-0841; e-mail: csv@aip.acp.org.

THE BACK PAGE

Resources for Science and Technology: Investments in America's Future

By John H. Gibbons, Assistant to the President for Science and Technology and Director of the Office of Science and Technology Policy

Last year in his State of the Union address, President Clinton called for "action to strengthen education and harness the forces of technology and science" to prepare America for the 21st century. In May, on the weekend after he and Congressional leaders had finalized the details of the historic, bipartisan budget agreement, he announced at Morgan State University [see Back Page by President Clinton in the July 1997 *APS News*] that "this agreement contains a major investment in science and technology, inspired in our administration by the leadership of Vice President Gore, to keep America on the cutting edge of positive change, to create the best jobs of tomorrow, to advance the quality of life for all Americans."

Many in the scientific community were skeptical. But in this year's State of the Union message, the President emphasized that our investments in science and technology, our passion for discovery, and our sense of adventure were at the heart of his strategy to assure America's prosperity into the twenty-first century. The proof is in the President's FY 1999 budget for R&D: unprecedented commitment to public investment in scientific research combined with the first balanced budget in 30 years!

"... a blizzard of letters from scientists and students from all parts of the country enveloped the White House urging increased government support for science."

Investing Across the Frontiers of Science

The President's budget request for research and development in FY 1999 totals $78.2 billion, up 3 percent. The centerpiece is the 21st Century Research Fund, which targets research programs in ten civilian agencies for an 8 percent overall increase to $31.1 billion. This fund will grow by 32 percent over the next 5 years, directing new resources into expanding fundamental knowledge, and creating the new technologies and industries that will lead to untold thousands of new, high-wage jobs. These public investments will also invigorate the American science and technology enterprise to expand knowledge and create innovations that, together, will inspire further inquiry, progress, and prosperity.

Because nearly every family has loved ones suffering from cancer, diabetes, AIDS, or other diseases, and Americans know research will lead to cures, public funding for biomedical research is at record levels. In FY 1999, NIH is slated for an unprecedented increase of $1.15 billion. Today health researchers are making phenomenal progress in deciphering the structure of proteins, the properties of cells and genes, and the circuitry of the human brain. This capability rests firmly upon decades of discoveries in physics, chemistry, mathematics, engineering, computer science, and other fields that, at first glance, appear unrelated to health care. Harold Varmus, the Director of NIH, is a staunch advocate for strong public support for these non-medical fields, because their contributions will underpin yet-to-be-developed treatments for many of our most devastating illnesses and disabilities.

"The proof is in the President's FY 1999 budget for R&D: unprecedented commitment to public investment in scientific research..."

In the President's budget, physics and related fields also fare well, with 11 percent increases overall for R&D at the Department of Energy (DOE) and for the Mathematics and Physical Sciences Directorate at the National Science Foundation (NSF). Basic research at the Department of Defense climbs 7 percent. Space Science at NASA also rises. Substantial investments in many agencies are devoted to the major scientific facilities so critical to advancing physics, but also serving biomedical research, pharmaceutical design, and even archeology and agriculture. In the President's FY 1999 budget, $87 million is set aside for U.S. participation in the international Large Hadron Collider; $157 million will start construction on the eagerly awaited Spallation Neutron Source; additional funding is proposed for synchrotron light sources, telescopes, the National Ignition Facility at Livermore, the Laser Interferometer Gravity Wave Observatory (LIGO), the B-Factory at Stanford, Fermilab's Main Injector, the Relativistic Heavy Ion Collider (RHIC) at Brookhaven; and new space science missions sponsored by NASA.

Harnessing the Forces of Science for the Challenges of the 21st Century

Sustained investment in science and technology is absolutely essential for solving many of humanity's greatest challenges, such as climate change, disease, energy sustainability, global security, and abundant and safe supplies of food and water. Whether conducted at our world-class research universities or at our world-renowned Federal and industrial laboratories, research on such complex issues will help keep the United States at the cutting edge. The effect of the proposed increases in funding for R&D will be amplified by the Administration's concurrent and continuing emphasis on improving the cost effectiveness of every research dollar.

President Clinton and Vice President Gore are steadfastly committed to the importance of science, engineering, and technology to America's future. Both leaders emphasize that diverse fields of science are intricately interconnected, with each breakthrough stimulating a chain reaction of advances in seemingly unrelated areas. These advances create new jobs and industries, thereby spurring America's economic growth. Additionally, the President and Vice President point out that public investments are essential to long-term, groundbreaking research and to keeping our scientific infrastructure at the frontier.

Physics is a cornerstone of our science and technology enterprise, with exciting frontiers of its own, and a track record rich in linkages and spinoffs benefiting other fields. The discovery of the laser by Nobel laureate Charles Townes has led to numerous applications from medicine to manufacturing, from non-invasive surgery to atom cooling and trapping. High-energy physicists working at CERN invented the World Wide Web to solve their problem of real-time communication among collaborators scattered around the world. Just last month the intricate insights obtained from more than 570 million years old microfossils from China impressed me yet again with the awesome—but often unsung—capabilities the tools and developments from physics provide other scientific fields and society at large.

Looking Ahead

By providing the best scientific and technical knowhow and combining it with wise legislative action, America can successfully address its twenty-first-century challenges. For the sake of future generations, we must—among other things—reduce carbon emissions, ratify the Comprehensive Test Ban Treaty, implement the thousand-fold increase in network speed promised by the Next Generation Internet, and pursue partnerships that speed the transfer of results from the laboratory to the marketplace.

Last December, a blizzard of letters from scientists and students from all parts of the country enveloped the White House urging increased government support for science. Physicists, astronomers, geophysicists, biologists—you name it—reiterated the importance of publicly funded research to achieving our over reaching national goals of economic growth and prosperity, personal health, national security, global stability, and environmental stewardship. Many writers provided eloquent examples of the interconnections and benefits of research, and the emergence of exciting interdisciplinary areas defining the frontiers of knowledge today. They also wrote of the importance and difficulty of attracting bright students—particularly ones from under represented groups—to scientific careers.

As the President has noted, "The future, it is often said, has no constituency. But the truth is, we must all be the constituency of the future. We have a duty—to ourselves, to our children, to future generations—to make these farsighted investments in science and technology to help us master this moment of change and to build a better America for the twenty-first century." At the White House, we are confident that the bipartisan support for research will lead to Congressional passage of the President's R&D budget.

"Physics is a cornerstone of our science and technology enterprise, with exciting frontiers of its own, and a track record rich in linkages and spinoffs benefiting other fields."