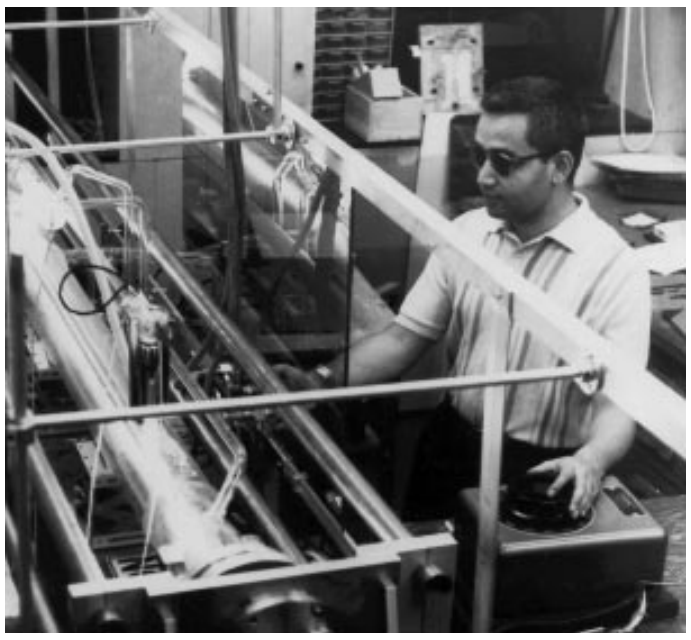
APS NEWS

AUGUST/SEPTEMBER 1996 THE AMERICAN PHYSICAL SOCIETY VOLUME 5, NO 8

Patel Recipient of Nation's Highest Science Honor

APS Past President C. Kumar N. Patel, vice chancellor for research at the University of California, Los Angeles, is one of eight scientists to receive the National Medal of Science, the nation's highest science honor. President Clinton announced this year's recipients and the five winners of the National Medal of Technology in June. The medalists will be honored at a White House ceremony later this summer. Patel was honored for his invention of the carbon dioxide laser, a major scientific and technological breakthrough which continues to be an important tool in manufacturing, medical treatment, scientific investigations and materials processing. His carbon dioxide laser also led to the creation of new generations of lasers and laser systems.

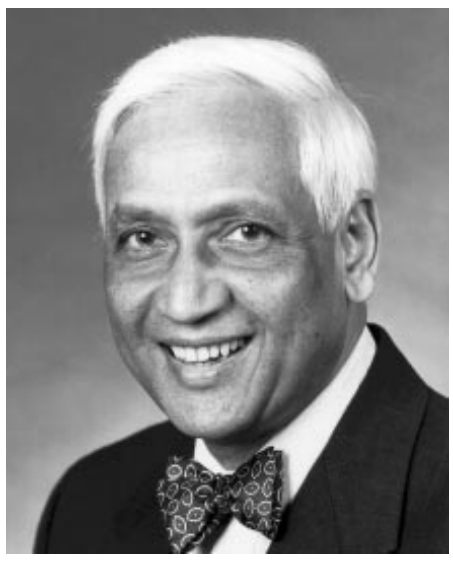


An early 1965 Kumar Patel operating 100W cw CO_2 laser

"The 13 recipients of these prestigious medals are American champions of research and innovation," the President said. "Our nation is grateful to these visionaries for advancing our base of knowledge. American industry especially is indebted to them for contributing vital new discoveries and applications that businesses have developed into cutting edge ideas, products and processes. Fueled by science and technology, American enterprise remains the world's leader in today's global marketplace."

The National Medal of Science, established by Congress and administered by the National Science Foundation, honors individuals for contributions to the present state of knowledge in one of the following fields: physical, biological, mathematical, engineering or social and behavioral sciences. The medal has now been awarded to 344 distinguished scientists and engineers.

Since its establishment by Congress, the National Medal of Technology, administered by the U.S. Department of Commerce, has honored 94 individuals and seven companies for technological innovation and advancement of U.S. global competitiveness. The Medal of Technology also recognizes groundbreaking contributions that commercialize a technology, create jobs, improve productivity or stimulate the nation's growth and development in other ways.



The other seven 1996 recipients of the National Medal of Science are Wallace S.

(continued on page 6)

APS Names Michels as 1996-1997 Congressional Fellow

The American Physical Society selected the Joseph Michels as its next Congressional Fellow. Michels will serve one year as a special legislative assistant in a congressional office, following an intensive, 10-day orientation period and interview process.

"In the old era, it was almost unquestioningly accepted that science would improve the lives of American citizens and make us safe in the dangerous world of the Cold War, but those certainties have now disappeared," Michels said of his reasons for applying for the APS Congressional Fellowship. "The present is an uncomfortable transition period where fundamental questions are being asked about the role of science and the research community in a world governed by new economic and political decisions." Nevertheless, he views this as an opportunity to redefine and revitalize the way science is pursued in the U.S. and abroad, and believes young leaders with a broad base of scientific knowledge and strong communication skills are essential to the transition.

Michels received his B.S. in physics, with a minor in English, from LaSalle University in 1986, and his D.Phil. in experimental condensed matter physics from Oxford University's Pembroke College in 1994. As junior dean during his last two years of graduate study, he served on several college committees and helped initiate a formal policy governing the consumption of alcohol in Pembroke. Michels is currently employed by the Smithsonian Astrophysical Observatory, which in collaboration with Universita di Firenze (Italy), developed the ultraviolet coronograph spectrometer (SOHO) satellite. Based at Goddard Space Flight Center, Michels is helping to develop the observing plan for the UVCS instrument on a weekly basis. Time not spent in mission planning he uses to study solar physics and the wealth of new information on the sun already produced by SOHO.

A former participant in the 1987 Pan American games and a contender for the 1988 and 1992 Olympics in rowing, he also rowed for Oxford in the annual boat race against Cambridge, a national event in England that garners worldwide media attention. Two years before commencing studies at Oxford, Michels was a founding partner of This Old House Renewed, a self-started and managed renovation firm in Philadelphia.

Michels hopes to spend his fellowship year as a legislative assistance to a Member of Congress. He is particularly interested in the necessity of improving basic science education in the U.S. "Science

(continued on page 3)

IN THIS ISSUE

Patel Recipient of Nation's Highest Science Honor 1
APS Names Michels as 1996-1997 Congressional Fellow 1
Weinberg is New PRD Editor 1
BE Condensates, Quantum Computing Highlight 1996 DAMOP Meeting 2
Inside the Beltway 2
IN BRIEF 3
Opinion 4
APS Awards 1996-1997 Scholarships to Minority Undergrads 6
Is U.S. Physics Truly International? 6
Announcements... 7
The Back Page 8
APS Meeting News ..... Insert

Correction

The Back Page of the March 1996 issue of *APS News* by Julian Simon contained an erroneous quote attributed to Stephen Schneider. Unfortunately, Simon's notification of the error arrived after the issue was in print. Schneider responds with his viewpoint in an article on page 5.

Weinberg is New PRD Editor

Erick Weinberg, a professor of physics at Columbia University, became editor of *Physical Review D (PRD)* as of June 1, 1996. He succeeds Lowell Brown (University of Washington), whose term expired at the end of 1995. Weinberg received his Ph.D. in physics from Harvard University in 1973 and spent two years as a member of the Institute of Advanced Study before joining the faculty of Columbia University, where he has remained ever since. A former Alfred P. Sloan Fellow, he has served on the editorial board of both *PRD* and *Physical Review Letters* and on the APS Task Force on Journal Growth, as well as in various administrative capacities for the Aspen Center for Physics.

