APS NEWS

MARCH 1997

THE AMERICAN PHYSICAL SOCIETY

VOLUME 6, No 3

Teacher-Scientist Alliance Workshop

From January 11-15, 11 teams of scientist and science educators, 51 in all, from selected sites around the country participated in the third Elementary Science

Education Reform Institute of the APS's Teacher-Scientist Alliance Institute. For five intense days, the participants examined a whole range of issues emphasizing the hands-on approach to teaching and systemic reform. The APS is playing a major role in the emerging national consensus on what constitutes a good science education for children. Funding for this program is provided by the APS-AAPT Campaign for Physics.





Snapshots of teachers and scientists preparing to take the hands-on teaching approach back to their school systems across the



INSIDE THE BELTWAY

Will a Thaw Follow the Hard Freeze?

by Michael S. Lubell, APS Director of Public Affairs

Late last fall, a hard freeze hit the heart-land of America. The same could have been said for federal science budgets. Even as the last presidential ballots were being counted, science administrators were being warned to expect nothing more for FY 1998 than they had received the previous year. Adjustments for inflation were out of the question. Budgets for basic research would be frozen hard at FY 1997 levels across the federal government.

For some agencies, the news was extraordinarily good. The Department of Energy, for example, had been promised cuts of more than 25 percent over the next three years. For DOE's programs, a freeze at FY 1997 levels represented a victory beyond expectations. Knowledgeable sources attributed some of the success to the thousands of letters from scientists that flooded the White House in September and October.

For other agencies, including the National Science Foundation, the projection was disheartening. The NSF had lobbied hard to restore parity with the National Institutes of Health. During the last two years, NSF administrators had watched with some dismay as Congress boosted spending for NIH at annual rates approaching 7 percent. At the same time, appropriators kept NSF tightly in check, not even permitting the Foundation's budget to keep pace with increases in the cost of living.

Whatever the vantage point, the projections served as a reality check. Without

containment of entitlements, the longterm prospects for all discretionary programs remains bleak. A few key figures serve to put this into perspective.

Thirty-five years ago, Washington spent barely one out of every three federal dollars on entitlements. Most of the money went for Social Security and child welfare benefits.

Today the burgeoning costs of Medicare, Medicaid and service on the national debt have forced the federal government to fence off two out of every three dollars it ultimately pays out. Spending on these programs is locked in by law. The remaining dollar, the only one that appropriators can tinker with, is now split almost equally between defense and civilian programs.

Unless the growth of entitlements is reined in, federal spending on all discretionary programs, from scientific research to crime prevention, will slowly wither away. In the near term, the only alternative is continued deficit spending. But in the long term, the consequence will be the same.

What, then, are the prospects for entitlement reform? At first blush, the possibilities seem remote. When the Republican majority in the 104th Congress incorporated constraints on Medicare and Medicaid spending into their balanced budget plans, they received a thorough thrashing at the hands of the Democrats.

(Continued on page 2)

Council Elects 1996 APS Fellows

The APS Council elected 179 members as Fellows of the Society at its November 1996 meeting. For the names and citations of new APS fellows, see pages 8-11.

Nominations for fellowship are received by the APS headquarters throughout the year, and are forwarded for review to the appropriate division and topical group fellowship committees. These in turn forward their recommendations to the APS Fellow-

ship Committee, chaired in 1996 by APS Vice President Andrew Sessler (Lawrence Berkeley Laboratory).

Fellowship nomination forms may be obtained from the January 1997 issue of *APS News*, writing to the APS Fellowship Office, One Physics Ellipse, College Park, MD 20740-3844; calling (301) 209-3268 or visiting the Fellowship Page on the APS website, www.aps.org.

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THE UNITS CONVOKE...

Representatives from the APS divisions, forums, topical groups and geographical sections gathered at APS Headquarters in College Park, Maryland in January for the annual Unit Convocation. The event featured a morning session on APS information services and unit budgets, in addition to tips on improving newsletter publication, increasing unit membership, improving unit-sponsored meetings, and a lunchtime demonstration of the Society's electronic journals. There were also reports on activities from each unit and afternoon discussions on planning for the upcoming APS Centenary Celebration in 1999 and getting the physics community involved in the political process.



Above, Mary Pat Paris, manager of the APS membership department, addresses the group.

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Inside the Beltway (Continued from page 1)

The GOP had made a crucial political mistake. The savings they had proposed to extract from Medicare and Medicaid matched almost dollar for dollar the tax cut they had laid on the table simultaneously. For more than a year, the Democrats capitalized on the blunder. Medicare cuts for the poor to pay for tax cuts for the rich was the refrain heard over and over again.

And it paid off. President Clinton, whose popularity had sunk to unimaginable lows prior to the 1994 election, rebounded in 1996 and was re-elected with room to spare. But he failed to carry Congress with him. By the time

the dust settled, the Republicans found themselves with a narrow twenty-vote margin in the House and a less-thanfilibuster-proof majority in the Senate.

The American electorate had sent both parties a message: We don't trust either of you to govern alone. But on the campaign trail, candidates in both political parties also heard another message: Cut out the partisan bickering and learn to work together!

And so as the 105th Congress convened and President Clinton took his oath of office for a second time, both sides promised to seek common ground. Almost immediately, the Presi-

dent offered up a Medicare-Medicaid proposal that met the Republicans more than half way. Many congressional Democrats viewed the move with some alarm. But Senate Majority Leader Trent Lott of Mississippi, who has assumed the role of Republican honcho on the Hill in the aftermath of House Speaker Newt Gingrich's ethics problems, greeted the overture warmly.

How far into the congressional session bipartisan collegiality will extend is not clear, but for now both sides are talking deal. Case in point: A non-partisan commission may soon be established to deal with the thorny issue of Social Security reform. Even before that happens, however, a consensus may form around the Boskin committee's argument that the Consumer Price Index overstates cost of living increases by 1.1 percent annually. Every year, the federal government by statute must apply changes in the CPI to spending on entitlements. If the Boskin analysis is adopted, more than 1 trillion dollars will be wrung out of entitlement programs over the next decade. While such a change is not a panacea for all that ails the federal budget, it certainly is a move in the right direction.

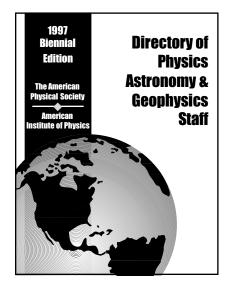
There is another motivator for bipartisan action on the Hill. Members of Congress, above all else, are masters of practical politics. They know that without a bipartisan consensus, entitlement reform is impossible, and without such reform, the discretionary programs they use to build constituent support will

slowly erode. Reining in entitlement spending is good public policy, but it is also good politics.

In the glow of expressions of bipartisan cooperation, science, which has been caught in the crossfire of political sniping for two years, may again emerge as the nonpartisan issue it ought to be. An early indicator is Senate Bill S. 124, *The National Research Investment Act of 1997.* The bill authorizes the federal government to double its investment in basic science and medical research over ten years.

A scant six months ago, such legislation, which argues for more broad-based federal spending, rather than less, might only have been imagined as emanating from the liberal Democratic caucus. The current bill, however, is sponsored by Texas Republican Senator Phil Gramm and is cosponsored by two of his conservative GOP colleagues, Senators Connie Mack of Florida and Kay Bailey Hutchison of Texas.

While authorizers do not wield the power of appropriators, who ultimately determine how much federal money will be spent and where it will go, the mere presence of Senate Bill S. 124 may presage a period of political cooperation in which American science will thrive once more. A thaw in the frozen budgets may yet be possible. What Members of Congress need to hear now are the voices of scientists applauding them on adopting such a course of action.



Directory of Physics, Astronomy & Geophysics Staff To Be Mailed in March

In late-March to early-April, APS members will receive the 1997 Directory of Physics,

Astronomy and Geophysics Staff (DPAGS), a listing of physicists, astronomers and geophysicists in North America published by the American Institute of Physics (AIP) and the APS. This edition contains information on more than 31,000 scientific staff members at more than 2,000 institutions and organizations. Please note that it is NOT a replacement for the APS Membership Directory, but rather an organizational and geographic based listing. Hence, some APS members are not listed, while others that are listed may not be APS members. APS members are advised to retain their current copies of the APS Membership Directory.

The DPAGS directory is the 29th in a series that began in 1959. Originally it was a directory of academic physics departments, but has steadily expanded in scope and size. It now covers a wider range of organizations, including governmental agencies and laboratories, large corporations and small firms, as well as academic institutions. The 1997 edition also contains expanded information on societies that serve the physics and related communities, including contact information for AIP, its member societies, over 30 related U.S. societies, and more than 150 physics societies around the world.



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Electron Centennial Broadcast in April

APS members and other interested parties are invited to explore exciting new advances in atomic-level science and technology during a student-oriented symposium, to be broadcast live via satellite from Central Michigan University on Wednesday, April 9, 1997. The program will feature award-winning scientists, including Roald Hoffmann, a professor of chemistry at Cornell University and recipient of the 1981 Nobel Prize in Chemistry; Marvin Cohen, University Professor of Physics at the University of California, Berkeley and recipient of the 1994 APS Lilienfeld Prize; and Max Lagally, E.W. Mueller Professor of Materials Science at the University of Wisconsin and recipient of the 1994 APS David Adler Lectureship and the 1995 APS Davisson-Germer Prize. The project is sponsored in part by the National Science Foundation, GTE, and Central Michigan University. Information on down-linking to this free broadcast can be obtained by calling 517-774-3487, or by visiting the Electron Birthday web-site at http://www.phy.cmich.edu/electron.



March 1997
APS News

Physicists to be Honored at 1997 March Meeting

Eight APS prizes and awards will be presented during a special ceremonial session at the 1997 APS March Meeting in Kansas City, Missouri, to be held later this month. Citations and biographical information for each recipient follow.

1997 IRVING LANGMUIR PRIZE

The Langmuir Prize was established in 1964 by the General Electric Foundation (now the GE Fund) to recognize outstanding interdisciplinary research in chemistry and physics, in the spirit of Irving Langmuir.

Jack Herschel Freed

Cornell University

Citation: "For his development of new magnetic resonance methods and theory, including computational algorithms for the stochastic Liouville equation, time-domain ESR methods for the study of molecular dynamics in liquids, applications of ESR to surface science, and the discovery of nuclear spin-waves in spin- polarized H atoms."

Freed received his PhD from Columbia University in 1962 and joined the faculty of Cornell University the following year, where he has remained ever since. His current research interests focus on the application of magnetic resonance to problems in chemical physics and biophysics, including the further development of two-dimensional and Fourier-transform ESR techniques to enhance the sensitivity to motional dynamics in complex fluids.

1997 LARS ONSAGER PRIZE

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

Robert H. Kraichnan

Los Alamos National Laboratory

Citation: "For his deep contributions and sustained leadership in the field of turbulence theory. His quantitative predictions for the inverse cascade in two-dimensional turbulence, his treatment of passive scalar transport, and his direct interaction approximation are landmark achievements."

Kraichnan received his PhD in theoretical physics from MIT in 1949. He has been a research member at the Institute for Advanced Study and Bell Laboratories, and a research associate at Columbia University and the Courant Institute at New York University, but has been self-employed for much of his professional career. A past recipient of the Otto LaPorte Award, he has served as a consultant, contractor or grantee for the Naval Research Laboratory, NASA, Woods Hole Oceanographic Institute, the Institute for Defense Analysis, the National Science Foundation and the U.S. Department of Energy.

1997 OLIVER E. BUCKLEY PRIZE

Established in 1952 by an endowment from AT&T Bell Laboratories, the Oliver E. Buckley Prize is intended to recognize and encourage outstanding theoretical or experimental contributions to condensed matter physics in America.

