One Year Until APS Centennial Celebration in Atlanta

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Rons 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 a usual technical program covering all topics in physics, with symposia on the latest results in cutting-edge physics research. However, the Centennial will also feature special symposia and events in honor of the APS Centennial, for instance, the APS divisions, topical groups and forums are organizing special symposia showcasing 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 Bromley (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 established a cooperative partnership with LANL’s e-Print Archive to allow the physics community to take maximal advantage of the e-print archive.

APS Issues Physical Review (continued on page 3)

APS News

Inside…

News

Fellows Honored at the 1998 March Meeting

Eleven APS fellows and associates will be presented during a special centennial session at the 1998 APS March Meeting in Los Angeles, California. All but one have Cooperative Agreements with LANL’s e-Print Archive

The APS and Los Alamos National Laboratory have established a cooperative partnership designed to allow the physics community to take maximal advantage of the e-print archive.

APS announces Physical Review (continued on page 3)

Spec-Topics Series

The APS has established a new peer-reviewed electronic journal, Physical Review Special Topics: Accelerators and Beams. Inside the Beltway

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In addition, the Centennial Steering Committee—comprised of the APS presidential line and operating officers—has organized a series of special plenary sessions featuring the 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 events include a gala Sunday night (black-tie optional) dinner at Fermibnham Museum of Natural History; a Saturday evening international banquet featuring the representatives from cooperating 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 Program, who chaired the 1995 Centennial Planning Committee. The core program will feature several public physics demonstrations for high school teachers, as well as week-day 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 Albert Einstein, discover 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 banquet 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 several educational projects and tools to be used throughout 1999 and beyond. These will include:

1. 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 being published by APS, a history of physics in the 20th century, 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.

A Centuary of Physics

Prologue: The Birth of an Era by Hans Christian von Baeyer

By the end of the 19th century, after more than 2,000 years of intellectual struggle that began with the Greek philosophers, physicists 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, 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 world. 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 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, 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.

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Physicists Honored at the 1998 March Meeting

Eleven APS prizes and awards will be presented at the March 1998 APS March Meeting in Los Angeles, California, to be held later this month. Citations and biographical information 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. Russel and Marian Donnely. It recognizes outstanding research in theoretical statistical physics, including the introduction of the concept of universality and block spin scaling that are central to the modern understanding of the critical phenomena.

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 did postdoctoral work at the Niels Bohr Institute in Copenhagen. He joined the faculty of the University of Chicago in 1962, where his research focused on understanding the properties of matter, especially superconductivity. He became a leader in conducting research in solid state physics and mathematical models for urban growth, and then to the University of Chicago in 1976, where he is presently engaged in understanding the development of chaos and of structured physical 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.


Ranganwamy Srinivasan
UTech Associates
Citation: “For the development of an understanding of the chemistry of proteins and the nature of intense ultraviolet laser light on biological materials, leading to an ability to photobleach tissue surfaces precisely and safely, and for his role in developing applications in angioplasty, ophthalmology, and dermatology.”

Srinivasan received his PhD in chemical physics from the University of California at Berkeley in 1976. After postdoctoral work at the California Institute of Technology and the University of Colorado at Boulder, he joined the research staff at the IBM T. J. Watson Research Center. His research has been devoted to fundamental investigations on the action of ultraviolet photons from mercury lamps, as well as excimer lasers on organic materials.

He founded UTech in 1995.

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
University of Illinois
Citation: “For his use of phase-sensitive experiments in the elucidation of the orbital symmetry of the superconducting gap, and understanding of superconducting materials.”

Ginsberg received his PhD from the University of California, Berkeley in 1960 and has been with the faculty of the University of Illinois since 1965. 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 flux vortices.

Van Haren received his PhD from Ohio State University in 1977 and spent the following year as a postdoctoral fellow at Cambridge University, England. After a postdoctoral position at Berkeley, he worked on non-equilibrium superconductivity and dc SQUID spectroscopy. In 1993, he moved to the University of Illinois in 1981, where he is currently a professor of physics. His research is centered on the physics of superconducting materials and devices.

Kirtley received his PhD from the U. C. 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 has included development of novel inelastic neutron scattering, detection and characterization of superconducting properties at the University of Illinois at Urbana-Champaign.