Weinberg believes the primary task of the editor is to maintain *PRD's* standing as one of the leading journals in its field, by ensuring that the articles are of the highest quality. The editor should also be involved in the decision-making process of the APS journal-related issues. The greatest challenge of the future will be electronic publishing, according to Weinberg, although any steps toward an electronic version of *PRD* are at this point viewed as experimental. "We are not yet at the point where it makes sense to fix long-term standards, or even to decide precisely how we want to exploit computer technology to add capabilities that are not possible with a paper journal," he said, adding that the Los Alamos preprint server project has raised expectations, and thus a short-term goal would be to have *PRD* available online in a form comparable to the Los Alamos project. This will happen in the near future.

BE Condensates, Quantum Computing Highlight 1996 DAMOP Meeting

The latest results in Bose-Einstein condensation experiments, quantum resonance imaging and computing, and collision studies of laser-cooled atoms were among the highlights of the annual meeting of the APS Division of Atomic, Molecular and Optical Physics (DAMOP), held 15-18 May at the University of Michigan in Ann Arbor. In addition to the 12 invited symposia featured in the regular technical program, there was a conference banquet held on Friday, May 17, which included the presentation of prizes and awards, as well as an after-dinner lecture by Patrick Seitzer of University of Michigan's Department of Astronomy entitled, "Hubble Space Telescope: Tragedy to Triumph."

Advances in Bose-Einstein Condensates. Bose-Einstein condensates (BECs) comprise a unique state of matter in which gas atoms, cooled to near-absolute-zero temperatures, overlap with each other and collapse into a common quantum state, where they behave essentially as a single "superparticle." Studies of Bose-Einstein condensates promise important insights into the strange world of quantum mechanics, and the future possibility of technologically useful inventions.

Building on over 20 years of experimental work in atomic and optical physics, a research team at the National Institute of Standards and Technology (NIST) and the University of Colorado announced last summer that they had achieved Bose-Einstein condensation in a gas of about 2000 rubidium atoms.

In a Saturday morning session, Wolfgang Ketterle and his MIT colleagues announced that they had produced a Bose-Einstein condensate of 5 million atoms, 10 times bigger than any previous BEC. At 150 microns long and 8 microns wide, the condensate was large enough to be directly observed for the first time, and lasted for 20 seconds. The MIT researchers imaged the BEC with scattered laser light with a sensitive camera. Interestingly, the BEC acts as a lens in the experiments, allowing light to pass through but bending it by a small degree.

The MIT group also found that the light scattered off the condensate is anisotropic. To produce the condensate, the researchers used a combination of lasers and magnetic fields in a special configuration in which cloverleaf-shaped coils generate magnetic fields that tightly confine the atoms while allowing the setup's 11 laser beams to pass easily into the trapping region.

The NIST-University of Colorado team, led by Eric Cornell and Carl Wieman, has found that theory agrees with experiment in its predictions of the Bose-Einstein condensate's critical temperature, the temperature below which atoms in a gas enter the Bose-Einstein condensate phase. Dan Kleppner of MIT described a new technique that greatly improves the ability to monitor atomic transitions in trapped hydrogen. Achieving BEC in hydrogen has been a goal for many years. What has hampered efforts has been the difficulty of monitoring and controlling trapped hydrogen, since the lasers need to manipulate hydrogen energy transitions must deliver ultraviolet light and need development.

Randall Hulet of Rice University described a new trap, employing permanent magnets, that creates a combination of temperature and density in lithium atoms believed to be several hundred times better than that needed to create Bose-Einstein condensation. Surprisingly, Hulet's team is finding that only a small fraction of the atoms in the trap appear to display the signature for BEC. Lithium is different from the other atoms used to produce BEC in that lithium atoms in a gas are slightly attractive toward one another rather than repulsive.

Quantum Computing. In a Friday morning session, C. Monroe of the National Institute of Standards and Technology in Boulder, Colorado, reported on progress toward the development of useful quantum computers and described the experimental challenges that lie ahead. An attractive architecture for such a device is a collection of trapped ions, where two internal states of each ion carry one quantum bit (qubit) of information. A challenge is to scale the system to a string of many trapped ions so that the device can host many more than two qubits.

Collisions of Laser-Cooled Atoms. Advances in laser cooling of neutral atoms have made possible a new form of high resolution spectroscopy known as photoassociation colliding neutral atoms confined in a laser trap are photoassociated to bound excited states of the dimer molecule by absorbing a photon from a tunable laser. The technique can probe long range molecular states that are difficult or impossible to detect by traditional means, and, because of the extremely low energy of the colliding atoms, it is capable of high resolution. Recent results include the first direct, and most precise, measurements of molecular dissociation limit, and the first observation of retardation effects in atom-atom interactions, high precision measurements of atomic lifetimes, and the study of exotic states of alkali dimers.

Quantum Resonance Imaging. Spurred by the advent of laser cooling and trapping, physicists at Duke University are developing new high resolution atom imaging methods, based on resonance imaging in ultrahigh gradient potentials due to optical force fields. According to John Thomas, his group has demonstrated spatial resolution of 200 nm, and the force exerted by the potential is sufficiently large that the atomic momentum can be altered during the measurement. Using new pulsed atom imaging methods in this regime, he believes that "quantum snapshots" of cold atoms in microtraps should soon be possible.

Atomic Beam Magnetic Resonance. Researchers at Ohio State University are developing new ways to study vortex lattices in both low- and high-temperature superconducting samples using atomic beam magnetic resonance technology. Dissipative vortex motion is the major obstacle to many envisioned high-temperature superconducting commercial applications, as well as a source of novel physical phenomena.

According to Gregory Lafyatis, the basic idea is to pass atoms very close to the surface of a superconductor that is penetrated by a magnetic field. In its rest frame, an atom will see a fluctuating magnetic field that is determined by the pattern of magnetic vortices at the superconductor's surface and the velocity of the atom. "If the fluctuating field has a frequency component coincident with a magnetic transition of the atom, the transition may be driven," he said. "Turning things around, by measuring the transition probability for an atom passing over the superconductor as a function of velocity, we are able to study the vortex lattice itself."

APS News

Coden: ANWSEN ISSN: 1058-8132
Series II, Vol. 5, No. 8 August/September 1996

Editor: Barrett H. Ripin
Newswriter: Jennifer Ouellette
Production: Elizabeth Buchan-Higgins
Coordinator: Amy Halsted

APS News (ISSN: 1058-8132) is published 11X yearly, monthly, except the August/September issue, by The American Physical Society, One Physics Ellipse, College Park, MD 20740-3844, (301) 209-3200. It contains news of the Society and of its Divisions, Topical Groups, Sections and Forums; advance information on meetings of the Society; and reports to the Society by its committees and task forces, as well as opinions.

Letters to the editor are welcomed from the membership. Letters must be signed and should include an address and daytime telephone number. The APS reserves the right to select and to edit for length or clarity. All correspondence regarding *APS News* should be directed to: Editor, *APS News*, One Physics Ellipse, College Park, MD 20749-3844, email: letters@aps.org.

Subscriptions: *APS News* is an on-membership publication delivered by Periodical Mail. Members residing abroad may receive airfreight delivery for a fee of $20. **Nonmembers:** Subscription rates are: domestic $130; Canada, Mexico, Central and South America, and Caribbean $145; Air Freight Europe, Asia, Africa and Oceania $170.

Subscription orders, renewals and address changes should be addressed as follows: **For APS Members**—Membership Department, The American Physical Society, One Physics Ellipse, College Park, MD 20740-3844, membership@aps.org. **For Nonmembers**—Circulation and Fulfillment Division, American Institute of Physics, 500 Sunnyside Blvd., Woodbury, NY 11797. Allow at least 6 weeks advance notice. For address changes, please send both the old and new addresses, and, if possible, include a mailing label from a recent issue. Requests from subscribers for missing issues will be honored without charge only if received within 6 months of the issue's actual date of publication.