James S. Langer

University of California Santa Barbara

Citation: "For contributions to the theory of kinetics of phase transitions particularly as applied to nucleation and dendritic growth."

Langer received his PhD in mathematical physics at the University of Birmingham, England, in 1958 and returned to join the faculty of Carnegie-Mellon University, where he had received his B.S. degree three years earlier. In 1982, he became professor of physics and a permanent member of the Institute for Theoretical Physics at UCSB, serving as the institute's director from 1989 to 1995. His research has been in the theory nonequilibrium phenomena in condensed matter, specifically in such areas as quantum many-body theory of transport in solids, the kinetics of first-order phase transitions, dendritic pattern formation in crystal growth, and most recently, the dynamics of earthquake and fracture. He is chair-elect of the APS Division of Condensed Matter Physics, which he will chair in 1997.

1997 DAVISSON-GERMER PRIZE

The Davisson-Germer Prize was established in 1965 by AT&T Bell Laboratories. It is intended to recognize and encourage outstanding work in atomic physics or surface physics.

Jerry Tersoff

IBM/T.J. Watson Research Center

Citation: "For insightful, creative theoretical descriptions of surface phenomenology; particularly of crystal growth dynamics, surface structures and their probes."

Tersoff received his PhD from the University of California, Berkeley in 1982 and spent two years as a postdoc at Bell Laboratories before joining the research staff at the IBM/T.J. Watson Research Center, where he has remained ever since. He has worked in a variety of areas relating to surface and interface physics and materials physics, including theories of scanning tunneling microscopy, model interatomic potentials, stress effects at surfaces, and strain relaxation in epitaxial thin films. Most recently he has addressed ways in which, during heteroepitaxial growth, strain can lead to controllable self-assembly and selforganization of nanostructures such as quantum dots and quantum wires.

1997 HIGH POLYMER PHYSICS PRIZE

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

Frank Steven Bates

University of Minnesota

Citation: "For outstanding contributions to the physics of polymer-polymer phase behavior and the self-assemby of block-polymers."

Bates received his PhD in chemical engineering from the Massachusetts Institute of Technology in 1982 and promptly joined the technical staff at Bell Laboratories. In 1989 he moved to the University of Minnesota, where he is presently a Distinguished McKnight University Professor. He was awarded the Dillon Medal in 1989, and is a divisional associate editor of Physical Review Letters. Bates has investigated a variety of topics related to the thermodynamics and dynamics of polymers and polymer mixtures, including isotope-driven phase separation, order and disorder in block copolymers, and critical phenomena in block copolymerhomopolymer blends. He is currently studying non-equilibrium phenomena in self-assembled soft materials in bulk and thin film forms.

1997 EARLE K. PLYLER PRIZE

The Earle K. Plyler Prize was established in 1976 by the George E. Crouch Foundation to recognize and encourage notable contributions to molecular spectroscopy.

Roger Ervin Miller

University of North Carolina Chapel Hill

David Nesbitt

JILA/University of Colorado

Citation: "In recognition of their spectroscopic investigations that have elucidated the structure and eigenstate resolved dynamics of weakly bound complexes. They have each pioneered a novel method of high resolution infrared spectroscopy and have used their respective methods in a series of insightful investigations of a wide range of chemically important complexes."

Miller received his PhD from the University of Waterloo in Canada in 1980, where his research focused on the development and use of a new and powerful laser spectroscopic method, now well-known as Opto-Thermal Spectroscopy. He then spent four years at the Australian National University as a research fellow, where he set up a new laboratory for the study of intermolecular forces. He also applied this method to the study of weakly bound complexes and in crossed molecular beam scattering studies. In 1985 he joined the faculty at the University of North Carolina, where he was recently appointed as John B. Carroll Professor. He has worked in such areas as spectroscopy and dynamics of weakly bound complexes, surface sciences, atmospheric chemistry, and combustion.

Nesbitt received his PhD at the University of Colorado in 1981. He is presently Adjunct Professor at the Joint Institute for Laboratory Astrophysics, the National Institute of Standards and Technology, and the Department of Chemistry and Biochemistry at the University of Colorado. A past recipient of the APS Wilson Prize, Nesbitt's experimental research at JILA has involved application of direct absorption IR laser techniques to study flash kinetic

spectroscopy of transient radicals, unimolecular energy flow in vibrationally excited states, state-to-state collisional energy transfer dynamics in crossed beams, and spectroscopy of weakly bound van der Waals and hydrogen bonded complexes in silt supersonic jet expansions.

1997 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 his or her research, review articles, and lecturing.

John D. Joannopoulos

Massachusetts Institute of Technology

Citation: "For his pioneering use of modern computational tools for the calculation of the electronic, vibrational and optical properties of amorphous, crystalline and photonic bandgap materials, including their surfaces and defects, and for his excellence in lecturing, writing and training students in these areas."

Joannopoulos received his PhD from the University of California, Berkeley, in 1974 and promptly joined the faculty of MIT, where he is currently a professor of physics. His research efforts have been in theoretical condensed matter physics, and he is responsible for the development of numerous calculational schemes and techniques for the study of complex solid systems. He has authored or co-authored more than 275 journal articles and one textbook, and holds six U.S. patents.

1997 JOHN H. DILLON MEDAL

The John H. Dillon Medal was established in 1983 by the Division of High Polymer Physics to recognize outstanding research accomplishments by a young polymer physicist.

Nitash Prevez Balsara

Brooklyn Polytechnic University

Citation: "For innovative and illuminating optical and neutron experiments to probe the state of order in multi-component polymer systems."

A native of India, Balsara received his PhD in chemical engineering from Rensselaer Polytechnic Institute in 1988, and then did postdoctoral work at the University of Minnesota and at Exxon Research and Engineering Company. In 1992 he joined the faculty at Polytechnic University in Brooklyn, New York, where he is currently an associate professor of chemical engineering. A recipient of the NSF's Young Investigator Award in 1994, Balsara's research is concerned with microstructure formation and phase transitions in multicomponent polymer materials.

APS Prize, Award and Fellowship Information [http://aps.org]

Visit the APS home page for detailed information about the APS honors program. This site gives detailed information about each award, procedures and deadlines for submitting nominations, selection committees and sponsors, and background information on previous recipients.

AUS News

NOMINATIONS FOR 1998 APS 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 winners. 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://aps.org] under the Prize and Award button, for complete information regarding rules and eligibility requirements for individual prizes and awards.

PRIZES

JULIUS EDGAR LILIENFELD PRIZE

Sponsored by the Lilienfeld Trust.

Purpose: To recognize a most outstanding contribution to physics.

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

Send the name of candidates, biographical information and supporting letters to: David L Goodstein, 114-36, Caltech, Pasadena, CA 91125, Phone: (818) 356-4319, Fax: (818) 683 9060, Email: david_goodstein@Starbase1.Caltech.edu. Nominations must be received no later than 1 July 1997.

LARS ONSAGER PRIZE

Endowed by Russell and Marion Donnelly.

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

Nature: The prize consists of \$10,000 and a certificate citing the contributions made by the recipient.

Send the name of candidates, biographical information and supporting letters to: Katepalli Raju Sreenivasan, Dept of Mech Engr, Yale Univ, PO Box 208286,New Haven, CT 06520, Phone: (203) 432-4345, Fax: (203) 432-7654, Email: k.sreenivasan@yale.edu.

Nominations must be received no later than 1 July 1997.

ARTHUR L. SCHAWLOW PRIZE IN LASER SCIENCE

Endowed by the NEC Corporation.

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

Nature: The prize consists of \$10,000 and a certificate citing the contributions made by the recipient.

Send the name of candidates, biographical information and supporting letters to: Thomas J McIlrath, APS, One Physics Ellipse, College Park, MD 20740, Phone: (301) 209-3220, Fax: (301) 209-0844, Email: mcilrath@aps.org. Nominations must be received no later than 1 July 1997.

HANS A. BETHE PRIZE

This prize is endowed by contributions from the Division of Astrophysics, the Division of Nuclear Physics and friends of Hans A. Bethe.

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

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

Send names of candidates, biographical information and supporting letters to: Ernest Henley, Dept of Phys, Univ of Washington, PO Box 351560, Seattle WA 98195, Phone: (206) 543-2896, Fax: (206) 685-0635, Email: henley@phys.washington.edu. Nominations must be received by 1 July 1997.

WILL ALLIS PRIZE FOR THE STUDY OF IONIZED GASES

Purpose: To recognize and encourage outstanding research into the microscopic or macroscopic behavior of ionized gases.

Nature: The Prize consists of \$5,000 and a certificate citing the contributions made by the recipient. An allowance will be provided for travel expenses of the recipient to the meeting of the Society at which the Prize is bestowed.

Send nomination letters, biographical information and supporting letters to: Kurt H Becker, Department of Physics and Engineering Physics, Stevens Institute of Technology, Hoboken, NJ 07030, Phone/Fax: (201) 216-5671, Email: kbecker@stevens-tech.edu. Nominations must be received by 1 July 1997.

DANNIE HEINEMAN PRIZE FOR MATHEMATICAL PHYSICS

Endowed by the Heineman Foundation for Research, Educational, Charitable, and Scientific Purposes, Incorporated through the American Institute of Physics.

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

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

Send the name of candidates, biographical information and supporting letters to: Stanley Deser, Dept of Phys, Brandeis Univ, 415 South St, Waltham, MA 02254, Phone: (617) 736-2845, Fax: 617 736 2915, Email: deser@binah.cc.brandeis.edu. Nominations must be received no later than 1 July 1997.

TOM W. BONNER PRIZE IN NUCLEAR PHYSICS

Endowed by Friends of Tom W. Bonner.

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

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

Send the name of candidates, biographical information and supporting letters to: Noemie Benczer, Dept of Physics, Rutgers University, New Brunswick, NJ 08903, Phone: (908) 932-2525, Fax: (908) 932-4343. Nominations must be received no later than 1 July 1997.

BIOLOGICAL PHYSICS PRIZE

The Prize was established in 1981 by friends of the Division of Biological Physics.

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

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

Send nomination letter, biographical summary and supporting letters to: John J. Hopfield, Beckman Institute, Caltech 139-74, Pasadena, CA 91125, Phone: (818) 397-2808, Fax:(818) 792-7402, Email: john@hope.caltech.edu. Nominations must be received by 1 July 1997.

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.

Send the name of candidates, biographical information and supporting letters to: John Clarke, Dept of Phys, UCB, 366 LeConte Hall, Berkeley, CA 94720, Phone: (510) 642-3069, Fax: (510) 642 1304, Email: jclarke@physics.berkeley.edu. Nominations must be received no later than 1 July 1997.

DAVISSON-GERMER PRIZE

Sponsored by AT&T Lucent Technologies.

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

Nature: The prize consists of \$5,000 and a certificate citing the contributions made by the recipient. This annual prize will normally be awarded alternatively for outstanding work in atomic physics one year and for outstanding work in surface physics the following year. The 1998 prize will be awarded for outstanding work in surface physics.

Send the name of candidates, biographical information and supporting letters to: Andrew C Tam, 21463 Continental Cir., Saratoga CA 95070, Phone: (408) 927-1943, Email: ACTAM@almaden.ibm.com. Nominations must be received no later than 1 July 1997.

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 the name of candidates, biographical information and supporting letters to: Timothy P Lodge, Dept of Chem, Univ of Minnesota, 207 Pleasant St SE, Minneapolis, MN 55455-0431, Phone: (612) 625-0877, Fax: (612) 624-1589, Email: lodge@chemsun.chem.umn.edu. Nominations must be received no later than 1 July 1997.