Kirtley 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 1975. He made important contributions to the study of properties of various glassy materials, including amorphous superconductors and ferromagnets. His current research interests include the mechanism responsible for superconductivity in high-Tc materials, 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.

Murtugopul Murthakumar
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.”

Murthakumar received his PhD from the University of Chicago in 1979 and spent two years as a postdoctoral fellow at Cambridge University, England. After a two-year appointment as an assistant professor at Illinois Institute of Technology, he joined the Department of Materials Science at the University of Illinios in 1985, where he is currently a professor of polymer science and engineering. His research addresses the statistical mechanics of synthetic and natural polymers, specifying the structure, recognition, dynamics and transport of polymer molecules, as well as self-assembly and kinetics of multi-dimensional polymer assemblies.

He is a Divisional Associate Editor of Physical Review Letters.

FRANK ISAOKSEN PRIZE
Established in 1979 and sponsored by Elsevier Science Ltd., publishers of the journal Solid State Communications, the Frank 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 new optical methods and nonlinear techniques for pioneering studies of semiconductors, liquid crystals, sur- faces and interfaces.”

Shen received his PhD from Harvard University in 1965 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 focused on surface nonlinear optical spectroscopies and their applications to surface science. In 1992 he was awarded the APS Arthur Schwabend Prize.

GEORGE E. PAKE PRIZE
Established in 1995 and endowed by the Xerox Corporation, the Pake Prize recognizes and encourages outstanding work in physics which combines original research accomplishments with leadership in the management of research or development.

John Paul McGarce
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 Light Source.

McGarce received his PhD from Brown University and began his research career at Rockwell International in 1954, collaborating with Conel Saunders on novel semiconductors. In 1970 he joined the chemistry faculty at the University of California at Santa Barbara as a professor and served as 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 Columbia University in 1966. As a postdoctoral fellow at the University of Chicago, he worked at Argonne National Laboratory. After two years at Bell Laboratories, he was a staff scientist at both BLL and LNL. He joined IBM in 1978, where he became a professor of physics. His important work is his calculation of the energy of the electronic 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. KEITEL AWARD
Established in 1997 by an endowment from Kenneth L. Smith, this Keitel Award is intended to recognize physicists who have been instrumental in the development of measurements that have impact on the physics community by providing better measurements.

John Clarke
University of California, Berkeley
Citation: “For his experimental and theoretical contributions to the properties of superconductors, in particular interference devices (SQUIDs), advancing the state of the art of measurement science by applying SQUID technology to areas of both fundamental and applied physics, such as superconductor analyses, NMR amplifiers, and cryogenic computers.”

Clarke received his PhD from Harvard University in 1986 from Cambridge University. After a postdoctoral

(continued on page 11)
**APSA Announces Physical Review Special Topics Series**

The APS has established a new peer reviewed electronic journal, *Physical Review Special Topics: Accelerators and Beams* (PR-ST-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. PR-ST-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 physical journal for their field. While some papers on particle accelerators appear in *Physical Review Letters* and *Physical Review A*, 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. PR-ST-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 science who will serve as members of the Editorial Board. These members include Ilan Bem-Zvi, (Brookhaven National Laboratory), Michael Caddock (TRIUMF), Helen Edwards (Fermi National Accelerator Laboratory), John Galayda (Argonne National Laboratory), Chandrashekher Joshi (University of California, Los Angeles), 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 pay all refereeing costs and it anticipates offering some sort of incentive for future electronic changes in electronic publishing technology. A suite of authoring tools will be made available, and article submissions will be accepted in a modified BiViTeX and in Microsoft Word. Guidelines for authors and for referees will be available electronically from the journal’s web site (http://xxx.lanl.gov) along with instructions for submittal. Papers may be submitted beginning March 1998.

**APSO Forms Cooperative Agreement with LANL ePrint 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 electronic archive. The agreement is in response to the major impact that e-prints are having on the communication of physics research. “With one stroke, the Internet makes the APS ready to explore how the journals can be more tightly integrated into the rapidly evolving electronic 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 3,000 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 unlimited, global, freely available database of research articles that can serve as a nexus for the discovery of possible overlaps that provide filtered views of the physics literature. A similar version of the archive is maintained at the Los Alamos National Laboratory by the APS Task Force on Electronic Information Systems, which issued its report in 1991.