Periodical Postage Paid at College Park, MD and at additional mailing offices. Postmaster: Send address changes to *APS News*, Membership Department, The American Physical Society, One Physics Ellipse, College Park, MD 20740-3844.

EarthLink™ Internet Access Provider

APS is offering a new benefit of membership. Members who want reliable, nation-wide access to the Internet will receive a special offer from APS and EarthLink, an Internet service provider.

APS members will receive unlimited access service for $19.95 a month, will have the set-up fee waived, and will receive a free registered copy of Netscape Navigator. In addition, EarthLink subscribers receive 2 MB of web space to set up their own homepage, and email through Netscape Mail. EarthLink subscribers also receive EarthLink News, which includes helpful information about their services.

EarthLink's TotalAccess Internet software provides powerful point-and-click Internet access in over 230 cities across the country. EarthLink also offers the least expensive 800 Internet access available anywhere.

Once you receive the software, you will be billed directly by EarthLink. If you have technical problems, you may contact EarthLink's technical support department at 1-800-395-8410 or email them at support@earthlink.net.

APS ordered and paid for set-up disks from EarthLink. When you register, EarthLink will refund APS $5 for your subscription to cover the initial cost of the disks.

You may order the software from APS by sending your request and mailing address to membership@aps.org. Be sure to specify Windows, Windows 95, or Macintosh disks. You may also fax your request to 301-209-0867, call 301-209-3280, or mail us at APS, One Physics Ellipse, College Park, MD 20740.

DPF holds Congressional Reception

Rep. Vernon Ehlers and Michael Barnett, public information coordinator for the APS Division of Particles and Fields, were among the guests at a DPF-sponsored reception/buffet on June 5th for scientists and Congressional representatives. Hosted by Rep. Robert Walker, who chairs the House Science Committee, the event was attended by 10 Members of Congress and about 50 DPF members, as well as numerous Congressional staff members and representatives from other agencies. Other prominent guests included ranking House Science Committee minority member George Brown, Martha Krebs of the Department of Energy, and Jack Gibbons, presidential science advisor.

INSIDE THE BELTWAY

A Schizophrenic Congress Staggers Toward the November Elections

by Michael S. Lubell, APS Director of Public Affairs

Even in times of relative tranquility, most federal policy making resonates with political overtones. But as elections grow near, the din of partisanship typically grows so loud that verbal outbursts become the accepted norm.

So far this year, behavior on the Hill has defied the usual pattern. It has been remarkably inconsistent and totally unpredictable. It has seesawed between the expected partisan jousting and some startling examples of collegial cooperation. Consider what has happened to science.

For virtually its entire life, the House Science Committee has maintained itself high above the fray of political battles. Its subject matter has been too dry for the partisan tastes of most members, and its clout on the Hill has been almost nonexistent. But since the dawn of the 104th Congress, the Science Committee has found itself on a slippery slope that has finally plunged it headlong into a tumultuous sea of political rancor.

On April 24, the committee began its business of marking up the $19.7 billion omnibus science authorization bill, a piece of legislation that was guaranteed to pass into oblivion, since the Senate, as has been its practice, would almost certainly refuse to consider it. In spite of the futility of the exercise—or perhaps because of it—committee members hurled personal insults at each other for more than two hours as they prepared to consider the details of the bill.

As reported in the May 11 issue of *Congressional Quarterly*, Ranking Democrat George E. Brown, Jr. (D-CA) called Committee Chairman Robert S. Walker (R-PA) "the most autocratic, non-democratic chairman I have ever had the pleasure of working with." And when GOP members reprimanded Harold L. Volkmer (D-MO) for habitually violating the law by smoking in the hearing room, Democrats retorted that the complaint represented the totality of the Republican position on pollution. The latent hostility boiled over again several weeks later when the bill came up for consideration on the floor of the House.

In contrast with the highly charged partisan air of the Science Committee's debates, the House VA-HUD Appropriations Subcommittee, which is also responsible for funding the NSF, NASA and EPA, rolled out its spending plan at the end of June amidst a fanfare of pledges of bipartisan cooperation. Subcommittee Chairman Jerry Lewis (R-CA) and Ranking Democrat Louis Stokes (D-OH) applauded each other for their sensitivity to the needs of their respective constituencies. They said that they had worked together to produce a bill that had carefully balanced spending for housing, veterans' health care and the science and technology programs of NSF, NASA and EPA.

The committee leaders clearly had learned a lesson from the public outrage over last year's government shutdown. The VA-HUD bill, which last year was filled with riders that the Clinton Administration had found unacceptably odious, was absolutely clean this year. Lewis and Stokes had clearly done their homework.

But what happened when the bill reached the House floor is another matter. Member after member rose in support of more money for veterans. By the time all the dust had settled, the VA account had been enriched by a transfer of 0.4 percent from all other allocations. On top of that, it had received a $40 million bonus with money taken from President Clinton's cherished National Service Program. Transferring funds to the VA is not a partisan measure, since one election year maxim is never to say no to a veteran. But freshman Tod Tiahrt's (R-KS) amendment that authorized the $40 million bonus fell far outside the bipartisan boundary that Lewis and Stokes had so carefully drawn. Tiahrt's amendment also zeroed out all the remaining National Service funds, virtually guaranteeing a presidential veto.

The VA-HUD appropriations bill that ultimately passed the House by a 269 to 147 margin also treated the NSF rather shabbily, given the strong support for basic research that both Democrats and Republicans had been espousing for months. But for this treatment, the NSF was partially to blame. Before the bill hit the House floor, the agency had reported that the Research and Related Activities (R&RA) account was scheduled to increase a solid 4.6 percent. That much was true, but the NSF had neglected to say that the Facilities and Instrumentation line, which was $100 million in FY 1996, was now fully contained within R&RA. The research portion of the NSF budget that the House finally approved rose less than 0.7 percent. And more than half of that increase was attributable to the Walker amendment that transferred $9.1 million from administration and travel to R&RA. All this goes to prove another election year maxim: When budgets are lean, don't tell anyone you're getting fat, especially when it ain't true.

As Congress grappled with the FY 1997 Budget Resolution, scientists were reminded once again that they have a sincere friend in Senator Pete V. Domenici (R-NM). The chairman of the Senate Budget Committee proposed increasing domestic discretionary spending by $5 billion above the level approved by the House. Although he is a fiscal conservative, he argued that without the higher ceiling, critical programs such as scientific research, particularly those within DOE, would suffer considerable harm. With the urging of the APS and other constituent organizations, House-Senate conferees ultimately accepted a $4.1 billion increase. But it took some extraordinary arm twisting by the Republican leadership to sell the agreement to the House. Only after nasty internecine battles did they finally succeed.

So as the 104th Congress staggers toward the November finishing line, look for continuing evidence of schizophrenic behavior. It may be a legacy of the 1994 elections, and it may be with us for a long time to come.

IN BRIEF

- At its April meeting, the APS Council voted to establish the Hans A. Bethe Prize and the Joseph F. Keithley Award for Advances in Measurement Science. Announcements soliciting nominees for both the Bethe Prize and the Keithley Award will appear in *APS News*, on the APS home page on the World Wide Web, and other venues early in 1997 It is expected that the first recipients will be announced at the Society's general meetings in 1998. The Bethe Prize was named to honor Hans A. Bethe for his outstanding and numerous accomplishments in both astrophysics and nuclear physics. Consisting of $7,500, it is to be awarded annually for outstanding work in theory, experiment or observation in the areas of astrophysics, nuclear physics, nuclear astrophysics, or closely related fields. The intention is to recognize outstanding achievements in one of these areas by a scientist. The prize is endowed by donations from members of the Divisions of Nuclear Physics and Astrophysics, as well as friends of Hans Bethe. The Bethe Prize was announced at Han's Bethe's 90th birthday celebration at Cornell on July 2.