FRANK ISAKSON PRIZE

The prize is supported by *Solid State Communications* (Elsevier Science Ltd.).

Purpose: To recognize and encourage outstanding contributions to the field of optical effects in solids.

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

Send nomination letters, biographical information and letters of support to: Thomas Timusk, Dept of Phys, McMaster Univ, Hamilton ON L8S 4M1 Canada, Fax: (905) 546-1252, Email: timusk@mcmaster.ca. Nominations must be received by 1 July 1997.

GEORGE E. PAKE PRIZE

Endowed by the Xerox Corporation.

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

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

Send the name of candidates, biographical information and supporting letters to: Venkatesh Narayanamurti, Off of the Dean, Coll of Engr, UCSB, Santa Barbara, CA 93106, Phone: (805) 893-3141, Fax: (805) 893-8124, Email: venky@engrhub.ucsb.edu. Nominations must be received no later than 1 July 1997.

W.K.H. PANOFSKY PRIZE

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

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

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

Send the name of candidates, biographical information and supporting letters to: James E Pilcher, Enrico Fermi Inst, Univ of Chicago, 5640 S Ellis Ave, Chicago, IL 60637, Phone: (312) 702-7443, Fax: (312) 702 1914, Email: pilcher@uchep.uchicago.edu. Nominations must be received no later than 1 July 1997.

EARLE K. PLYLER PRIZE

Sponsored by the George E. Crouch Foundation.

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

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

Send the name of candidates, biographical information and supporting letters to: Terry A Miller, Dept of Chem, Ohio State Univ, 140 W 18th St, Columbus, OH 43210, Phone: (614) 292-2569, Fax: (614) 292-1948, Email: tamiller+@osu.edu. Nominations must be received no later than 1 July 1997.

March 1997
APS News

PRIZE TO A FACULTY MEMBER FOR RESEARCH IN AN UNDERGRADUATE INSTITUTION

Sponsored by the Research Corporation.

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

Nature: The prize consists of a \$5,000 stipend to the recipient, a certificate citing the contribution of the recipient, and a separate \$4,000 unrestricted grant for the research of the recipient to the awardee's institution.

Send the name of candidates, biographical information and supporting letters to: Thomas D Rossing, Dept of Phys, Northern Illinois Univ, De Kalb, IL 60115, Phone: (815) 753-6493. Nominations must be received no later than 1 July 1997.

ANEESUR RAHMAN PRIZE

Sponsored by the IBM Corporation.

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

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

Send the name of candidates, biographical information and supporting letters to: Malvin H Kalos, 521 ETC Bldg, Cornell Univ, Hoy Rd, Ithaca, NY 14853-3801, Phone: (607) 254-8691, Fax: (607) 254_8888, Email: kalos@tc.cornell.edu. Nominations must be received no later than 1 July 1997.

J.J. SAKURAI PRIZE FOR THEORETICAL PHYSICS

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

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

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

Send the name of candidates, biographical information and supporting letters to: William J Marciano, Dept of Phys, Brookhaven Natl Lab., Upton, NY 11973, Phone: (516) 282-3151, Email: marciano@bnlcli.bnl.gov. Nominations must be received no later than 1 July 1997.

ROBERT R. WILSON PRIZE

Endowed by friends of Robert R. Wilson.

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

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

Send the name of candidates, biographical information and supporting letters to: Claudio Pellegrini, Dept of Phys, UCLA, 405 Hilgard Ave, Los Angeles, CA 90024-1547, Phone: (310) 206-1677, Fax: (310) 206-1091, Email: claudio@vesta.physics.ucla.edu. Nominations must be received no later than 1 July 1997.

AWARDS

JOSEPH F. KEITHLEY AWARD FOR ADVANCES IN MEASUREMENT SCIENCE

This Award is being endowed by Keithley Instruments, Inc. and the Instrument and Measurement Science Topical Group (IMSTG).

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

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

Send nomination letter, biographical information and supporting letters to: Robert J Erdman, Keithley Instruments Inc, 28775 Aurora Rd, Solon OH 44139, Phone: (216) 248-0400, Fax: (216) 248-6168, Email erdman_bob@keithley.com. Nominations must be received by 1 July 1997

LEROY APKER AWARDS

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

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

Nature: Two awards may be made, one to a nominee from an institution that offers a Ph.D. program in physics, the other to a nominee from an institution that does not. The award to each recipient consists of \$3,000, an allowance for travel to the meeting of the Society at which the award is being presented, and a certificate citing the work and school of the recipient. Each of the finalists in the annual competition will receive an honorarium of \$1,000 and a certificate as an Apker Award Finalist. Certificates and grants equal to 50 percent of the recipient and finalist awards will be presented to the home institutions.

Send the name of candidates, biographical information and supporting letters to: Barrett Ripin, Administrator, Apker Award Selection Committee, The American Physical Society, One Physics Ellipse, College Park, MD 20740-3844, Phone: (301) 209-3233, Fax: (301) 209-0865, email: ripin@aps.org. Nominations must be received no later than 13 June 1997.

MARIA GOEPPERT-MAYER AWARD

Sponsored by the General Electric Foundation.

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

Nature: The award consists of \$2,500, plus a \$4,000 travel allowance to provide opportunities for the recipient to give lectures in her field of physics at four institutions of her choice and at the meeting of the Society at which the award is bestowed. Nominee must be a female physicist having U.S. citizenship or a permanent U.S. resident and received her Ph.D. after Sept. 1, 1987.

Send the name of candidates, biographical information and supporting letters to: Anne Kernan, 33605 Moonsail Drive, Dana Point, CA 92629-4483, (H)Phone: (714) 488-7750, (H) Fax: (714) 488-7729, email: a.kernan @worldnet.att.net. Nominations must be received no later than 30 May 1997.

JOSEPH A. BURTON FORUM AWARD (Formerly the Forum Award)

Endowed in 1997 by Jean Dickey Apker

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

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

Send nomination letter, biographical information and supporting letters to: Tina Marie Kaarsberg, Vista Tech, 7101 Woodland Ave, Takoma Park, MD 20912, Phone: (301) 270-0646, Fax: (301) 270-5359, Email: tina.kaarsberg@hq.doe.gov. Nominations must be received by 1 July 1997.

LEO SZILARD AWARD FOR PHYSICS IN THE PUBLIC INTEREST

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

Nature: The award consists of a certificate citing the contributions of the recipient and a sculpture to be held one year and passed on to the next recipient.

Send the name of candidates, biographical information and supporting letters to: Send nomination letter, biographical information and supporting letters to: Tina Marie Kaarsberg, Vista Tech, 7101 Woodland Ave, Takoma Park, MD 20912, Phone: (301) 270-0646, Fax: (301) 270-5359, Email: tina.kaarsberg@hq.doe.gov. Nominations must be received by 1 July 1997.

MEDALS AND LECTURESHIPS

DAVID ADLER LECTURESHIP AWARD

Sponsored by the friends of David Adler.

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

Nature: The award consists of an award an honorarium for the lecturer, and a certificate citing the contribution made by the recipient.

Send the name of candidates, biographical information and supporting letters to: Jim Roberto, Oak Ridge National Laboratory, MS6033 Solid State Div., P.O. Box 2008, Oak Ridge, TN 37831, Phone: (615) 576-0227, Fax: (615) 574-4143, Email: robertojb@ornl.gov. Nominations must be received no later than 1 July 1997.

EDWARD A. BOUCHET AWARD

Sponsored by the Research Corporation.

Purpose: The Bouchet Award is intended to promote the participation of under-represented minorities in physics by publicizing the recipients work and career development to the physics community, especially to young minority physics students.

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

Send the name of candidates, biographical information and supporting letters to: Kennedy J Reed, L-41, Lawrence Livermore National Lab., Livermore, CA 94550, Phone: (510) 423-1112, Fax: (510) 423-7228, Email: reed5@LLNL.GOV. Nominations must be received no later than 1 July 1997.

JOHN H. DILLON MEDAL

The medal is sponsored by *Polymer*, (Elsevier Science Ltd.)

Purpose: To recognize outstanding accomplishments by young polymer physicists.

Nature: The award consists of \$2,000, the John H. Dillon Medal, an allowance to travel to the meeting at which the medal is to be presented, and a certificate citing the contributions made by the recipient.

Send the name of candidates, biographical information and supporting letters to: Timothy P Lodge, Dept of Chem, Univ of Minnesota, 207 Pleasant St SE, Minneapolis, MN 55455-0431, Phone: (612) 625-0877, Fax: (612) 624-1589, Email: lodge@chemsun.chem.umn.edu. Nominations must be received no later than 1 July 1997.

DISSERTATION AWARDS

AWARD FOR OUTSTANDING DOCTORAL THESIS RESEARCH IN BEAM PHYSICS

Supported by the Universities Research Association.

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

Nature: The award consists of \$1,500 and a certificate to be presented at an awards ceremony at the Division of Physics of Beams Annual Meeting.

Send the name of candidates, biographical information and supporting letters to: Alexander Wu, SLAC, Stanford Univ, PO Box 4349, Stanford, CA 94309, Phone: (415) 926-2985, Fax: (415) 926-4999, Email: achao@slac.stanford.edu. Nominations must be received no later than 1 July 1997.

DISSERTATION IN NUCLEAR PHYSICS AWARD

Endowed by members and friends of the Division of Nuclear Physics.

Purpose: To recognize a recent Ph D in Nuclear Physics.

Nature: The Award consists of \$1,000 and an allowance for travel to the annual Spring Meeting of the Division of Nuclear Physics, when the award will be presented.

Send nomination letters, biographical information, and supporting letters to: Bunny C Clark, Phys Dept, The Ohio State Univ, 174 W 18th Ave, Columbus OH 43210, Phone: (614) 292-1843, Fax (614) 292-7557, Email: bcc@mps.ohiostate.edu. Nominations must be received by 1 July 1997.

APS News

OPINION

APS VIEWS

PGNet and You

by D. Allan Bromley (APS President) and Robert Schrieffer (APS Past President)

The following message summarizes the 1996 grassroots legislative affairs of the American Physical Society. It was sent to the nearly 1,000 APS members who have volunteered to contact their Member of Congress when they receive an alert from the APS Washington Office. The activities of these APS members have been critical to the welfare of the entire physics community. We applied their efforts and on behalf of the APS we express our thanks.

The APS established the Physics and Government Network (PGNet) three years ago to respond to the federal budget challenges that were then already evident on the science horizon. Today, the PGNet has grown to 1,000 participants, far beyond our original expectations. Indeed, as members of the network, many of you have played a significant role in helping to shape federal science policy during these very difficult times by ably responding when we called upon you for congressional action.

During 1996, we issued five PGNet alerts. In each instance, we notified only those of you whose Members of Congress were playing key roles in pending legislation. To those of you whom we contacted, we say thank you for your help on behalf of the APS membership. Below, we provide you with a summary of the 1996 issues in which PGNet participated and what the results were.

If we did not contact you last year, please remember that we still need you. Committee assignments have been reshuffled in the new 105th Congress, and the critical issues may change. If your Representative and Senators were not heavily involved in science policy activities in 1996, they may well be in the coming year.

One lesson that we learned well from our 1996 activities is that our success on policy issues improves whenever the scientific community speaks with a broad, consistent and strong voice. Therefore, as part of our APS efforts in 1997 we are attempting to improve our cooperation with other scientific societies. We hope, too, that with vigilance, we may avoid some of the crises that erupted in 1996. Still, some crises are inevitable, and your participation in the PGNet is crucial if we are to preserve our nation's leadership in science.

SUMMARY OF 1996 PGNET ACTIVITIES

ALERT 1. HELIUM

ISSUE: Proposed sale of the nation's strategic helium reserve.