In the near-term, the author-controlled versions of research articles that are freely circulating outside the traditional peer-review and publication process. Unlike the familiar manuscript, the e-prints can be:

- read, reviewed, and updated by the authors 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 gravity, astrophysics, and other disciplines like quantum computing, chaos theory and nuclear physics.
- cosmology, astrophysics, and other disciplines like quantum computing, chaos theory and nuclear physics.
- speed up the process of citation.
- There is no need to number articles in the e-print archive, so that a 50% increase in the number of submissions in 1996.

In addition to the possibility of developing a single, global electronic physics database, the APS expects to use the archive to improve the *Physical Review* publication process, while simultaneously lowering costs, according to Blume. The Society has already taken several steps toward that goal. For example, in 1997 the APS amended its copyright transfer statement to recognize 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 *Physical Review* journals that grants authors the right to produce manuscripts for *Physical Review* or any other journals. In addition to these steps, the APS intends to implement better tracking of e-prints that become *Physical Review* articles, and to provide tools to Los Alamos for linking to the on-line journals, enabling researchers to locate the published versions of articles more easily. Finally, the Society is investigating the possibility of having its own “native interface to the archives, the incorporation of archive indexes into APS databases, and possibly the creation of a Los Alamos e-print archive.”

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 physical 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 manuscript e-prints electronically. Los Alamos intends to implement better tracking of e-prints that become *Physical Review* articles, and to provide tools to Los Alamos to Los Alamos for linking to the on-line journals, enabling researchers to locate the published versions of articles more easily. Finally, the Society is investigating the possibility of having its own “native interface to the archives, the incorporation of archive indexes into APS databases, and possibly the creation of a Los Alamos e-print archive.”

The Birth of an Era (continued from page 2)

The motel laboratory in Cleveland, Ohio. When it plainly contradicted the other 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 Konrad Röntgen showed a strange ray that he could make arrive in the power to penetrate black paper, and even living flesh. Since 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 happens to the vibrating?

PhD ‘Family-Tree’ Contest

This month, APS News announces a special Centennial PhD. or “equivalent” lineage contest, in which entrants are asked to trace their professional “family tree.” Said the APS, “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.

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All aspects of journal production will be handled electronically, from submittal through refereeing and copy editing, to production and distribution. The APS will pay all refereeing costs and it anticipates offering some sort of incentive for future electron
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 great chance to forward the discipline. We had 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, along with 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. We have decided to collect avery special centennial colloquium. Naturally, there will be a collection of photographs of famous physicists from the 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 universe makes advances precipitated 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. Much of the 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 trends? What will be finished, how will it change, how many important questions remain to be answered, such as the following one: Why are we here? Why is there more matter anti-matter in the universe? What is the origin of mass? Why are there so many neutrons 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. By the mid-20th century, it was a war that 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, superconductors, 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, fusion, fission, 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 a continuous theme. We believe that this is a great story to tell, and we think we can tell it. We have decided to collect avery special centennial colloquium. Naturally, there will be a collection of photographs of famous physicists from the 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 universe makes advances precipitated 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. Much of the research resulted in the discovery of phenomena such as jets, quasars and pulsars.

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What will be the great themes of the next century? What will be the intellectual and technological trends? What will be finished, how will it change, how many important questions remain to be answered, such as the following one: Why are we here? Why is there more matter anti-matter in the universe? What is the origin of mass? Why are there so many neutrons 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. By the mid-20th century, it was a war that 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, superconductors, 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, fusion, fission, 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 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 trend 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

We have therefore had more than 25 years of this evolutionary process. APS members 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