  The John 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 enabling new physics advances through new or significantly improved measurements, many of whom are in the industrial and applied sector. The award is named after Joseph F. Keithley, founder of Keithley Instruments Inc., who is noted for contributions to instrument development. Consisting of $5,000, it is anticipated that it will be awarded annually. The award is being endowed by Keithley Instruments, Inc. and the APS Instrument and Measurement Science Topical Group.

- At its April Meeting, the APS Executive Board approved allocation of funds for an expansion of the Society's editorial offices, located in Ridge, New York. According to Cindy Rice, former Director of Editorial Office Services, the expansion is long overdue. The present facility is stretched beyond capacity, and there is still a need to accommodate an expanded Journal Information Systems Department, some of whose members are currently located in rented quarters at Brookhaven National Laboratory. Preparation of architects' plans for the expansion have been completed, and construction is expected to commence later this year. The total capital outlay for the expansion is estimated at between $2 and $2.5 million, to be depreciated over 20 years. Other capital improvements at Ridge, particularly the provision of more parking spaces, will require additional expenditures in FY 1997.

- A new report on 1994 physics bachelor degree recipients in the United States was released by the statistics division of the AIP. Among the highlights of the report are the following: the annual number of degrees continues to decline slightly; more fresh graduates are looking for jobs rather than heading for graduate school; for those going on in their studies, 89 percent receive financial support; women constitute 17 percent of the degree recipients; and the median starting salary was $27,000. Those interested in obtaining further information or copies of the report in its entirety should contact Patrick Mulvey at 301-209-3076 or via email pmulvey@aip.org.

- The APS has received a $10,000 bequest from the estate of Dr. Frank Evens Myers and Mrs. Ionemary Myers, which will be applied to the Minorities Scholarship initiative of the APS/AAPT Campaign for Physics. Dr. Myers was a physicist whose research interests and achievements were in electron scattering and polarization, nuclear physics, and ballistics. He also had a distinguished career in teaching and university administration. He was born in 1906, graduated from Reed College and received his Ph.D. from NYU. He taught at NYU for many years and at Lehigh, serving as dean of the graduate school there. The culmination of his career was as Associate Director of Argonne National Laboratory, from which he retired in 1970. He served as editor of the *Journal of Applied Physics* and *Applied Physics Letters*. He was a elected fellow of APS in 1941.

1996-1997 Congressional Fellow *(continued from page 1)*

now occupies a pervasive role in modern civilization, but sadly, it is not viewed as an integral part of our general culture, but as the domain of an elite subset of society," he said. "This scientific illiteracy prevents people from reaching an informed consensus on political debates, such as the disposal of nuclear waste, deterioration of the upper atmosphere, advantages of optical fiber communication links, and national defense."

According to Michels, the fault lies as much with scientists as with Congress. He believes the solution is two-fold: improving science education will make it easier for scientists to explain the relevance of their work, and improving representation of the scientific community on Capitol Hill will encourage non-scientists to become more aware of the technical considerations underlying many important political decisions.

Two other APS members were also named 1996-1997 Congressional Fellows. Dr. Stephan J. Hagen, who is currently working at the Laboratory of Chemical Physics, NIH, was selected as the American Institute of Physics Congressional Fellow. Dr. Michal Freedhoff, who is currently working in the AIP Public Information Division, was named the Materials Research Society/Optical Society of America Congressional Fellow. Dr. Freedhoff developed many of the one-page Physics Success stories that were featured in the May 1996 issue of *APS News*.

OPINION

APS VIEWS

Guidelines for Professional Conduct

Approved by the APS Council, November 1991

The Constitution of The American Physical Society states that the objective of the Society shall be the advancement and diffusion of the knowledge of physics. It is the purpose of this statement to advance that objective by presenting ethical guidelines for Society members.

Each physicist is a citizen of the community of science. Each shares responsibility for the welfare of this community. Science is best advanced when there is mutual trust, based upon honest behavior, throughout the community. Acts of deception, or any other acts that deliberately compromise the advancement of science, are therefore unacceptable. Honesty must be regarded as the cornerstone of ethics in science.

The following are minimal standards of ethical behavior relating to several critical aspects of the physics profession.

Research Results

The results of research should be recorded and maintained in a form that allows analysis and review. Research data should be immediately available to scientific collaborators. Following publication, the data should be retained for a reasonable period in order to be available promptly and completely to responsible scientists. Exceptions may be appropriate in certain circumstances in order to preserve privacy, to assure patent protection, or for similar reasons.

Fabrication of data or selective reporting of data with the intent to mislead or deceive is an egregious departure from the expected norms of scientific conduct, as is the theft of data or research results from others.

Publication and Authorship Practices

Authorship should be limited to those who have made a significant contribution to the concept, design, execution and interpretation of the research study. All those who have made significant contributions should be offered the opportunity to be listed as authors. Other individuals who have contributed to the study should be acknowledged, but not be identified as authors. The sources of financial support for the projects should be disclosed.

Plagiarism constitutes unethical scientific behavior and is never acceptable. Proper acknowledgment of the work of others used in a research projects must always be given. Further, it is the obligation of each author to provide prompt retractions or correction of errors in published works.

Peer Review

Peer review provides advice concerning research proposals, the publication of research results and career advancement of colleagues. It is an essential component of the scientific process.

Peer review can serve its intended function only if the members of the scientific community are prepared to provide thorough, fair and objective evaluations based on requisite expertise. Although peer review can be difficult and time-consuming, scientists have an obligation to participate in the process.

Privileged information or ideas that are obtained through peer review must be kept confidential and not be used for competitive gain.

Reviewers should disclose conflicts of interest resulting from direct competitive, collaborative or other relationships with any of the authors, and avoid cases in which such conflicts preclude an objective evaluation.

Conflict of Interest

There are many professional activities of physicists that have the potential for a conflict of interest. Any professional relationship or action that may result in a conflict of interest must be fully disclosed. When objectivity and effectiveness cannot be maintained, the activity should be avoided or discontinued.

It should be recognized that honest error is an integral part of the scientific enterprise. It is not unethical to be wrong, provided that errors are promptly acknowledged and corrected when they are detected. Professional integrity in the formulation, conduct and reporting of physics activities reflects not only on the reputations of individual physicists and their organizations, but also on the image and credibility of the physics profession as perceived by scientific colleagues, government and the public. It is important that the tradition of ethical behavior be carefully maintained and transmitted with enthusiasm to future generations.

Physicists have an individual and a collective responsibility to ensure that there is no compromise with these guidelines.

LETTERS

Redirect Military Spending to Science and Education

Ernest Moniz' Back Page article (*APS News*, May 1996) effectively summarizes the Clinton administration's view of the current state of science and education. However, there is a glaring omission in his presentation.

Moniz notes that discretionary spending in the current budget amounts to $250 billion. An equivalent sum is being proposed by the Clinton administration for the current military budget. It occurs to some of us that much of the current malaise in society would be cured if military spending were to be reduced dramatically and channeled into societal problems. The Center for Defense Information has stated that, "The United States can reduce its annual military expenditure to $175 billion without endangering military security by adopting a more realistic military strategy and paring down the existing excessive military force structure (*The Defense Monitor*)." (XXIV, No. 7) Although we know the political reasons for the current taboo regarding a critical discussion of military spending, it is deplorable that discussion of the issue of the excessive military budget and its consequences upon discretionary spending is avoided in the science and education community.

We have a deep systemic problems. Throwing money at the military and its hangers-on will only worsen it.