STRATEGY: The APS Council issued a statement urging Congress to halt the sale. The APS Washington Office publicized the issue in major print media. Letters were sent to all Members of Congress with the APS Council statement and press clippings included. Meetings were held with White House and congressional staff and key industrial leaders. An alert was sent to PGNet members matched to key members of the Senate Energy and Natural Resources Committee.

OUTCOME: Bipartisan acceptance of an amendment to require the National Academy of Sciences to report on the technological implications of selling the helium reserve before any sale can occur. The amendment was included in the final legislation and was signed into law.

ALERT 2. NSF FULL YEAR APPROPRIATION

ISSUE: Lack of full year appropriations for NSF with potential loss of \$75 million for FY 1996

STRATEGY: An alert was sent to all PGNet members and then to all 20,000 APS members with listed e-mail addresses. The alerts resulted in more than 2000 direct contacts by physicists to Members of Congress. Other science societies carried out similar initiatives. The APS Washington Office also initiated direct contact with Appropriations Committee Chairman Bob Livingston.

OUTCOME: Livingston pledged to take up the NSF issue at the earliest possible date. An omnibus appropriations bill passed in March that restored full funding to NSF.

ALERTS 3 & 4. DOE RESEARCH BUDGET

ISSUE: Proposed major cuts to the DOE's FY 1997 research budget.

STRATEGY: The APS Council issued a statement urging the Administration and Members of Congress to maintain funding for the DOE Office of Energy Research (OER). The APS Council statement was sent to members of the House Budget Committee, House Science Committee, Senate Energy and Natural Resources Committee, House and Senate Appropriations Committees, and Executive Branch officials. Early in the budget cycle, an alert was sent to members of the PGNet who were constituents of members of the House Budget Committee. Then, last September, an alert was sent to PGNet members who were constituents of the conference committee for Energy and Water Appropriations.

OUTCOME: The Senate Appropriations Bill increased spending for OER by 2.5%; the House Bill called for flat funding. The House and Senate conferees split the difference, resulting in slightly more than a 1% increase in spending for OER relative to FY 1996.

ALERT 5. NSF 1997 APPROPRIATION

ISSUE: Late in the budget cycle last June, the conferees on the Budget Resolution agreed to increase domestic discretionary funding by \$4 billion, adding 350 million to the VA-HUD Appropriations Subcommittee which funds the NSF.

STRATEGY: An alert was sent to PGNet members who were constituents of the House VA-HUD Appropriations Subcommittee. Appropriators were urged to put some of the additional money into the NSF budget. The NSF itself was unable to make headway.

OUTCOME: No money was added to the NSF budget.

LETTERS

More On: Is Science a Victim of its Own Success?

In his December 1996 Back Page article, "Is Science a Victim of Its Own Success," John Horgan continues to parade his fundamental misunderstanding of science. His misconceptions are most clearly evidenced by his use of the concept of "truth" in scientific contexts. In reality, there is no such thing as a "scientific truth" or "scientific fact"; the best that can be found are models that work (for now) and patterns of observation for which no counterexample has yet been found. Science can never make the pronouncement, "Verily, it is so;" all that it can say is, "It is as though..."

Etemal truths, which by their very nature are and ever shall be incontrovertible, are the constructs of religion, not of science. Of course, we cannot help but acquire a certain confidence in theories and experiments that have worked for generations, but that does not mean that they are true, or that our confidence is justified. Though we stand indeed upon the shoulders of giants, we have no guarantee that those shoulders provide us a secure footing.

Those who would like to believe that scientific progress consists in the creation of ever-widening circles of certain knowledge would do well to read "A History of Theories of the Aether and Electricity," by Sir Edmund Whittaker, or, for a perspective on phlogiston, "Three Centuries of Chemistry," by Sir Irvine Masson. As concepts, phlogiston and the ether each neatly explained (for a time) all that was known in a particular field, but

phlogiston was eventually washed away by a rising tide of contrary experiments, and the ether by a single big wave.

One might have hoped that science would at least prove to be a continually improving succession of approximations to some perfect model of the universe, but even that monotonicity is denied us. Abandoned concepts like the corpuscular theory of light and the transmutability of elements, long thought to be safely buried, must sometimes be resurrected in the light of inconvenient later observations.

Horgan pours scorn once more on what he calls "ironic science." I am in no way qualified to give an opinion on superstring theory, but I would point out that a theory is indeed scientific if, and only if, it is in principle falsifiable. It will not become a model, however, until it is shown that in addition to being as yet unfalsified, it makes novel predictions in accord with observation. It is such considerations that will decide the fate of superstring theory, not Horgan's inability to think in ten dimensions.

As scientists, our most valuable knowledge is the recognition of what we do not know, and our most valuable attitude the willingness to question that which we think we do. Perhaps science writers should study also these aspects of science, as well as the day-to-day nuts and bolts of theory and experiment.

J.B. Gunn

Mount Kisco, New York

Defending The End of Science

I hate to kick someone when they're down, but I must respond to the letters addressing my December 1996 essay, "Is Science a Victim of its Own Success?" In this issue, J.B. Gunn attempts to rebut me with the notorious postmodernism gambit. There is no such thing as absolute truth; therefore science—and, more importantly, funding for science—can never come to an end. How convenient.

What separates science, real science, from philosophy and other less potent modes of knowledge is that science establishes certain facts beyond a reasonable doubt. Does Mr. Gunn think that we lack sufficient evidence to believe in electrons, or thermonuclear fusion, or the recession of galaxies? What about the proposition that the earth is round and not flat?

Gordon Kane and Christopher Koida suggest (*APS News*, February 1997) that superstring theory may also one day be empirically validated, because it is "testable." Well, sort of. Certain low-energy predictions of superstring

theory, such as the existence of supersymmetric particles, are indeed testable. But other less extravagant theories make the same predictions. (The same is true of inflation, which is based on exotic, Planck-scale effects that can never be verified.)

Most prominent superstring proponents, such as Edward Witten and Steven Weinberg, have conceded that particle accelerators will never gain access to the realm that superstrings supposedly inhabit; mathematical consistency and logic rather than direct empirical evidence will have to suffice for "proof."

I suspect that most physicists would agree with Sheldon Glashow that logic and consistency cannot be a substitute for empirical data; the latter is what separates modern physics from philosophy. But of course Glashow is just an "expert," so true believers like F.R. Tangherlini can ignore him and keep their faith intact.

John Horgan

New York, N .Y.

 $(Correction: F.R.\ Tangherlini's\ name\ was\ misspelled\ in\ the\ February\ issue)$

How to Join PGNet

If you are interested in joining the PGNet, please send an e-mail message to Francis Slakey, APS Associate Director of Public Affairs: slakey@aps.org. Your participation can make a significant difference to our nation's science policy.

March 1997
APS News

OPINION

The Citizen Scientist: A Model for Professional Survival

by P.W. Hammer

This has been quite a century for physicists and the physics profession. The development of modern physics in the early part of this century ushered in major World War II R&D initiatives such as the development of radar and the Manhattan Project. Physicists showed the public that science could make significant contributions to national needs, particularly military security. In the post-War era, especially as the Cold War heated up, the public rewarded physicists and the broader science community with generous funds for research. For half a century the physics profession bloomed, its fruits providing national security and bringing forth a new economic age dominated by silicon-based industries. The technical spillover into other fields such as biotechnology and medicine has had similarly profound economic impacts.

The Cold War ended abruptly, yet significant collateral damage to national economies remains. U.S. victory was bought on credit, leaving the public to reckon with large federal budget deficits and stifling payments on the national debt. These new economic constraints have had two major effects. First, the public, through its elected representatives, seems no longer willing to make the generous, broad-based investments in science and technology that physicists used to take for granted. Second was the Republican revolution in the last Congress, characterized by an anti-government attitude and a lack of experience in governing. These Members were elected on their promise to upend the federal government by slashing spending, eliminating programs (if not whole agencies), and shifting governing responsibility back to the states. The pervasive attitude in Congress has been one of distrust in the federal government and its role in our society.

Additionally, because over one-third of the members of the 105th Congress are in their first or second term (in the last Congress about half were freshmen

or sophomores), they lack basic experience and knowledge about governing and the intricacies of how the federal government functions. Congressional inexperience is particularly threatening in areas of science policy, where the science programs being funded are not readily understood by the typical member of Congress and where federal support is critical for these programs to survive.

This does not mean that members of Congress should all be scientists, yet the role of science in national policy does involve technical subtleties and judgement, as well as understanding of how science functions institutionally. A glaring example of this lack of understanding has been the false dichotomy in the recent debate over science versus technology, or basic versus applied research. Most worrisome, however, in this era of budget cutting is that federal spending priorities must be set to higher tolerances. The lack of sophistication among members of Congress about the workings of the federal science infrastructure creates the specter of priorities being set willy-nilly, without much basis in rationality.

This current state of affairs threatens the physics profession and leads me to conclude that the cloistered physicist is a dinosaur. A new generation of citizen scientists is needed to confront the new realities of the post-Cold War era and to address the challenges we face professionally. In the old days, the cloistered scientist was the model, and politics was considered dirty and manifestly unscientific. Life is different now and it is imperative for physicists, individually and collectively, to assume a new, expanded civic role. Citizen scientists are needed to educate members of Congress about the role of science in society and to help set national priorities for federal spending under flat or declining budgets.

Educating members of Congress is best achieved on a personal basis,

whereby you as a physicist establish a relationship with your local representatives. There are numerous ways to do this. One is to invite your congressperson to your university to see the lab and talk to students and faculty, to learn about what is happening on campus, and to see how federal dollars are being put to work. Be prepared to talk about why your specific research is useful, but more important is to convey the general usefulness to the country of federally funded scientific research.

Another strategy is to arrange a meeting with your congressperson, either in the district office or on your next trip to Washington. Similarly, your goal would be to talk about the importance of federal investment in R&D in educating the next generation of innovators and for the US to remain competitive in the global economy. You may end up meeting with a staff person, but that is fine. Staff are powerful; they control the message and filter information, and if you ally yourself with a key staffer you will have made great progress toward influencing Congress.

The goal in engaging your representatives should be to establish their confidence in your ability to provide reliable advice on science-related issues. Increasingly, public policy has technical content, yet members of Congress and their staffs are generally not technically trained. Thus, they will readily welcome your help if you provide information and advice in a consumable form. In so doing, recognize that policy making is not rational by scientific standards, and that in politics there are legitimate competing interests. Try to present all sides of an issue, give options, and be willing to accept compromise. Be humble; you may be the expert scientist, but that staffer is the expert policy maker who controls the flow of information you are trying to transmit. Most important, do not forget that your member of Congress serves you. Do not be shy about expressing your opinion by giving positive feedback or conveying your disappointment.

As in research or teaching, being an effective citizen scientist requires education and practice. Preparation is key. There are many resources available through professional societies that provide updates on science policy issues and advice on how to convey your message most effectively. The American Institute of Physics publishes a free electronic newsletter called FYI, which provides weekly updates on science policy in Washington, DC. It can be found on AIP's home page [http:// www.aip.org]. Science magazine provides a weekly summary of science policy, both domestic and international, as well as readable summaries of important discoveries across the disciplines. AIP also publishes a useful brochure called "Communicating With Congress." A more comprehensive treatment of the subtleties of Congress and how to communicate in this environment is Working With Congress, by William Wells (AAAS Press, 1996). The APS letter-writing campaign in support of the NSF was organized by its Office of Public Affairs' PGNet program (see APS VIEWS). The APS also coordinates a successful Congressional Visits program.