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 stories and gossip around the village well. The JATO rocket story is a “Net Myth.” That is, it’s circulating on the Internet, and it’s an urban legend—a terrifically wide spread belief that has been repeated so many times that it’s an urban legend—a terrifically wide spread belief that has been repeated so many times that it’s an urban legend—a terrifically wide spread belief that has been repeated so many times that it’s an urban legend—a terrifically wide spread belief that has been repeated so many times that it’s an urban legend—a terrifically wide spread belief that has been repeated so many times that it’s an urban legend—a terrifically wide spread belief that has been repeated so many times that it’s an urban legend—a terrifically wide spread belief that has been repeated so many times that it’s an urban legend—a terrifically wide spread belief that has been repeated so many times that it’s an urban legend—a terrifically wide spread belief that has been repeated so many times that it’s an urban legend—a terrifically wide spread belief that has been repeated so many times that it’s an urban legen
The President Delivers Big Time for Science and Engineering
by Michael S. Lisibach, APS Director of Public Affairs

Can a leopard change its spots? Never in the kingdom of the wild, but in the realms of politics, it happens every day. Take the case of Bien Nighthouse Connecticut Democrat. He was first elected to the Senate from Colorado as a Demo- crat 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 Con- necticut if you’re pro-life.

So last month when President Bill Clinton unveiled a budget that featured large increases for science and technology, he found himself in the company of no less than 3.5 million scientists, engineers and mathematicians who 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 sup- port of the average voter either. Two years ago, the Roger survey organization asked Americans what they thought about science. Four out of five respondents said that it inspired hope, satisfaction, wonder or excitement.

And then there were the undisputed facts that science and technology are the principal 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 Advisory John H. Gibbons, long a supporter of science and proficiency in high technology is the basis of our national security.

No doubt, Presidential Science Advisory John H. Gibbons, long a supporter of science and engineering research, speaks for the majority of his fellow Democrats when he says, "We need to remain competitive in the global market." The congressman from New Jersey notes that the budget for R&D at the Department of Defense is now higher than it was when he entered Congress 10 years ago. This year, according to Mr. Gibbons, the Defense Department will spend $25 billion more on R&D than it did 10 years ago. But this isn’t just concerned with defense.

"It is apparent that the United States is falling behind in some areas of technology," the congressman says. "This budget increase in R&D at the Department of Defense is really a 21st century budget increase. If we want to stay competitive in the global market and if we want to be able to sustain our own national security, we need to make these kinds of investments." So, he says, the Defense Department's budget is a priority investment, delivered a standing ovation from both sides of the aisle.

Just a week earlier, in his State of the Union Address, the President had pro- vided a preview of his budget intentions. Although he admitted that it had been a science a huge boost, just as White House insiders had promised. "Tonight," he said, "as part of our gift to the mil- lennium, I propose a 21st Century Research Fund for path-breaking scientific in- quiry—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 bore an ovation from both sides of the aisle.

However, first impressions often can be deceiving. As congenial and congratula- tory 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 con- tains more than $100 billion of spending on new programs over the next five years. It assumes more than $20 billion in increased revenues from tobacco taxes. And his State of the Union Message stakes out a position that would commit any other administration to growth investments, they will have their mettle tested in the coming months.

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However, the budget unambiguously identifies this week.


For example, the Darwin Award story. The Darwin Award, presented as a mordant gift to the gene pool a favor by eliminating himself in the dumbest possible way. The 1994 Darwin Award, presented as a mordant gift to the gene pool a favor by eliminating himself in the dumbest possible way. The 1994 Darwin Award, presented as a mordant gift to the gene pool a favor by eliminating himself in the dumbest possible way. The 1994 Darwin Award, presented as a mordant gift to the gene pool a favor by eliminating himself in the dumbest possible way. The 1994 Darwin Award, presented as a mordant gift to the gene pool a favor by eliminating himself in the dumbest possible way.

The President delivers big time for science. And yet, according to Administration sources, the budget process was hampered by a new emphasis on budget caps. 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 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 physicists. 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

February 5, 1998

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.

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Very truly yours,
Andrew M. Sessler
Established by AT&T Bell Laboratories, (now Raymond E Goldstein, Dept of Phys, Univ of Calif, Irvine, Irvine, CA 92697-4775, Phone: (714) 824-6948, Fax: (714) 824-2174, Email: vmtmille@uci.edu.

**HANS A. BETHE PRIZE**
Established 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 $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: Ellen D Williams, Dept. of Phys. Univ. of Maryland, College Park, MD 20742-4111, Phone: (301) 405-6156, Fax: (301) 514-9465, Email: williams@surfaceumd.edu.