M.K. Brussel
Urbana, Illinois

Support Good Russian Science, Not Bad Russian Translation

Wallace Manheimer's article in the June 1996 issue, "Going Against the Flow: A Sabbatical in Russia," prompts me to suggest an additional way to support Russian science in this difficult period: support good Russian science, not bad Russian scientific translation.

I have a Ph.D. in chemical physics and have been a scientific translator (into English from several languages) for 18 years. Part of my work has included translating Russian journal articles for cover-to-cover translation journals. In an understandable effort to help the Russian economy, the Russian publishers have increasingly been insisting that native Russians (in Russia) be hired to do the English translations, despite the universal wisdom that we should translate only into our native language whenever possible. Since those Russians who "do science" are rarely those who "do English," the result has been translations which really should be stamped "read at your own risk." In addition to hopelessly tangled sentences, the scientific terminology is often completely wrong. The translators usually demonstrate little understanding of the Russian text, as well as practically no access to the English scientific literature (not even basic college-level textbooks). This means that they are sabotaging Russian scientists during this crucial period by making Russian science much less accessible, especially in the era of keyword-based online searching.

Sometimes it takes me longer to "fix" bad translations than to do the translation entirely myself. Most are obviously done by non-scientists, but one was done by a co-author of the paper and still used incorrect English terminology. So beware the catch-phrase "close consultation with the authors" from "in Russia" translation agencies!

Most of us with the required background to accurately "fix" the awful results find the work so frustrating that we increasingly avoid it. The publishers avoid us, too, once we set our fees to match the real time such fixing takes. In order to cut costs, I was sometimes hired to just "fix the English" (i.e., told not to compare the English with the Russian except when necessary).

Translation journals are so important both for the world scientific community and the original authors, that it is crucial to maintain high standards for them.

Cathy Flick
Richmond, Indiana

Public Based Affirmative Action

While I agree with the basic sentiment expressed by Elizabeth Baranger in "Questioning Affirmative Action" (*APS News*, June 1996) the suggested actions that she proposes are, in my view, inappropriate.

In particular, she advocates that we give preference in hiring/admissions to under-represented minority and women physicists, justifying this by saying that we have traditionally favored some groups, such as athletes, in-state students, certain fields of research, etc.

What we really need is an attitude toward affirmative action based not on race or gender, but one based on serving all of our public. For example, my own institution is a state-assisted public university housed in a black-majority city. Our student population, though not proportionally representative of the metropolitan area, does have a substantial percentage of African-Americans. Our faculty does not. Does that mean that we should be hiring African-Americans? No. We should be hiring faculty who can effectively teach and mentor our black students, who currently are not being served as well as they should be.

A similar argument can be made for hiring faculty to better serve our female science students. A statement of those goals should be in any job announcement, and applicants should be expected to present a case that they can effectively meet those goals. Following such guidelines would shift the focus to accomplishing the mission of the university rather than meeting racial and gender quotas. Perhaps I am being idealistic, but it seems to me such a client-centered approach is more ethical, and less likely to be blocked by court challenges and white male backlash.

Ronald L. Greene
University of New Orleans

University.

Editor's note: Professor Schneider was offered space to express his views following the publication of an erroneous quote attributed to him in the March issue. The opinions expressed are the author's and not necessarily those of the APS, its elected officers or staff.

OPINION

Don't Bet All Environmental Changes Will Be Beneficial

by Stephen H. Schneider, Prof., Dept. of Biological Sciences and Sr. Fellow Inst. for International Studies, Stanford University

Perhaps you shouldn't believe me, at least that is what Julian Simon's characterization of my views of environmental threats would lead you to believe in *APS News* Back Page article (March 1996, pg. 12). Simon "quotes" me directly, as supposedly saying "Scientists should consider stretching the truth…" to get good publicity for their cause. After the March issue was in print, Simon notified the editor that this false and very damaging statement was incorrect. What he hasn't yet admitted is that even what he states to be the "correct quote" is still an out-of-context misrepresentation of my views, a distortion he persists in perpetuating even months after I personally told him of the context of the original quote.

The Simon *APS News* article offers to bet environmentalists "…that any trend in material human welfare will improve rather than get worse." This article echoes an editorial essay entitled "Earth's Doomsayers Are Wrong" that appeared in the 12 May 1995 *San Francisco Chronicle* open forum. Simon then said that "Every measure of material and environmental welfare in the U.S. and the world has improved…" and that "All long run trends point in exactly the opposite direction of the doomsayers" Thus he implied that few, if any people would likely accept his bet since for the past 25 years the pessimists have been "proven entirely wrong." When my Stanford colleague, Paul Ehrlich, and I took up his challenge[1] and named 15 environment-related trends we were willing to bet would deteriorate, Simon refused claiming to the *Chronicle* (18 May 1995) that "I do not offer to bet on the progress of particular physical conditions such as the ozone layer" (as if its decline were not a negative measure of environmental welfare!).

In November, 1995, I debated Simon on Lateline, the Australian TV equivalent of the US Nightline program, on the issue of the Chronicle bet. In a segment they did not air, Simon charged that I advocate exaggerating science to enhance the appearance of environmental threats. To bolster this charge he resurrected an oft-quoted, but usually out of context partial quote, from a *Discover* Magazine interview[2] in 1989 in which I decried soundbite science and journalism by pointing out that nobody gets enough time in the media either to cover all the caveats in depth, (i.e., "being honest") or to present all the plausible threats (i.e., "being effective"). During the TV debate, months before Simon's *APS News* article appeared, I pointed out that he was taking only part of the full quote and that part was seriously out of context — this is the same source he "quoted" in *APS News*. The full quote follows, where I have italicized what portions of it Simon quoted and bracketed what I did not say but he attributed to me in the *APS News* article:

"On the one hand, as scientists we are ethically bound to the scientific method, in effect promising to tell the truth, the whole truth, and nothing but — which means that we must include all the doubts, the caveats, the ifs, ands, and buts. On the other hand, we are not just scientists but human beings as well. And like most people we'd like to see the world a better place, which in this context translates into our working to reduce the risk of potentially disastrous climatic change. To do that we need [*Scientists should consider stretching the truth*] *to get some broadbased support, to capture the public's imagination. That, of course, entails getting loads of media coverage. So we have to offer up scary scenarios, make simplified, dramatic statements, and make little mention of any doubts we might have.* This 'double ethical bind' we frequently find ourselves in cannot be solved by any formula. *Each of us has to decide what the right balance is between being effective and being honest.* I hope that means being both."[2]

Vested interests have repeatedly claimed I advocate exaggerating threats. Their "evidence" comes from partially quoting my Discover interview, almost always -like Simon - omitting the last line and the phrase "double ethical bind." They also omit my solutions to the double ethical bind: (1) use metaphors that succinctly convey both urgency and uncertainty (pg. *xi* of Ref. 3) and (2) produce an inventory of written products from editorials to articles to books, so that those who want to know more about an author's views on both the caveats and the risks have a hierarchy of detailed written sources to which they can turn.[3,4,5] What I was telling the *Discover* interviewer, of course, was my disdain for a soundbite-communications process that imposes the double ethical bind on all who venture into the popular media. To twist my openly stated and serious objections to the soundbite process into some kind of advocacy of exaggeration is a clear distortion. Moreover, not only do I disapprove of the "ends justify the means" philosophy of which I am accused, but, in fact have actively campaigned against it in myriad speeches and writings. Instead, I repeatedly advocate that scientists explicitly warn their audiences that "what to do" is a value choice as opposed to "what can happen" and "what are the odds," which are scientific issues (e.g. p. 213 of Ref. 3). I also urge that scientists, when they offer probabilities, work hard to distinguish which are objective and which are subjective, as well as what is the scientific basis for any probability offered. For such reasons I was honored to receive, in 1991, the AAAS/Westinghouse Award for the Public Understanding of Science.