With practice, your input and advice will make a difference and you will benefit science, our profession, and the society we serve. Furthermore, taking positive action in times of uncertainty can be psychologically beneficial and personally empowering. In many ways, the old models describing science and society are no longer valid. Alternatively, a community of citizen scientists stands an excellent chance of entering the next era strengthened by a new compact with society.

P. W. "Bo" Hammer is Assistant Manager of the AIP Education Division. He was an APS Congressional Science Fellow.

Lessons Learned from an Industrial Outreach Program

by Kenneth C. Hass

ince 1984, scientists at Ford Motor Ocompany's Scientific Research Laboratories in Dearborn, Michigan have provided educational enrichment opportunities for high school students and teachers. The Ford High School Science and Technology Program was recently recognized by the Industrial Research Institute as one of 11 "winning" precollege education programs nationwide. Its two main components are (1) a series of 6 to 10 Saturday morning sessions — on such topics as "Physics in the Auto Industry" — each of which consists of a lecture and related laboratory/plant tours, demonstrations and hands-on activities; and (2) four-week summer internships for selected high school juniors and seniors.

Last year, the program reached more than 600 different students and teachers from over 100 area high schools, provided 30 summer internships, and made use of approximately 150 employee volunteers. As a long-time contributor to this program, I have often reflected on what general lessons the Ford experience might provide to

others involved in K-12 outreach.

1. Have well-defined goals that play to your strengths. There is certainly no shortage of needs in the area of K-12 science education. It is also clear that not every institution can address every need. The most effective use of limited resources is therefore to restrict your focus to something that you can conveniently, and perhaps uniquely, provide to satisfy a need in your community. The lack of such a focus often results in a dilution of effort and loss of effectiveness.

Our program at Ford suffered a bit in this respect after its initial growth. By refocusing on our strengths — diverse, multi-disciplinary volunteer base, state-of-the-art facilities, and demonstrable success in applying science and math to technological and environmental problems — we clarified our program objective to increase awareness of technical careers and the importance of science and math in industry. This, in turn, has improved the quality of our efforts through a more effective alignment and concentration

of resources.

2. Strive for longevity and continuous improvement. All outreach activities ultimately have greater impact if they can be sustained and institutionalized. Of course, sustainability is particularly difficult in volunteer programs, where enthusiasms may wane, key volunteers burn out, etc. From the beginning, efforts were made to keep the Ford program fresh by continuously improving it based on participant feedback.

3. Remember that random acts of kindness are better than none at all. The more one learns about and gets involved in K-12 science education, the more insurmountable many of the problems appear to be. Many experts, especially those who are strong proponents of systemic reform, sometimes refer somewhat disparagingly to smallscale outreach activities like the Ford program as "random acts of kindness." The implication is that while such programs may help a few students and allow volunteers to feel good about themselves, they have a negligible overall impact. There is perhaps some truth

to this. The Ford program tends to attract highly-motivated students who would undoubtedly succeed whether we were there or not. On the other hand, this argument provides too convenient an excuse for busy professionals not to get involved at all. I would prefer to see people "think globally and act locally" about K-12 education, as they do in other human endeavors, including scientific research. When faced with a challenging research problem, most scientists simply do what their talents and resources allow, content with the knowledge that seemingly minor contributions often lead through the collective enterprise of science to significant advances and unforeseen solutions. Shouldn't we view K-12 outreach the same way?

Kenneth C. Hass is a theoretical solid state physicist and a member of the Physics Department at Ford since 1987. This article originally appeared in the Fall 1996 newsletter of the APS Forum on Education.

Members Elected to APS Fellowship in 1996

A. Paul Alivisatos

Univ. of Calif., Berkeley

Chemical Physics

For his pioneering contributions to the preparation and study of nanocrystals, including their incorporation into arrays and optoelectronic devices.

Ralph F. Baierlein

Wesleyan University

Forum on Education

For his varied contributions in physics, particularly in the areas of physics education, and for his many years of service to the profession.

Yehuda Benzion Band

Ben Gurion University

DAMOP (Atomic, Molecular, Optical)

For his many contributions to our understanding of the response of atoms and molecules to light, especially for the fundamental theory of molecular photodissociation and for collisions of ultracold atoms.

Roger Odell Bangerter

Lawrence Berkeley National Lab.

Physics of Beams

For fundamental contributions to all aspects of heavy-ion-driven inertial confinement fusion and leadership of the US effort to develop its potential as an energy source.

James M. Bardeen

University of Washington

Astrophysics

For his seminal contributions to the theory of cosmological density perturbations, relativistic astrophysics, and galactic structure.

Lynn M. Barker

Valyn International

Shock Compression Topical Group

In recognition for his contribution to shock wave physics; particularly for development of new instrumentation techniques for shock wave studies such as VISAR and to the understanding of shock wave propagation in condensed matter.

Philip Edward Batson

IBM T. J. Watson Research Center Materials Physics

For the development of both the experimental and interpretative aspects of high spatial resolution, high energy resolution energy loss spectroscopy as a valuable addition to electron microscopy studies of matter.

Uwe Eugen Becker

Institut der Max-Planck Gesellschaft

DAMOP (Atomic, Molecular, Optical)

For seminal contributions to atomic and molecular photoionization studies, which have helped to develop our understanding of correlation processes particularly near threshold.

Dick Bedeaux

University of Leiden Chemical Physics

For his contribution to the statistical physics and nonequilibrium thermodynamics of surfaces.

Ami Emanuel Berkowitz

University of California, San Diego

DCMP (Condensed Matter)

For elucidation of magnetic phenomena in particles, films, and multilayers and their technological applications.

A. John Berlinsky

McMaster University

Forum on International Physics

For his contributions to the theory of the solid hydrogen, the properties of spin aligned hydrogen, frustrated magnetic systems and the electromagnetic properties of high temperature superconductors.

Edmund Bertschinger

M.I.T.

Astrophysics

For his outstanding contributions to theoretical cosmology, especially in the understanding of structure formation in the universe.

William Samuel Bialek

NEC Research Institute

Biological Physics

For his contributions in understanding the neural code and the optimization of neural processing through application of the methods of theoretical physics to problems in neuroscience.

Jozef Bicerano

Dow Chemical Company

High Polymer Physics

For his contributions to methods for the predictive modeling of polymers, and especially the development of a simple and powerful new method for predicting key physical properties from the polymeric repeat unit.

Geoffrey Bodenhausen

National High Magnetic Field Lab. Chemical Physics

For his numerous contributions toward making magnetic resonance one of the most sophisticated and versatile methods available for gaining insight into structure and dynamics of molecules in condensed and gas phase.

John Edward Bowers

University of California - Santa Barbara Laser Science

For contributions to the understanding of the ultrafast characteristics of optoelectronic devices and materials.

John Stuart Briggs

University of Freiburg

Forum on International Physics

For seminal work in understanding the interaction of matter with ions, electrons and light.

Keith Burnett

Oxford University

DAMOP (Atomic, Molecular, Optical)

For seminal theoretical and experimental work on interrogation and manipulation of atomic collisions by light, and their application to quantum optics, strong-field physics, and Bose-Einstein condensation.

Blas Cabrera

Stanford University

Inst. & Measurement Topical Group

For his precision measurement of the Cooper pair mass in a superconductor and his search for dark matter in the forms of magnetically charged particles or weakly interacting massive particles.

Marvin Eugene Cage

Inst. & MeasurementTopical Group

For excellence in measurement research that led to an accurate experimental SI determination of the quantized Hall resistance and adoption of the quantum Hall effect as the new international standard for resistance

Brian J. Cantwell

Stanford University

Fluid Dynamics

For basic contributions to recent developments in Fluid Dynamics, particularly in unsteady, viscous flow theory, from laminar and transitional jets to organized structures in turbulence.

George James Caporaso

Lawrence Livermore National Lab

Physics of Beams

For original contributions to the design and analysis of high-current electron accelerators, especially for instability studies which have greatly extended the utility of induction linacs.

William C. Carithers, Jr.

Lawrence Berkeley National Lab

For his leadership in the construction of the

CDF experiment, including its vertex detector, and his role as co-spokesperson during the period of discovery of the top quark.

Nicholas J. Carrera

Forum on Physics & Society

For his key scientific role in the development and negotiation of the verification protocols to the Threshold Test Ban Treaty and for his distinguished contributions to the US arms control efforts.

Yves Jean Chabal

AT&T Bell Laboratories

Chemical Physics

For pioneering development of high-resolution infrared spectroscopy for ad- sorbate structure and dynamics on surfaces.

Ivan Emilio Chambouleyron

Instituto de Fisica, UNICAMP

Forum on International Physics

For significant contributions to fundamental and applied studies of amorphous semiconductors, and for his leadership role in the advancement of applied physics in Latin

Che Ting Chan

Hong Kong University of Sci. & Tech. Forum on International Physics

For his innovative contributions to the firstprinciples calculations and simulation of materials properties, including those of surface structures, clusters, and photonic band-gap materials.

Chien-Te Chen

AT&T Bell Laboratories

Forum on International Physics

For innovative experiments in the area of soft x-ray spectroscopy using synchrotron radiation, and especially the advancement of x-ray magnetic circular dichroism.

Cheng-Hsuan Sunshine Chen

AT&T Bell Laboratories

DCMP (Condensed Matter)

For pioneering contributions to condensed matter physics through applications of electron diffraction and microscopy.

Kwok-Tsang Cheng

Lawrence Livermore National Lab. DAMOP (Atomic, Molecular, Optical)

For important contributions to the theory of atomic structure and dynamics, particularly to the understanding of relativistic and quantumelectrodynamic effects in highly charged ions.

Carmen Cisneros

Inst. de Fisica

DAMOP (Atomic, Molecular, Optical)

For her contributions to the field of molecular-ion collisional dissociation, particularly in fundamental hydrogenic systems, and for her efforts in international science and the development of AMO physics in Mexico.

Harvey Cline

General Electric R& D Laboratories

Forum on Industrial and Applied Physics For sustained and significant applications of physics to semiconductor processing and medical imaging, most thermomigration production of vertical pn junctions and 3-D medical display algorithms for X-ray CT and MRI.

E. William Colglazier, Jr.

National Research Council Forum on Physics & Society

For wise guidance of science and technology studies and insightful development of waste management policies, which demonstrate to the public the positive contributions of physics.

Max Cornacchia

SLAC

Physics of Beams

For broad contributions to the development of several accelerators, particularly in the design and development of synchrotron light sources from the first generation through current studies on concepts for future sources.

William O. Criminale

University of Washington

Fluid Dynamics

For seminal contributions to the understanding of the stability of laminar shear flows.

Leonard S. Cutler

Hewlett-Packard Laboratories

Forum on Industrial and Applied Physics For fundamental applications of physics in the development of precision, commercial atomic frequency standards and clocks, and the two-frequency laser interferometer, an essential tool in modern integrated-circuit manufacturing.

Earl Dan Dahlberg

University of Minnesota

DCMP (Condensed Matter)

For contributions to the development of magnetic force microscopy and its application to the dynamics of magnetic systems.

Supriyo Datta

Purdue University DCMP (Condensed Matter)

For contributions to the theory of quantum transport and the interplay between quantum

interference and dissipation in mesoscopic systems.

Paul Davidovits

Boston College

Chemical Physics

For his basic studies of alkali and boron atom gas phase kinetics and for his pioneering contributions to the study of heterogeneous gas-liquid interactions.

Arthur F. Davidsen

Johns Hopkins University

Astrophysics

For fundamental advances in the ultraviolet astronomy of faint extragalactic objects, and especially for the impact of these observations on our understanding of the hot intergalactic medium.

Claude Deutsch

Universite Paris XI

Forum on International Physics

For seminal contributions to plasma spectroscopy, to strongly coupled plasmas and to ion-plasma interactions, and for leadership in Europe in promoting the experimental verification of enhanced ion stopping in dense plasmas.