**DANNIE H. HEINEMAN PRIZE FOR MATHEMATICAL PHYSICS**
Sponsored by the Heinemann 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 the 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 20742-4112, Phone: (301) 454-3180, Email: e_ott@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.

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: ppaul@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: (602) 258-1705, Fax: (602) 258-6360, Email: gdel@physics.arizona.edu.

**GAVIN-GERRHART PRIZE**
Established by AT&T Bell Laboratories, (now Lucent Technologies).

**Purpose**: To recognize and encourage outstanding work in atomic and molecular spectroscopy or related fields.

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: Ellen D Williams, Dept. of Phys. Univ. of Maryland, College Park, MD 20742-4111, Phone: (301) 405-6156, Fax: (301) 514-9465, Email: williams@surfaceumd.edu.

**ERICK AMARADASS PRIZE**
Sponsored by Eric J Amaradass, 224 B210 Polymers Div, NIST, Rte 270 & Quince Orchard Rd, Gaithersburg, MD 20899, Phone: (301) 975-6681, Fax: (301) 926-4175, Email: eric.amis@nist.gov.

**G. E. PAKE PRIZE**
Sponsored 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-354, Lucent Technologies, 7600 Mountain Ave, Murray Hill NJ 07974-0636, Phone: (908) 582-9494, 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 instrumental 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 I. Klein, Dept of Phys, Yale Univ, Box 2121, New Haven CT 06520-8121, Phone: (203) 432-8570, Fax: (203) 432-6175, Email: Zeffer@caltech.phys.yale.edu.

**ANNEEUS 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 at which the prize is awarded and at which the recipient delivers the prize address 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) 665-5003, Email: gddoolen@lnl.gov.
J. J. SAKURAI PRIZE FOR THEORETICAL PHYSICS

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

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.

The prize consists of $5,000, an allowance of up to $500 to travel to the meeting at which the award is presented, 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 Drive, Riverside, CA 92507, Phone: (909) 787-5281, Fax: (909) 787-5587, Email: rayo@admin.ucr.edu

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 public policy.

Nature: The award consists of a certificate citing the contributions of the recipient, a sculpture to be held for one year and passed on to the next winner, and an allowance of up to $500 to 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 Lab, PO Box 5000, Upton NY 11973-5000, Phone: (516) 344-8812, Fax: (516) 344-5864, 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 $2,500, plus a year’s subscription to 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 Drive, Riverside, CA 92507, Phone: (909) 787-5281, 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 is given biennially consisting of $2,000 plus support of travel expenses to an APS Meeting at which the award is conferred.

Send name of proposed candidate and supporting information before 1 July 1998 to: Louis W. Slichter, Director, Dept of Physics, University of Chicago, 5735 S Ellis Ave, Chicago, IL 60637, Phone: (773) 702-7974, Fax: (773) 702-8210, Email: lms@aps.uchicago.edu

NICHOLAS METROPOLIS AWARD FOR OUTSTANDING DOCTORAL DISSERTATION IN COMPUTATIONAL PHYSICS


Purpose: To award the doctoral dissertation 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 annual meeting of the APS Topical Group (IMSTG).

Send name of proposed candidate and supporting information before 1 July 1998 to: David Landau, University of Georgia, Center for Simulation Physics, Athens, GA 30602, Phone: (706) 542-2908, Fax: (706) 542-2492, Email: dlandau@uga.edu

APKER AWARD

Endowed by Jean Dickey Aptek, in memory of her husband, the late Alan Aptek.

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 contributions made by the recipient.

Send name of proposed candidate and supporting information before 1 July 1998 to: James J. Pipkin, Associate Executive Director, Division of Physics of Beams, APS, 200 Constitution Avenue, NW, Washington, DC 20075-5000, Phone: (202) 767-5270, Fax: (202) 484-8119, Email: white@aps.org

JOSEPH A. BURTON FORUM AWARD

Endowed in 1997 by Jean Dickey Aptek

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: Stuart Freedman, Dept of Phys, UC Berkeley, CA 94720, Phone: (510) 643-8021, Email: sfreedman@ucb.edu

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-equilibrium physics through shock compression.