If the readers of *APS News* are confused by all this rancor and want a fair and balanced treatment of environmental scientific and policy debates, they can turn to the several National Research Council or IPCC assessments,[6] in which words like "any," "all," "every," and "entirely" are scarce, and citations are quoted or paraphrased in their proper context.

References

1. P.R. Ehrlich and S. H. Schneider, *Environmental Awareness*, 18 (2) pp. 47-50. (1995).
2. J. Schell, *Discover*, pp. 45-48, Oct. 1989.
3. S.H. Schneider, *Global Warming: Are We Entering the Greenhouse Century?* (Vintage 1990).
4. S.H. Schneider, with L.E. Mesirow, *The Genesis Strategy: Climate and Global Survival.* (Plenum NY 1976).
5. S.H. Schneider, *National Geographic Research & Exploration* 9 (2), 173-190 (1993).
6. Intergovernmental Panel on Climatic Change (IPCC), *Climate Change 1995. The Science of Climate Change.* Edited by J.T. Houghton etal. (Cambridge Univ. Press, Cambridge, UK, 1996).

Straight Talk

by Francis Slakey, APS Office of Public Affairs

By the time I finished graduate school in physics, I had mastered technical speech. But, I managed day-to-day conversation with all the grace of a fellow whose unsuspecting foot catches on a sidewalk crack. Rather than continuing to stumble about on the potholes of my own elliptic metaphors, I made a decision. To the Ph.D. anointed among you, this may seem strange. I decided that I wanted to be understood.

I began by trying to finger someone as the cause of my dilemma. After all, the first step to self-improvement is assigning blame. Maybe the environment mucked up my verbal skills? I considered blaming my grad school mentor, but I've hung enough of my deficiencies on him already. Then perhaps some pesky gene was the culprit? Alas, my father publishes poetry. Eventually I settled on blaming Sir Isaac Newton. Surely, Principia had been polluting my diction since childhood.

The next step required some distasteful self-examination. What was it about my speech that made the eyes of the masses glaze? I examined my scientific publications and uncovered my shameful weakness. I, Francis Slakey, am an adjective addict. There in my papers, mocking me, were the giveaway phrases: "optically induced metastable phase" and "magnetic-exchange Cooper-pair interaction strength." The devilish adjective was my master and I was its pathetic tongue-lolling junkie. There was only one way to kick the habit — I went cold turkey.

When I had finally re-established control over the adjective, I began examining other aspects of my scientific speech. I discovered that while my verbs were not a source of confusion, they were all quite boring. I did plenty of "measuring" and "calculating" but I rarely "reckoned" and I never "conjured up." I needed to enrich my vocabulary. As I began stocking my head with fresh verbs, I discovered that the adverb is completely over-sold. The adverb is a footstool for linguistic dwarfs who can't reach the right verb. For example, instead of saying a scientist "spoke confidently," you should say "babbled." Instead of saying the wise doctor "keenly lectured," you should say "droned." What you find is that for every quality verb you learn, you can discard one adverb. So, expanding your verb inventory doesn't require any new shelf space. In fact, it's quite the opposite. If you choose your verbs carefully, you will discover that when you finish upgrading your inventory, you will have an impressive number of empty mental shelves.

In the course of examining my speech, I found that I completely misunderstood the semicolon. A typical sentence in my scientific papers would make a point, certainly, but then additional little thoughts and fragments would tail along behind. The semicolon was the glue for the verbal streamer. What I learned, however, is that a semicolon is the pennant of a dimwit, a waffler. So uncertain over wether to use a period or a comma, the dimwit uses both — stacking them one on top of the other.

Despite my best efforts, I haven't mastered the paragraph. Apparently, the purpose of the paragraph is to introduce more white space into the text, breaking up what the eye would otherwise interpret as an endless blotch of ink. Fortunately, a skilled editor rescued me in this matter. Though I admit, I am uncertain whether this very sentence should be boxed between two others or be this paragraph's caboose.

Most of the linguistic rules I've just described, I worked out on my own, but I have it from a respected source that they are, nevertheless, quite accurate. Although the source is dead, his writing confirms my theories. For example, consider the following plausible scientific sentence: "In order to achieve some measure of progress, it was necessary for him to agitate the liquid repeatedly with an exhausting twisting of his wrists." Now consider Hemingway's version: "He rowed and he rowed and he rowed." Magnifique! No adjectival blockage, no semicolon irregularities, just smooth flow.

You may have noticed that I don't use the letter "Z." I recommend that you drop this letter from your public alphabet. You will find it difficult at first, because you have to avoid phrases like "Zeener diode" and "Zirconium crucible." Of course, that's precisely the point—these phrases shouldn't be used in mixed company. In fact, I believe we should drop the letter "Z" from the dictionary altogether. That would do away with the zodiac, making us all a lot better off.

There is one final bit of self-editing that I do, sort of the rhetorical equivalent of the least common denominator. Before publishing anything, I check the average word length. In graduate school, I could boast an average in the double digits. Recently, a psychiatrist told me that an obsession with long words is a sign of sexual insecurity. Now I try to keep my average under five letters.

This article was reprinted from *New Scientist*, June 22 1996.

APS Awards 1996-1997 Scholarships to Minority Undergrads

The APS has awarded corporate-sponsored scholarships for the 1996-1997 academic year to 24 minority students who are majoring, or plan to major, in physics. Since its inception in 1980, the scholarship program has helped approximately 200 minority students pursue physics degrees. Each scholarship consists of $2,000, which may be renewed once, and which may be used for tuition, room and board.

"We are extremely proud of these scholars and look forward to watching them evolve into productive scientists, as well as outstanding models for the next generation," said Associate Executive Officer Barrett Ripin.

Out of 79 applicants, 19 new scholarships and 5 renewal applicants were selected. Male and female winners were split evenly while 10 of the winners were African-American, 13 were Hispanic-Americans, and one was Native American. The Committee on Minorities in Physics felt that the quality of the applications was extremely high. Although only 24 students could be supported by funding from the Campaign for Physics, four alternate winners were chosen in the event that one of the winners could not accept the scholarship.

The applications of the 24 recipients were superior. All received extremely high ratings from their professors or teachers who taught them in math, physics or another science. Many students engaged in independent research. The Scholastic Aptitude Test scores for this subset of students were also extremely high. Three students received perfect scores of 800 on the math portion of the SATs, 8 received scores in the 700 range, and the balance received scores ranging from 570 to 660. Most of the students have a very definite idea of what field of physics they would like to focus their study and what they will do with their degrees once they have attained them.

The APS scholarship program operates under the auspices of the APS Committee on Minorities, and is supported by funds allocated from the APS Campaign for Physics. Scholarships are awarded to African-American, Hispanic American or Native American students who are high school seniors, college freshmen, or sophomores. Roughly half are awarded to students enrolled in institutions with historically or predominantly Black, Hispanic, or Native American enrollment. After being selected, each scholar is matched with an available scholarship, as well as an accomplished physicist to act as a mentor.

The new scholars for 1996-1997, and their institutions (where known), are Kanayo Agbodike, *Princeton University*; Gregory Cezar Baeza, *Emory University*; Terance Roland Barkus; Martha-Elizabeth Baylor, *Kenyon College*; Dean Edward Berlin; Catalina Marie Buttz, *Massachusetts Institute of Technology*; Carina Pamela Curtom, *Harvard University*; Paul Anthony Lopez, *Massachusetts Institute of Technology*; Adetokumbo Michael Lukan, *University of Toledo*; Berta J. Lyles, *University of California, San Diego*; Dana Ramos Macaluso, *Emory University*; Jamie Morales, *University of Texas, El Paso*; Lisa Rheann Morton, *California State University, Chico*; Melinda Nickelson, *Bryn Mawr College*; Ann Margaret Orthuber, *University of California, Santa Cruz*; Eugenio Enrique Ortiz, *Princeton University*; Anthony V. Pulido, *Cornell University*; Jamie Lynne Smith; and Cohan Aishon Viernes, *University of Washington*.