Louis Franklin DiMauro

Brookhaven National Laboratory DAMOP (Atomic, Molecular, Optical)

For developing and utilizing high repetition rate, short pulse lasers for pioneering studies which have greatly advanced the fundamental understanding of multiphoton processes in atoms and molecules.

Dana D. Dlott

University of Illinois

Chemical Physics

For the development of ultrafast temperature jump techniques used to study molecular dynamics and molecular energy transfer in condensed matter under extreme conditions.

Jack Frank Douglas

High Polymer Physics

NIST

cal physics and chemistry of macromolecular

Pacific Northwest Laboratory

and complex systems. **Robert Dean DuBois**

For substantial contributions to the theoreti-

DAMOP (Atomic, Molecular, Optical) For contributions to heavy-particle collision physics, especially the innovative use of coincidence techniques to elucidate the influence of projectile electrons on impact ionization and separate target and projectile

ionization.

Michael J. Duff

Texas A & M University

Particles & Fields For contributions towards unified theories of the elementary particles including gravity, especially for the discovery of Weyl anomalies, for the four-dimensional interpretation of extra spacetime dimensions and for string/

fivebrane duality.

Paul A. Durbin Stanford University

Fluid Dynamics

For his contributions to fluid mechanics in general and near-wall turbulence modeling in particular through innovative concepts and analyses.

Maria Dworzecka

George Mason University Computational Physics

For co-directing the Consortium of Upper Level Physics Software (CUPS) and co-editing accompanying instructional material for upper level physics classes.

For contributions to the theory of many-body

Igor E. Dzyaloshinskii

Univ. of Calif., Irvine **DCMP (Condensed Matter)**

Helmut Eckelmann

Georg-August-Universitaet Fluid Dynamics

For landmark measurements of the statistical properties of wall bounded turbulent shear flows and the study of their coherent structures and for discoveries of important three-dimensional aspects of circular cylin-

Kevin Einsweiler

Lawrence Berkeley National Lab Particles & Fields

For his contributions to the UA2 and CDF experiments, including high-precision measurement of the W mass, and to the design of detectors (SDC/ATLAS) for high-energy hadron colliders.

Paul Erdös

University of Lusanne

Biological Physics

For the elucidation of the thermal and electronic properties of disordered materials and actinide compounds, and for his work on the biophysics of the neural control of the locomotion of nematodes.

Eric Hans Esarey

Naval Research Laboratory

Plasma Physics

In recognition of his seminal scientific contributions to the physics of intense laser-plasma interaction.

Lee A. Feldkamp

Ford Motor Company

Forum on Industrial and Applied Physics

For contributions in the application of physics to practical automotive control systems and computed tomography and to fundamental understanding of electron spectroscopies.

Da Hsuan Feng

Drexel University **Nuclear Physics**

For outstanding contributions to the understanding of nuclear structure physics, particularly for the application of the coherent states to physics and nuclear physics.

Massimo Vincenzo Fischetti

IBM T.J. Watson Research Cntr

Forum on Industrial and Applied Physics For the development of first-principle modeling that predicts accurately the performance of sub-micron semiconductor devices.

Alex Friedman

Lawrence Livermore National Lab. Computational Physics

For innovations in computer modeling of fusion plasmas, laser-plasma interactions and charged particle beams, and design of high space charge accelerator components.

John Nicolas Galayda

Argonne National Laboratory

Physics of Beams

For his key role in the design, construction, and commissioning of the National Sychrotron Light Source and the Advanced Photon

Jean Weil Gallagher

National Institute of Standards & Tech.

DAMOP (Atomic, Molecular, Optical)

For outstanding leadership and work in compiling and evaluating numeric data in atomic, molecular and optical physics.

Rodolfo Gambini

Instituto de Fisica

Forum on International Physics

For distinguished research in field theory and gravitation, notably on geometrical techniques and the loop representation of gauge theories, and for mentoring theoretical physicists in Latin America.

Peter Ledel Gammel

AT&T Bell Laboratories

DCMP (Condensed Matter)

For contributions to our understanding of persistent currents in superfluid 3He and vorticity in both superfluid 3He and superconductors.

Walter Gekelman

University of California, Los Angeles Plasma Physics

For a unique, original program of complete and definitive diagnostic studies of magnetic field reconnection and current disruptions in plasmas, achieving major advances and linking space and laboratory plasma physics.

Kenneth W. Gentle

University of Texas, Austin

Plasma Physics

For his pioneering experiments on wave-particle and wave-wave interactions which have illuminated the fundamental non-linear phenomena in collisionless plasmas, and for his leadership in the development of experiments which directly measure the fundamental processes of transport in Tokamak plasmas

Laurence Doon Gibbs

Brookhaven National Laboratory

DCMP (Condensed Matter)

For development of x-ray magnetic scattering techniques and contributions to the understanding of the structure and phase behavior of metal surfaces.

Ronald Matthew Gilgenbach

University of Michigan

Plasma Physics

For pioneering experimental research on electron cyclotron resonance heating in a tokamak, preionization by gyrotrons, electron beam transport and instabilities, and diagnostics of laser-ablated plasmas.

Orest Jaroslaw Glembocki

Naval Research Laboratory

DCMP (Condensed Matter)

For contributions in the field of optical properties of solids, especially photoreflectance of semiconductor microstructures.

Robert J. Gordon

University of Illinois

Chemical Physics

For the development for both active and passive control over the rates and branching ratios of molecular reactions.

William George Graham

Queen's University

DAMOP (Atomic, Molecular, Optical)

For significant contributions towards the measurement of atomic collision processes, particularly recombination, in nuclear fusion plasmas, and to the understanding of atomic collision processes in low-temperature plas-

Bob D. Guenther

Army Research Office

Laser Science

For seminal contributions to the fields of quantum electronics and optics, including the development of the use of lasers for enhanced magnetic resonance imaging, and for contributions to education in optics.

Nicholas John Hadley

The University of Maryland

Particles & Fields

For his contributions to the discovery of the top quark and to searches for new particles.

Vasken Hagopian

Florida State University

Particles & Fields

For significant contributions to high energy physics including the discovery of the f(1270) meson and the detailed analysis of many other meson resonances.

Bruce A. Hammel

Lawrence Livermore National Lab.

Plasma Physics

For measurements and understanding of xray driven implosions, x-ray driven hydrodynamic instabilities and x-ray drive asymmetry.

John William Harris

Lawrence Berkeley Laboratory

Nuclear Physics

For outstanding contributions to the field of relativistic nuclear collisions and leadership in the development of the experimental program at the future Relativistic Heavy Ion Collider.

Shlomo Havlin

Bar-Ilan University

Forum on International Physics

For pioneering light scattering imaging of biological tissues, and for seminal contributions to the understanding of transport in disordered systems, rough interfaces, chemical reactions, DNA, heartbeats and Alzheimer

Pawel Hawrylak

NRC of Canada

DCMP (Condensed Matter)

For theoretical work on the role of many body effects in the optical properties of low dimensional electronic systems.

William Walter Heidbrink

Univ. of Calif., Irvine

Plasma Physics

For quantitative studies of the confinement and thermalization of fast ions in tokamak plasmas and for discovery of several fast-ion driven instabilities.

Donald E. Heiman

DCMP (Condensed Matter)

For studies of excitons in the quantum Hall

regime and exchange interactions in magnetic semiconductors, using optical spectroscopy at the extremes of high magnetic fields and low temperatures.

Christopher Lee Henley

Cornell University

DCMP (Condensed Matter)

For theoretical contributions to the understanding the structure and physics of quasicrystals and related crystalline struc-

Arnold J. Hoff

University of Leiden

Biological Physics

For novel and insightful applications of a variety of EPR related techniques to the elucidation of the primary processes in bacterial and green plant photosynthesis.

Charles H. Holbrow

Colgate University

Forum on Education

For his leadership in the development of the new modern physics problems project and its contribution to upper-division physics teaching, and for his leadership in bringing modern experimental techniques and instrumentation, especially involving laser physics, into undergraduate classrooms.

Emil J. Hopfinger

IMG Domaine Universitaire

Fluid Dynamics

For his enlightening experiments in high Reynolds number turbulent flows, and for his unique experiments in stratified and rotating flows which have helped define the presentday study of geophysical fluid dynamics.

Zafar Iqbal

Allied Signal, Inc.

Forum on Industrial and Applied Physics

For outstanding contributions to the design, synthesis, understanding, and application of non-conventional electronic, optical, and energetic materials - from porous silicon to polydiacetylenes, high temperature superconductors, and explosives.

John Irwin

Stanford Linear Accelerator Center Physics of Beams

For significant contributions to the research, development and application of modern techniques of nonlinear dynamics to accelerator systems, in particular to electron-positron colliding beam devices.

Barbara V. Jacak

Los Alamos National Laboratory

Nuclear Physics

For her contributions to the development of identified-hadron spectroscopy as a means of probing the space-time evolution of hot hadronic matter formed in relativistic heavyion collisions.

Hans Burkal Jensen

Fermilab

Particles & Fields

For his leadership in the construction and operation of the CDF experiment, especially its calorimetry.

James Norman Johnson

Los Alamos National Laboratory

Shock Compression Topical Group

In recognition of his pioneering efforts to illuminate the connections between fundamental macro and microscopic properties of real materials and their response to shock waves

Darrell Lynn Judge

University of Southern California DAMOP (Atomic, Molecular, Optical)

For his pioneering work on the fundamental properties of atoms and molecules using selected monochromatic photon excitation and dispersed fluorescence, and their applications

Jeffrey Alan Kash

in space physics.

IBM T.J. Watson Research Center

DCMP (Condensed Matter)

For applications of optical techniques to the understanding of elementary excitations in III-V semiconductors and semiconductor structures.

Thomas Christos Katsouleas

Univ. of Southern California

Physics of Beams

For original contributions to advanced particle acceleration concepts including the invention of the Surfatron accelerator, and his detailed studies of beam loading and emittance growth in plasma accelerators.

Jack Dean Kingsley

General Electric Corporate R&D (retired)

Forum on Industrial and Applied Physics For sustained excellence in the science and technology of lasers, lighting, television, displays and medical diagnostic imaging equipment.

Wayne Harvey Knox

Bell Laboratories Laser Science

For his studies of fundamental physics of ultrafast lasers, development of novel and practical ultrafast lasers, and studies of ultrafast relaxation processes in semiconductors using such lasers.

Bruce E. Koel

Univ. Southern Calif., Los Angeles

Chemical Physics

For important contributions to establishing the fundamentals of chemisorption and chemical reactions on bimetallic and alloy surfaces. His work on ordered intermetallic surfaces has discovered new principles of alloy reac-

John L. Kohl

Harvard-Smithsonian Cntr for Astrophy. DAMOP (Atomic, Molecular, Optical)

For benchmark laboratory measurements of atomic parameters of exceptional quality and for conception, development and scientific application of a revolutionary, ultraviolet coronagraph for solar spectroscopy.

James J. Kolata

University of Notre Dame

Nuclear Physics

For his overall contributions to nuclear physics and specifically for his work with radioactive beams.

For contributions to the understanding of

strongly correlated electrons through the

Vladimir E. Korepin SUNY at Stony Brook DCMP (Condensed Matter)

study of exactly solvable models.

Ahmet Refik Kortan AT&T Bell Laboratories

DCMP (Condensed Matter) For experimental studies of phase transitions on surfaces, in liquid crystals, and in intercalated systems; and work on new materials such as quasicrystals and fullerenes.

Dennis G. Kovar U.S. Department of Energy

Nuclear Physics For his work on direct reactions, which provided precise spectroscopic information of importance for our understanding of singleparticle states near doubly-magic 208Pb, and which established the angular-momentum

dependence in heavy-ion transfer reactions.