Nature: This Award consists of a cash award of $2,000, a plaque citing the contributions 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, 3955 Overlook Ave, SW, Washington, DC 20375-5000, Phone: (202) 767-5270, Fax: (202) 484-8119, Email: white@alkemy.navy.mil

March 1998

APS News
Albert, Jonathan Andrew Johns Hopkins University Particles & Fields For his contributions to the theory and phenomenology of superconductors, especially in superfluids and superconductors.
Barrett, Joseph John Air Force Geophysics Laboratory Atmospheric Sciences For his contributions to the understanding of large-scale atmospheric circulation processes.
Becker, Dietrich Wolfgang Lawrence Livermore National Laboratory Fluid/Dynamics For his contributions to the development of turbulence models for application to geophysical flows.
Bekei, Joel University of Maryland Physics Materials For his contributions to the development of novel polycrystalline materials for high-temperature superconductors.
Bennett, Marie-Claude Université Laval Nuclear Physics For his contributions to the development of novel techniques for particle identification and tracking in high-energy physics experiments.
Bürgers, Gregory Scott Duke University Nanotechnology DCFM (Condensed Matter) For contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Bürgers, Hans-Christer University of California, Santa Cruz Nuclear Physics Materials For his contributions to the development of novel materials for high-temperature superconductors.
Bukowski, John Michael University of Illinois Materials Sciences For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Burgers, Johannes Martens University of Chicago Materials Sciences For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Butler, Mark Anthony Western Sydney University Physics For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Cates, Jr., Gordon D. University of California, Santa Barbara Nuclear Physics For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Cwik, Alexander National Institute of Standards and Technology Materials Science For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Dawson, James Patrick North Carolina State University Astrophysics For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Eyeson, Edward E. The Ohio State University Materials Sciences For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Fisher, Andrew G. The Pennsylvania State University Astrophysics For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
French, John S. Harvard University Astrophysics For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Fursa, Victor I. Brookhaven National Laboratory Materials Sciences For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Garcia, Joel E. Los Alamos National Laboratory Materials Sciences For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Garcia, Angel E. Los Alamos National Laboratory Materials Sciences For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Garcia, Joaquin A. University of Texas at Austin Materials Sciences For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Grazzini, Robert J. Argonne National Laboratory Materials Sciences For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Guhl, Mary Beth University of Wisconsin Materials Sciences For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Hall, Thomas A. University of Michigan Materials Sciences For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Hanlon, John M. University of California, Santa Barbara Astrophysics For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Hansen, John M. Lawrence Berkeley National Laboratory Materials Sciences For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Happe, Robert C. The Pennsylvania State University Materials Sciences For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Harten, Albrecht University of California, San Diego Computer Sciences For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Hartmann, Klaus-Jürgen University of Illinois, Urbana-Champaign Materials Sciences For his contributions to the development of novel techniques for the production of novel materials for high-temperature superconductors.
Richard, Dieter
Institute for Solid State Research
From: Low Temperature Physics
For his innovative research on spin excitations involving understanding of the magnetic excitations in disordered and quantum systems.
Rolston, Steven Lloyd
NIST
Lasers
For his work on applying laser cooling and trapping to the study of optical control of cold atoms, the quantum motion of atoms in optical lattices, and atomic and molecular interactions.
Saan, William Frederick
The Ohio State University
DCMP (Condensed Matter)
For the theoretical predictions of interfacial structures and understanding of crystallization and structure development.
Scheiber, Stanley Owen
Los Alamos National Lab.
High Polymer Physics
For his leadership in the R&D for high-proton linear accelerators and for his support of the particle accelerator community.
Schulte, Joriel M.
University of Delaware
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.
Shimak, Mikhail N.
University of Minnesota
Particles & Fields
For his seminal contributions to nonperturbative dynamics in gauge theories (QCD and supersymmetric theories), and for his original contributions to the development of the renormalization group.
Shimojo, Boris Ivanovich
Theoretical Physics Institute
DCMP (Condensed Matter)
For contributions to the theory of transport in disordered systems, and for understanding processing-structure-property relationships in polymer systems, particularly in the area of crystallization and structure development.
Simon, Steven J.
Duke University
Chemical Physics
For elucidating complex chemical and chemical processes at surfaces by inelastic helium scattering and other means.
Singh, David Joseph
Naval Research Laboratory
Computational Physics
For his pioneering work in the understanding of complex materials using first principles calculations and for development of the local density calculations.
Skinner, James Laurieon
University of Wisconsin
Chemical Physics
For fundamental contributions to the theory of spectroscopy and dynamics in liquids, glasses, and liquids.
Skupik, Dennis Michael
University of Saskatchewan
Forum on Ion Beams
For his research in nuclear and nuclear structure using the electromagnetic interaction and his leadership role in the development of the Accelerator Separation Facility.