Students whose scholarships were renewed for 1996-1997 and their advisors are: Alicia J. Hardy and advisor Peter Dourmashkin, *Massachusetts Institute of Technology*; Korrie Kamauoha and advisor William Strong, *Brigham Young University*; Obediah Lewis, Jr., *Georgia Institute of Technology* and advisor Askhut Em Bak, Morehouse College; Asha K. Richard and advisor Vernon Hughes, *Yale University*; and Matthew J. Rodriguez and advisor Laura Greene, *University of Illinois*.

Is U.S. Physics Truly International?

by William A. Blanpied

Science, we have been assured, knows no international boundaries. Can the same be said for scientists? Physicists will no doubt regard the answer as self-evident.

With the possible exception of mathematics and astronomy, we can with considerable justification claim to have been the most internationalized of all the sciences for some time. The development and elucidation of quantum mechanics in the 1920s and 1930s was the shared work of physicists from many European countries, of Americans, and of at least two Asians. CERN, created in 1952, remains a monument to the conviction of leading Europeans after World War II that the international character of physics should be made manifest by international institutions for its conduct. Since the 1950s, qualified user groups from all countries have enjoyed access to accelerator facilities in the U.S., Europe, Japan, and more recently, China. Finally, U.S. physics graduate schools have admitted qualified foreign students since World War II.

However, it remains the case that, with a few notable exceptions like CERN, virtually all institutions where physicists ply their normal crafts and establish their careers are national, rather than international. Similarly, with the exception of the European Union, the principal organizations that fund research are agencies of national governments. These circumstances have been responsible for at least two partial barriers to more complete integration of U.S. physics into international physics: (1) reluctance, until recently, to explore significant international cost-sharing arrangements for major facilities; and (2) a lack of appreciation of the value of foreign working experience in the education of young U.S. physicists.

The first has been widely discussed during the past few years. Whether or not the late, lamented Superconducting Super Collider (SSC) would have survived and prospered had it been planned as an international facility from the start is an intriguing, if ultimately unanswerable, question. Serious negotiations are currently underway that could lead to a substantial U.S. contribution to CERN's rival Large Hadron Collider (LHC). Yet the nagging thought persists that particle physics might be in a far better position today if proponents of the SSC and LHC had initiated serious negotiations a decade ago about substantial international collaboration and cost sharing.

However, a decade ago, that would have been difficult if not impossible, primarily because, while physicists are in the habit of discussing future opportunities on an international basis, national governments are not. And national governments provide the financial resources for both domestic and international scientific projects.

Until recently, no vehicle existed where program managers from agencies that fund large physics facilities in the world's principal scientific countries could meet on a regular basis to discuss promising opportunities for collaboration and cost-sharing. Thus, many worthwhile collaborations may have literally fallen through the cracks. The Organization for Economic Cooperation and Development created its Megascience Forum as a result of strong U.S. government leadership, intended as an attempt to remedy this deficiency by providing a venue where national program officers responsible for big science projects can sit down with their foreign counterparts to discuss the difficult issues associated with international collaboration.

The second barrier has been less widely discussed. As I was completing research for my doctoral dissertation in nuclear physics a generation ago, my advisor urged me to consider a postdoctoral position in Europe as the culmination of my apprenticeship. As a result, I enjoyed a memorable year in Italy, where I worked at what was then the new electron synchrotron facility at Frascati. Although no seminal papers resulted from that year, the experience was pivotal to my understanding of the international culture of physics. Many of my peers profited from similar experiences working abroad.

Today, relatively fewer newly minted physicists leave the U.S. for such extended working experiences. Many reasons have been cited for this. The most telling is that, given the almost impossible job market in academic physics, young people put their careers at risk by taking a year off to work in foreign laboratories, no matter how good the physics may be at such facilities. Younger physicists are unlikely to seek working experience outside the U.S. unless they are encouraged to do so by their senior mentors, many of whom have extensive collegial contacts abroad. However, those mentors are unlikely to provide the needed encouragement unless they are convinced that international experience is an essential element in the apprenticeship of a young physicist.

Perhaps the central transdisciplinary issue that concerns the APS today has to do with physics education and employment: how to transform graduate education so that new generations of physicists will be adequately prepared to contribute to a broad range of endeavors in addition to academic physics, while preserving quality and excellence. Many of the possibilities have decidedly international dimensions, consistent with what is commonly called the globalization of the economy. APS discussions about broadened graduate education in physics must be cognizant of this essential point. The Society can take the lead in assuring that international dimensions of physics education are seriously considered.

William A. Blanpied is Senior International Analyst at the National Science Foundation. A longer version of this article appeared in the March 1996 newsletter of the APS Forum on International Physics.

Patel Recipient of Nation's Highest Science Honor

(continued from page 1)

Broecker (Columbia University), for his pioneering contributions in understanding chemical changes in the ocean and atmosphere; Norman Davidson (California Institute of Technology) for breakthroughs in chemistry and biology which have led to the earliest understanding of the overall structure of genomes; James L. Flanagan (Rutgers University) for his foremost leadership and innovation in bringing engineering techniques and speech science together to solve basic problems in speech communication; Richard M. Karp (University of Washington) for his groundbreaking work in theoretical computer science; Ruth Patrick (Academy of Natural Sciences, Philadelphia) for her leadership in understanding biodiversity as an indicator of environmental quality; Paul A. Samuelson (Massachusetts Institute of Technology) for his fundamental contributions to economic science, education and policy for nearly 60 years; and Stephen Smale (University of California-Berkeley) for four decades of pioneering work on basic research questions which have led to major advances in pure and applied mathematics.

The five recipients of the National Medal of Technology are Charles H. Kaman, president, chairman and CEO, of Kaman Corp., for his pioneering work in helicopter technology; Stephanie Louise Kwolek, consultant and former research associate at Du Pont Co., for her contributions in the discovery and development of high-performance aramid fibers; James C. Morgan, chairman and CEO, Applied Materials, Inc., for his vision and leadership in the development of the U.S. semiconductor manufacturing equipment industry; Peter H. Rose, president, Krytek Corporation, for his leadership in the development and commercialization of ion implantation products, which are necessary for the production of modern semiconductors; and Johnson & Johnson, the world's largest and most comprehensive health care company.

ANNOUNCEMENTS

Students Find Summer Internships Through ISIP

Since its inception 18 years ago, the APS Industrial Summer Intern Program (ISIP) has helped over 260 U.S. college students secure summer employment in some of the country's best industrial laboratories, thus gaining valuable hands-on experience in that research environment. This year the program placed 12 students in positions at some of the nation's top industrial and national laboratories.

Established by the APS Committee on Education in 1978, ISIP provides an opportunity for qualified U.S. physics students to broaden their training by working in an industrial environment for 10 weeks during the summer. Interns receive salaries from their industrial employers. Interns and companies for the summer of 1996 are Peter Colarco, Alimenterics, Inc.; Kyle Downey, IBM/T.J. Watson Research Center; Benjamin Evans, IBM/T.J. Watson Research Center; Matthew Fulkerson, Lucent Technologies; Greg Hess, Michigan Tech University; Cory Hill, Exxon R&E; Brent Hoermann, Lucent Technologies; Melissa Johnson, Sandia National Laboratories; Katherine Rawlins, IBM Almaden Research Center; James Rittner, Michigan Tech University; Amanda VanderVenter, GE Medical Systems; and Dale Visser, Lucent Technologies.