Eckhard Krotscheck

Texas A&M University

DCMP (Condensed Matter) For contributions to the microscopic theory of quantum fluids, films, clusters and mixtures, and the extension of variational methods to inhomogeneous quantum sys-

Jaan Laane

surfaces.

Texas A & M University

Chemical Physics For the development and application of spectroscopic and computational methods for the determination of vibrational potential energy

Steve Keith Lamoreaux

University of Washington

Fundamental Const. Tropical Group

For his contributions to the study of fundamental symmetries and precison tests of fundamental physical laws and especially for his contributions to improved experimental limits for the electric dipole moments of the neutron and atoms.

I Yang Lee

Lawrence Berkeley National Lab. **Nuclear Physics**

For his leadership and design and implemen-

tation of GAMMAsphere, his crucial contributions to the experimental program at GAMMAsphere, and his seminal work on the investigation of the quasi continuum.

(Continued on page 10)

Paul David Lett

Laser Science

For his seminal contributions to laser cooling and particularly to the study of collisions of laser cooled atoms and the spectroscopy of weakly bound molecules formed in such collisions.

Barry Franklin Levine

AT&T Bell Laboratories

DCMP (Condensed Matter)

For creation and analysis of novel quantum well infrared photodetectors and theoretical and experimental work in non-linear optics.

Walter H.G. Lewin

Astrophysics

For his outstanding observational work on the time variations and spectra of galactic x-ray sources, and in particular for his studies and interpretations of bursting and pulsating phenomena in binary x-ray sources.

Michael A. Liberman

Uppsala University

Forum on International Physics

For outstanding contributions ranging from laboratory plasma experiments to astrophysical phenomena, particularly in the areas of ionizing shock waves, Z-pinches, flame stability, and laser-produced plasmas.

Christof Litwin

University of Wisconsin

Plasma Physics

For fundamental contributions in fusion, space and ion diode physics, ranging from ponderomotive force effects on macrostability in tokamaks and mirrors to energy transport in the solar corona.

William Gregory Lynch

Michigan State University

Nuclear Physics

For his pioneering investigations of fragmentation and multifragmentation and his contributions to the understanding of nonequilibrium processes in nuclear collisions.

Ernest Ma

University of California, Riverside

Particles & Fields

For fundamental contributions to gauge theory models and the phenomenology of electroweak interactions.

Usha Mallik

The University of Iowa

Particles & Fields For making significant contributions to the field of experimental high energy physics, particularly related to measurements of the J/Psi particle produced from electron-positron

Daniel Robert Marlow

and electron-proton collisions.

Princeton University

Particles & Fields

For important contributions to the physics of rare decays of the K meson, and to the integration of electronics into the design of large detectors.

Yitzhak Maron

Weizmann Institute of Science

Plasma Physics

For pioneering the employment of novel spectroscopic methods to diagnose the field and plasma properties in pulsed-power systems, including the development of the atomic-physs modeling required for the data analy

Gérard Claude Martinez

DCMP (Condensed Matter)

For contributions to our understanding of defects, superconductivity, and other many-body effects in semiconductors under conditions of high pressure and magnetic field.

John C. Mather

Goddard Space Flight Center

Astrophysics

For his advancement of the science of cosmology through precise measurement of the spectrum of the cosmic microwave background radiation and discovery of the first evidence of primordial density inhomogeneities.

Robert D. Maurer

Corning Glass Works, Retired

Forum on Industrial and Applied Physics For fundamental studies of the optical properties of glass that led to the fabrication of the first low-loss optical fibers, now used worldwide for long distance telecommunica-

Fenton Read McFeely

IBM Research Div.

Materials Physics

For his creative applications of photoemission techniques to the understanding of materials processes, interfaces and electronic structure, including etching and deposition reactions underlying microelectronics tech-

Michael Raymond Melloch

Purdue University

Materials Physics

For innovative epitaxial growth of semiconductor epilayers, quantum wells, and superlattices which have led to new materials, novel devices, and important advances in the physics of nanostructures.

Adrian Lewis Melott

University of Kansas

Computational Physics

For groundbreaking studies of the origin and evolution of cosmic structure

Karl L. Merkle

Argonne National Laboratory

Materials Physics

For his contributions to the basic understanding of radiation-induced defects in solids and internal solid interfaces.

Roberto Daniel Merlin

University of Michigan

DCMP (Condensed Matter)

For contributions to the understanding of vibrational and electronic properties of semiconducting and magnetic structures, and of artificial quasiperiodic structures.

Arthur F. Messiter

University of Michigan

Fluid Dynamics

For deep physical insight and careful analysis of complex flow problems, especially the formulation of interactive theories of boundary-layer flows at high Reynolds number.

Peter I. Meszaros

Pennsylvania State University

Astrophysics

For valuable and influential contributions to the theory of radiation processes near magnetized neutron stars, gamma-ray burst sources, black holes and galaxy formation.

Hans-Otto Meyer

Indiana University Nuclear Physics

For leadership in advancing the technology to use cooled stored beams and internal targets, which has led to new insights on the role of heavy meson exchange in the nucleonnucleon force from precise measurements of threshold pion production.

Pierre Meystre

University of Arizona

DAMOP (Atomic, Molecular, Optical)

For seminal contributions to the theory of single-atom interactions with quantized radiation, and particularly for the first theory of micromaser action.

James Anthony Misewich

IBM T. J. Watson Research Center Laser Science

For the development and application of innovative laser techniques to elucidate fundamental problems in molecular dynamics and moleculesurface interactions.

Frank Edward Moss

University of Missouri, St. Louis Biological Physics

For elucidating the structure of turbulent superfluid helium and for the discovery of stochastic resonance in sensory biology.

Michael J. Murtagh

Brookhaven National Laboratory

Particles & Fields For significant contributions to the study of

neutrino interactions including charm and strange production, elastic scattering of electrons and protons, and neutrino oscillations.

Harry E. Mynick

Princeton Plasma Physics Lab.

Plasma Physics

For major contributions to the understanding of transport in toroidal systems, including nonaxisymmetric and turbulent transport of thermal and energetic particles in tokamaks and stellarators.

Richard Sandor Newrock

University of Cincinnati

DCMP (Condensed Matter)

For application of large Josephson junction arrays to the study of two-dimensional phase transitions.

Malcom F. Nicol

UCLA

Chemical Physics

For imaginative and insightful applications of Raman spectroscopy to the physics and chemistry of simple systems at high pressures.

John E. Northrup

Xerox PARC

DCMP (Condensed Matter)

For insights into the structure and electronic properties of semiconductor surfaces, adsorbates, interfaces and defects through the application of first principles calculations.

Martin G. Olsson

University of Wisconsin

Particles & Fields

For highly significant contributions in hadron phenomenology, especially tests of current algebra and QCD, the properties of quarkonium bound states, and the mechanism of quark confinement.

Joseph Francis Owens, III

Florida State University

Particles & Fields

For important contributions to the phenomenology of large momentum transfer processes and the determination of parton distributions.

Stephen John Parke

Fermilab

Particles & Fields

For novel insights into resonant neutrino oscillation and for the introduction of supersymmetric methods in the evaluation of multiparton scattering amplitudes.

Thomas Perine Pearsall

University of Washington Forum on Industrial and Applied

Physics

For seminal contributions to the InGaAsP alloy system, a material used in the emitter and detector components of optical fibre communication links.

Y-K Martin Peng

Oak Ridge National Lab.

Plasma Physics

For the development of the low aspect ratio "spherical" tokamak concept.

E. Sterl Phinney

Caltech

Astrophysics For his contributions to our understanding of black-hole electrodynamics, AGNs and quasars, binary and millisecond pulsars, and globular cluster dynamics; and his method for

measuring the intergalactic magnetic field.

Steven Charles Pieper Argonne National Laboratory

Nuclear Physics

For outstanding work in developing computational techniques to address important problems in nuclear physics, in particular to address problems in the manybody theory of nuclei and direct nuclear reactions.

Frederick E. Pinkerton

General Motors R&D Center

Forum on Industrial and Applied Physics For his research on the physics of rare earthtransition metal materials and his contributions to the establishment of a commercial permanent

Anil Kumar Pradhan

Ohio State University

magnet technology.

DAMOP (Atomic, Molecular, Optical)

For outstanding contributions to the theory of electron-impact excitation of atoms and ions, providing accurate and important atomic data, and for the application of that data to the study of fusion, solar and astrophysical plasmas.

Calvin F. Quate

Stanford University

Forum on Industrial and Applied Physics For his co-creation of atomic force microscopy, his inventive developments of

applications of scanning probe microscopies,

and his critical role in bringing the technologies to industrial and academic use.

Anatoly V. Radyushkin

Old Dominion Univ./Jefferson Acc. Lab

Particles & Fields

For pioneering studies of exclusive processed in quantum chromodynamics and applications of QCD sum rules to hadronic form factors.

Miriam H. Rafailovich

SUNY at Stony Brook

High Polymer Physics

For insightful studies on the interfacial behavior of polymers

Nicholas Read

Yale University

DCMP (Condensed Matter)

For contributions to the quantum many-body theory of strongly interacting electron systems, particularly to the theory of the Quantum Hall Effect.

Marion B. Reine

Lockheed Martin IR Imag

Forum on Industrial and Applied Physics For technical leadership in the design and development of innovative photoconductive and photovoltaic HgCdTe devices for advanced infrared detectors.

Hanna Reisler

Univ. of South. Calif., Los Angeles

Chemical Physics For pioneering research on photon-induced processes in gaseous molecules, including photodissociation, unimolecular decomposition, and collision-induced dissociation.

Gregory Rewoldt

Princeton Plasma Physics Lab

Computational Physics For his authorship of comprehensive codes for linear toroidal eigenmodes with realistic geometry and kinetic effects and his extensive

contributions to the understanding of

Jeffrey D. Richman Univ. of Calif., Santa Barbara

microinstabilities in tokamaks.

Particles & Fields For contributions to our knowledge of B-meson decays, especially the semileptonic decays used to measure the parameters of the quarkmixing matrix.

Charles Steven Rosenblatt Case Western Reserve Univ.

Materials Physics

For his use of intense magnetic and electric fields in the study of liquid crystals and other soft materials.

Thomas Roser Brookhaven National Laboratory

Physics of Beams For contributions to the accelerator physics of polarized proton beams, in particular the successful demonstration of the principle of the Partial Siberian Snake.

Lewis Josiah Rothberg AT&T Bell Laboratories

For pioneering work furthering applications and manufacturing approaches of organic electronics through fundamental understand-

Forum on Industrial and Applied Physics

Miquel Batalle Salmeron Lawrence Berkeley Laboratory **DCMP (Condensed Matter)**

For contributions to the development of scan-

ning probe methods and theoretical models

for surface science, and for novel dynamics

ing of organic photophysics and transport.

of surface processes.

Jonathan Robert Sapirstein Notre Dame University

Fundamental Const. Tropical Group

For contributions of fundamental importance to QED theory in atoms, and atomic physics tests of parity nonconservation.

Robert Max Schmidt

Boeing Defense & Space Group Forum on Industrial and Applied Physics

For seminal research that demonstrated the dominant influence of gravity on cratering phenomena and applications to impact cratering of planets and to missile basing: and for spacecraft protection simulation techMarch 1997 AHS News

Horst Werner Schmidt-Boecking

University of Frankfort

Forum on International Physics

For pioneering work in the development of new devices to study multiparameter cross sections in atomic interactions.

Kenneth Steven Schweizer

University of Illinois

High Polymer Physics

For the pioneering development of microscopic liquid-state theories of the structure, thermodynamics, phase transitions, and dynamics of polymer fluids.