Skupka, Andre
University of Maryland
Particles & Fields
For his work in single ion deflection and developing complex particle physics experiments, especially the recent work on collider experiments, including the CMS at the LHC.
Smits, Alexander J.
Brookhaven National Laboratory
Fluid Dynamics
For his contributions that have increased our physical understanding of how turbulent boundary layers are influenced by Reynolds number, Mach number, curvature, rotation, and perturbations.
Speizakis, Charles G.
Blanton University
Fluid Dynamics
For the rational analysis and modeling of turbulent flows in pipes and channels, his ability to compute complex flow systems of scientific importance.
Staney, Tudor Stefanov
University of Delaware
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.
Strait, Richard Mark
Brown University
Chemical Physics
For major contributions to our understanding of the microcrystalline structure of collective vibrational motions of ionized plasmas in liquids, and in hot and dense materials for ultrafast spectroscopy and liquid dynamics in plasmas.
Strikman, Mark
Pennsylvania State University
Physics of Beams
For developing light cone techniques for nuclear systems, applying these to deep inelastic scattering and for original contributions to understanding and measuring the effects of color transparency.
Sutherland, Richard L.
Science for Research at the 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.
Sutton, David Franklin
US Dept. of Energy
Physics of Beams
For continuous support of the particle accelerator community through his leadership of U.S. DOE programs of accelerator research and technology.
Suzuki, Wen-An
Institute of Plasma 
DAMOP (Atomic, Molecular, Optical)
For her pioneering development of the theory of composite molecules, and for her contributions to applied research in the fields of astrophysics and technology.
Swift, Gregory William
Los Alamos National Laboratory
Forum on Industrial and Applied Physics
For his experimental studies leading to a new understanding of the superfluid state and for the development of superconducting 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 next generation target concept.
Tang, Chao
NSF 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.
Tank, Gregory
University of Michigan
Astrophysics
For his exceptionally innovative and broad contributions to the fields of laser and particle driven inertial fusion, and in particular for being the principal inventor of the next generation target concept.
Tarter, Curtis Bruce
Lawrence Livermore National Laboratory
Astrophysics
For his pioneering research on the physics of radio astronomy and on interstellar and intergalaxy radio sources and for his leadership of the Lawrence Livermore National Laboratory; for developing the highest scientific integrity for this major US institution in a time of intense change.
Thomas, John Edward
Duke University
Computational Physics
For his work in computer modeling of neutrons and light in cavities and Schrödinger cat states.
Tabak, Max
Lawrence Livermore National Laboratory
Materials Physics
For fundamental contributions to the development of high-mobility materials, Schottky barriers, heterostructure physics, and long-range order in semiconductor alloys.
Wang, Shiqing
Clemson University
High Polymer Physics
For his pioneering work on the development of new high-mobility materials, for Schottky barriers, heterostructure physics, and long-range order in semiconductor alloys.
Webb, Wendell Joseph
Michigan State University
Particles & Fields
For contributions to the building, commissioning and operation of the D-Zero detector at the Fermilab Tevatron collider, and for the development of detectors in new regions of phase space.
Weiss, Geoffrey B.
Los Alamos National Laboratory
Particles & Fields
For contributions to the understanding of scaling in Deep Inelastic Scattering and for the elucidation of quark jet predictions in QCD.
Wilkinson, John Franklin
Univ of Washington
Nuclear Physics
For his long career devoted to developing neutron beams, in the first experiments on the low-energy solar neutron 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 development of the electron telescope, including measurements of electron density profiles and processes in neutron interactions, measurements of the W and Z bosons, and discovery of the Higgs boson.
Williams, Claudine
College of France
High Energy Physics
For fundamental contributions to the understanding of the structure of multi-electrolyte solutions and ion-in-solvent physics, and for pioneering new techniques for their characterization.
Wilson, Jack M.
Randall Perspective 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 physics and substantially improve their opportunities for learning.
Weston, Alan James
University of Basel
Plasma Physics
For his seminal contributions to the development of the laser frequency comb in relativity tests of the light in cavities and Schroedinger cat states.
Zajc, William A.
University of Colorado
Nuclear Physics
For his seminal contributions to the experimental studies of two-neuron-conversion in relativistic heavy-ion collisions.
Zampelli, Andrew Mark
Georgia Institute of Technology
Materials Physics
For theoretical contributions to the understanding of interfaces, defects, and impurities in semiconductors, and for many other contributions to the understanding of interfaces, defects, and impurities in semiconductors.
Zavitsanos, Vassilios G.
Michigan State University
Nuclear Physics
For his seminal contributions to many-body theory, including, the theoretical foundations for fermion-boson commutation, the discovery of the Q(5) dynamic symmetry for soft nuclei, and the elucidation of many-body quark chaos.
Zheng, Zhihong
Los Alamos National Laboratory
Plasma Physics
For his seminal contributions to 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 do.
- Volta was electrified and Archemedes, buoyant at the thought of it.
- Ampère 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.
- Lavoisier reckoned it would be a good way to be put to death.
- 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.
- Herts 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 evolution.
- Schrödinger had to take his cat to the vet - or did he?
- Mendl 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.