The primary benefits of the ISIP program include exposure to industrial research and the opportunity to establish important contacts in industry. "In a number of colleges and universities, the faculty hasn't had much exposure to industrial science, and as a result their students aren't aware that interesting physics can be done in an industrial setting," said Israel Jacobs (General Electric R&D Center), who has served on the ISIP selection committee since the program began. The program also benefits the participating industrial laboratories. Interns often produce useful results that help advance a company's scientific program, and may return to industry after earning their Ph.D.s.

See the announcement on this page for the 1997 Industrial Summer Internship Program. Student application forms are available from college physics departments and from the APS. Undergraduates in their senior year and graduate students are eligible. The deadline for this year's program is 25 October 1996. Further information is available from the ISIP Administrator, APS, One Physics Ellipse, College Park, MD 20740-3844.

ATTENTION PHYSICS SENIORS AND GRADUATE STUDENTS!!

Apply Now and Spend Next Summer as an APS Industrial Intern

Applications are now being accepted for the 1997 APS Industrial Summer Intern Program (ISIP), a phase of the Society's efforts to increase the coupling between the academic and industrial members of the physics community. The program provides an opportunity for well-qualified physics students to spend time in an industrial environment during the summer months.

THE DEADLINE FOR RECEIPT OF APPLICATIONS IS 25 OCTOBER 1996!

Qualifications: Any graduating senior or first year graduate student in physics may apply. Applicants should expect to spend the period from June through August 1997 as an intern and to participate in existing projects at the host laboratory. Many laboratories may require U.S. citizenship. Since the program is very competitive, applicants should have good academic records and a high degree of motivation, and should present evidence of some research or technical experience.

Stipend: The stipend for interns will be about $2,000 per month, varying somewhat with each industrial company. Provision for relocation expenses and fringe benefits will be made according to the practice of each host laboratory.

Selection Procedure: A review committee appointed by the APS President will screen all completed applications received by the deadline of 25 October 1996. The files of appropriately qualified candidates will be distributed to research managers at the participating industrial laboratories. Those companies will offer internships directly to the students they select. The Society will not participate in the negotiations for any particular appointment. It is expected that negotiations should be completed by mid-April 1997.

Industrial Organizations: Industrial organizations interested in participating in this program are invited to contact the Program Administrator. No commitment, other than willingness to consider appropriately qualified interns, is required. Interns are expected to agree to patents and proprietary information policies ordinarily required at the given laboratory.

Application Procedure: Applicants should complete and return the application form and arrange to have two letter-of-reference forms, in addition to the chairperson's endorsement form, sent to the Program Administrator. Transcripts may be included with the application form or be sent to the Program Administrator by the school. Completed applications and supporting material must be received by 25 October 1996.

COPIES OF ALL FORMS ARE AVAILABLE IN THE OFFICE OF THE CHAIRPERSON OF YOUR DEPARTMENT OR BY WRITING DIRECTLY TO THE ADDRESS BELOW.

For further information or application forms, write to:
Industrial Summer Intern Program Administrator
The American Physical Society
One Physics Ellipse
College Park, MD 20740-3844
or call 301-209-3231.

Nominations for Prizes and Awards

The following prizes and awards will be bestowed at meetings of the Society in the coming year. Members are invited to nominate candidates to the respective committees charged with the privilege of recommending the recipient. 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 xxiii- xxxix, or the APS home page [http://www.aps.org] under the Prize, Award and Fellowship button, for complete information regarding rules and eligibility requirements for individual prizes and awards.

1997 Outstanding Doctoral Thesis Award for Research In Atomic, Molecular, or Optical Physics

Endorsed by members and friends of the Division of Atomic, Molecular and Optical Physics.

Purpose: To recognize doctoral thesis research of outstanding quality and achievement in atomic, molecular, or optical physics and to encourage effective written and oral presentation of research results.

Nature: The Award to be given annually consists of $1,000 and a certificate citing the contribution made by the recipient. All finalists will receive a travel stipend of $250.

Send name of proposed candidate and supporting information before 15 November, 1996 to: Kenneth C. Kulander, Lawrence Livermore National Laboratory, PO Box 808; L-014, Livermore CA 94551, Phone (510) 422-5400, Fax 510 424 4320, Email kulander@llnl.gov

APS Joins New Condensed Matter Electronic Alerting Service

The APS has joined four other publishers, American Institute of Physics, Chapman and Hall Elsevier Science, and Institute of Physics Publishing, in the creation of an alert system for condensed matter and materials science articles.

CoDAS Web (Condensed Matter Direct Alerting Service) is a Web-based product that delivers full bibliographic records (title, author names, full abstract, bibliographic information) to the scientist's computer. A user profile option allows researchers to select and store their preferred search terms thus enhancing the relevance of the records delivered. The subscription fee is $95 for individuals.

Further information and an online demonstration of CoDAS Web are available at the following sites: http://www.iop.org/Journals/CODAS or http://custserv@ioppublishing.co.uk.

CAUGHT IN THE WEB

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

New/Updated Links:
APS News online (latest edition)
What's New (latest edition)

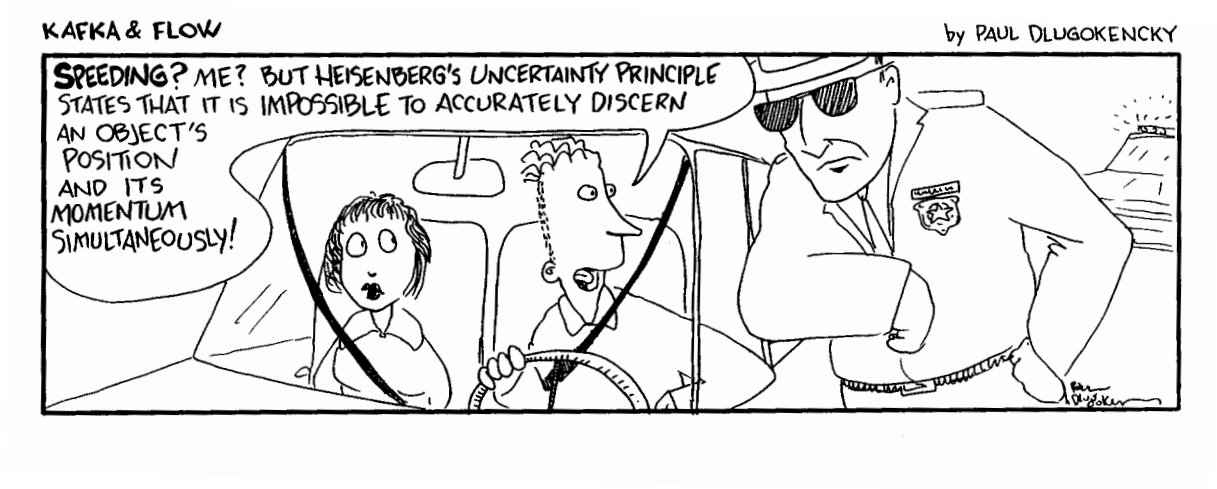
Units
- Topical Group on Magnetism and its Applications (GMAG) starts its homepage
- NY State Section Governance
- NRC Study of Condensed Matter and Materials Physics on the DMP hompage
- FIAP Newsletter (March Edition)

Governance/Public Affairs
- Biographical Information and Statements from Candidates in 1997 APS Membership Election.
- The Current Energy Situtation

Journals
- E-print Server
- *PRB Rapid Communications* online
- *PRC* online

Meetings
- The Reines Symposium at LANL

THE BACK PAGE



DILBERT reprinted by permission of United Feature Syndicate, Inc.

Drawing by Cheney; © 1996
The New Yorker Magazine, Inc.

Disclaimer: The reader is advised that APS News consists of 99.9999999999% empty space.