**Physics and Chemistry for the 21st Century**

For extraordinary leadership in the experimental investigation and understanding of turbulent processes in incompressible fluids, and for pioneering new techniques for their characterization.
IN BRIEF

Calfor 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/nsf98-48/98-48.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). An unprecedentedly large number of Nobel laureates wrote back to 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 ITER 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 the Arms Control and Disarmament Agency from May 1995 to December 1996. He obtained his undergraduate degrees at Amherst College and MIT, and obtained his Ph.D. in Chemical Physics 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.

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 pioneering research and lecturing on the physics and chemistry of thin films.”

1997 Apker Award

Editor’s Note: Anna Lopatnikova, recipient of the 1997 Apker Award for undergraduate achievement in physics, was a contributor to the February 1998 issue of APS News.

New Editorial Board Members for PR and PRL
The following individuals were appointed or re-appointed as members of the Editorial Boards of Physical Review and Physical Review Letters in 1998:

Physical Review A
Kath 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
Eugene 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 Nacional de Rosario, Argentina
B. Srinivashastru, 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
Kaz Imamura, 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. Gutwiller, IBM/T.J. Watson Research Center
E.J. Hinch, University of Cambridge
Yu Kon, Australian 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 Tetter, Stanford University
Jerome L. Friedman, University of Wisconsin
Ulrich Heirz, Universitat Regensburg, Germany
David A. Ruse, Princeton University
Stephan W. Koch, Philips University, Germany
Kurt Kerner, Max Planck Institut fur Polymerrorschung
M. Stone, University of Illinois

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: cvl@aip.org.
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

L ast 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 an urgent Back Page by President Clinton in the July 1997 APS Award 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, 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 50 years.

Investing Across the Frontiers of Science

The President’s budget request for research and development in FY 1999 totals $76.2 billion, up 5 percent. The centerpiece is the 21st Century Research Fund, which targets research programs in ten civilian agencies for an 8 percent overall increase. The 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 has led 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 phenomenanl 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. Harriet Varras, the Director of NIH, is a staunch advocate for strong public support for these non-medical fields, because their contributions will underpin the tools and developments for many of our most devastating illnesses and disabilities.

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 Mathematical 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 21st-century 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 Deep Underground Neutrino Experiment, CERN’s Large Hadron Collider, and even archeological and agricultural 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 the 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 propel 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 advances 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.

Looking Ahead

By providing the best scientific and technical knowledge and expertise in a framework 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 interconnectedness of all areas 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.”

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