Robert F. Sekerka

Carnegie Mellon University Materials Physics

For outstanding and significant contributions to the theory of cyrstal growth, especially for explaining the role of morphological insta-

Gerald H. Share

Naval Research Laboratory

For his important gamma-ray line observations of the products of nucleosynthesis, which have advanced our understanding of the production rates and distribution of galactic nucleosynthesis.

Edward V. Shuryak

State University of NY, Stonybrook

Nuclear Physics

For his seminal contributions to the study of the quark-gluon plasma.

Wesley Harold Smith

University of Wisconsin

Particles & Fields

For systematic investigation of the structure of hadrons using muon, neutrino and electron deep inelastic scattering and for electronic innovations to detector design.

Johanna Barbara Stachel

SUNY - Stony Brook

Nuclear Physics

For providing compelling evidence that a hot and dense, nearly equilibrated, fireball is formed in the AGS relativistic heavy ion re-

Paul H. Steen

Cornell University

Fluid Dynamics

For major contributions to interfacial and nonlinear dynamics.

James H. Stith

The Ohio State University

Forum on Education

For his contributions to physics education on both a national and international scale, especially in the areas of educational standards and assessment, and with regard to involvement of minorities in physics education.

Arthur Marshall Stoneham

London Imperial College Materials Physics

For seminal and extensive contributions to the theory of defects and defect processes in solids through research articles and books. and for the promotion of physics research through effective management.

Laurance J. Suter

Lawrence Livermore National Lab.

Plasma Physics

For pioneering work and leadership in the design, modeling, and analysis of experiments using laser heated hohlraums that quantify and control x-ray drive, symmetry, and pulse shaped implo-

Charles Tandy

Kent State University

Few Body Systems Topical Group

For significant contributions to the study of composite particles in nuclear and particle physics.

John Joseph Taylor

Electric Power Research Inst. retired)

Forum on Physics & Society

For leadership in developing safer reactors, especially the concept of small, passive designs: and for contributions to disposition of plutonium from dismantled nuclear weapons.

Ctirad Uher

University of Michigan

DCMP (Condensed Matter)

For studies of the low temperature proper-

ties of semimetals, metallic multilayers, magnetic superlattices, and high temperature superconductors.

John Unguris

DCMP (Condensed Matter)

For the development of experimental methods using polarized electrons applied to studies of surface multilayer magnetism.

Sukekatsu Ushioda

Tohoku University

Forum on International Physics

For his contributions to the Raman spectroscopy of surface excitations, and the elucidation of light emission mechanisms from tunneling electrons.

Marthe Bacal Verney

Laboratoire de Physique des Millieu

Plasma Physics

For her study of negative ion production in hydrogen plasma and the associated development of laser photodetachment diagnostics, and for the development of the volume H- source for neutral beam injection and other applications.

Oscar Edgardo Vilches

University of Washington

DCMP (Condensed Matter)

For studies of adsorbed monolayer and multilayer films of isotopes of helium and hydrogen.

Petr Vogel

Caltech

Nuclear Physics

For his innovative theoretical work in doublebeta decay and in neutrino interactions. including his definitive calculations of reactor neutrino spectra.

Robert M. Wald

Enrico Fermi Institute

Gravitational Topical Group

For his contributions to the understanding of classical and quantum gravity; especially for his seminal role in the development of a rigorous basis for quantum field theory in curved spacetime.

Gwo-Ching Wang

Rensselaer Polytechnic Institute

Materials Physics

For her contributions to the fundamental understanding of ordering and scaling in surfaces and overlayers, and for her pioneering work in ultrathin-film magnetic scaling.

Bernard Allen Weinstein

SUNY at Buffalo

DCMP (Condensed Matter)

For applications of the diamond anvil cell to semiconductor physics, and experimental studies of the effects of pressure on vibrational, optical, and phase-transition phenomena in semiconductors.

Rainer Weiss

Gravitational Topical Group

For his pioneering work in the development of laser-interferometric detectors for gravitational radiation, and his contributions to the study of the spectrum and anisotropy of the cosmic microwave background.

Michael Widom

Carnegie Mellon University DCMP (Condensed Matter)

For theoretical contributions to our understanding of quasicrystals and the role played by disorder in their stabilization.

Hartmut Zabel

Ruhr Universit.. Bochum

Materials Physics

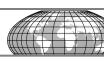
For his seminal contributions to our understanding of the structure and dynamics of hydrogen-metal systems, graphite intercalation compounds and magnetic metallic multilayers.

George B. Zimmerman

Lawrence Livermore Nat. Lab. Computational Physics

For his creation, and subsequent development, of the LASNEX simulation code, which has been used extensively to guide the development of the National ICF program from its inception, to this day,

INTERNATIONAL NEWS



Catching Up With EPS Activities in 1996

While the APS went about its business with meetings, educational outreach, journal publishing, and public policy concerns throughout 1996, sister organization, the European Physical Society (EPS) was busily engaged with organizing international conferences on solar physics and atomic spectroscopy, and expressing concern over proposed budgetary changes at CERN and future support for basic research within the European Union.

Solar Physics. Approximately 170 scientists from 24 countries gathered in Thessaloniki, Greece, in May for the 8th trienniel sectional conference, organized by the Solar Physics Section of the joint EPS-European Astronomical Society Astrophysics Division. The invited review talks covered such traditional topics as the solar interior and oscillations, the physics of flux tubes and waves, restructuring of magnetic fields, and particle acceleration physics, as well as current issues in the heliosphere and cosmic rays and new instrumentation. A special afternoon session was devoted to SOHO, a satellite with important European involvement that was in orbit at the time of the conference.

EPS Opinion on Basic Research. In August, the EPS Executive Committee circulated a letter commenting on the policy underlying the European Union's framework programs, which are largely application-oriented. The letter emphasized the widely recognized role of basc research for the long-term development of technology, industry and economy. "We do not expect that physics should enjoy privileged treatment, but it should obtain an adequate support if account is taken of its benefits to society in the general understanding of Nature, in applications in technology and medicine, and as the methodological basis for other sciences, such as chemistry, biosciences and geosciences," the committee wrote. "It has also pioneered the introduction of communication networks, new methods of teaching and the use of large facilities. Research networks in physics have been spearheading international collaboration in an oustanding way."

The EPS Executive Committee offered several specific suggestions for strengthening the scientific infrastructure in Europe. These include (1) continued strong support for training in high-level research; (2) increased support of scientific conferences, which contribute to better cooperation between countries, as well as improved relations between academia and industry; (3) increased support of large research facilities, which provide an excellent infrastructure for interdisciplinary research and international cooperation; and (4) awarding grants to small companies, often developed in the incubator units of universities, which act as seeds of future growth for European industry, as well as ideal interfaces between the academic and commercial worlds.

EGAS Conference Highlights. Atomic spectroscopy continues to flourish and develop rapidly, judging from the numerous presentations featured at the 28th Conference of the European Group for Atomic Spectroscopy (EGAS), held in July at the Technical University of Graz' Institute for Experimental Physics. The entire manifold of atomic spectroscopy was covered in the invited and contributed papers, including atomic theory, hyperfine structures, spectroscopic instruments, trapped neutrals and ions, atomic collisions, interactions with photons, radiative lifetimes, XUV and X-ray emission, plasma spectroscopy, and highly resolved molecular spectra.

The conference opened with a talk by M.O. Scully (Texas Laser Lab) on accomplishments and perspectives of lasers without inversion, discussing the first experimental realization of such a laser and its theoretical modelling, based on quantum interferences, as well as its potential for future applications. The session also featured a talk on the interaction of multicharged ions with solid surfaces, particularly the production of hollow atoms and related phenomena. Electrons from the surface are captured by these ions into highly excited electronic states, which then emit x rays. Other processes that accompany the interaction include emission of Auger electrons and potential sputtering.

Another session focused on spectroscopy and quantum optics with trapped ions, giving special attention to several mechanisms of laser cooling of trapped ions. These trapped, ultra-cold particles can in turn be used to perform quantum mechanical experiments, such as the investigation of quantum jumps. The session also featured a discussion of the extension of spectroscopic applications of ion traps to hyperfine states of excited states using coherent Raman excitation (the so-called "dark resonances"). Also presented were recent results on lightinduced mixing of autoionizing states, and on modifying continua structures by intense light pulses in one-valence electron systems and doubly excited states.

A special symposium on lasers in medicine opened with an overview of new developments in the field, concentrating on non-thermal applications of laser light for therapeutic and diagnostic purposes. It especially emphasized spectroscopic methods and applications. For example, using laser-induced autofluorescence of human tissue, regions of cancers at the surface can be distinguished from healthy tissue using the profile of the fluorescence spectrum. Laser-induced fluroescence analysis can easily be performed inside the body by combining it with endoscopic techniques.

Another lecture in the lasers in medicine symposium by G. Nilsson of Linkoping University introduced a new method of blood-flow diagnostics, based on investigating the Doppler broadening of laser light reflected from skin. In this case, a fast spectroscopic technique disperses the scattered light. The resulting information can be used, for example, to determine blood flow after severe burns to identify areas where a skin graft is necessary.

EPS High Energy Statement. In November, the Board of the EPS High Energy and Particle Physics Division issued a statement in response to indications that Germany and other CERN member states wished to reduce their CERN contributions for the coming year. The statement expressed appreciation of the unanimous support of the CERN member states for the Large Hadron Collider program, while expressing concern over the dramatic proposed budget changes. The CERN Council was urged to adopt long-term budgetary measures to allow CERN to complete the LHC on time, in a safe and responsible manner, without reducing drastically the generous support of the overall scientific program.

APS News March 1997

LIMERICK CONTEST

Finalists & Winners

A total of 190 limericks were received since the contest was announced in the December issue of APS News. Although most entrants sent in one or two limericks, one sent in 22 and a 'team' from Harvard sent a record 37. Schrödinger's cat, which was the favorite subject, has reason to feel paranoid; reviewers for Phys Rev came in a close second. The longest poem, a finalist, had 13 limerick-form stanzas.

A note on the selection process: The editor collected opinions from members of the March and April meeting program committees, APS visitors and staff members. They had diverse tastes, to say the least, and many limericks not included among the finalists below had ardent admirers. The final selection was mine (as is the blame for most of the titles). Some are acknowledged 'groaners' — but punsters have to live too; some don't scan so well, but had other redeeming qualities. As promised, each author will receive a dunking bird; the winners [shaded] will receive a flock (3). Most submissions (except for a few) may be viewed on the APS website at: http://www.aps.org/apsnews/limericks.html. Enjoy.

Ruled the physical world's locomotion.

Though its own view was mostly con-

The Church was not greatly amused

[See APS home page [aps.org] APS News button

Though once deemed heretical,

There was a young fellow named Cole

Who ventured too near a black hole.

Was quite wondrous to see

A friend who's in liquor production

Through old magnet coils;

Owns a still of astounding construction.

She says that it's "proof by induction."

There once was a girl named Irene,

And since then has never benzene!

The thermo exam was quite near-o,

And he thought everything was quite

who lived on distilled kerosene.

But she started absorbin'

A new hydrocarbon,

But now all that's left is his soul.

In spite of the Vatican's dissuasion

He proved more prophetical

Than those of a clerical persuasion.

Galileo still rose to the occasion.

With this flaunting of Deo

And ordered it quickly defused.

That natural laws,

By old Galileo

for stanzas 3-12]

Cole's Lost Soul

His dv by dt

by David M. Smith

Goodnight Irene

Cool Cruel Test

by Kay R. Devicci®

by Ken Kiger

On Liquor Production

The alcohol boils

by A. P. French

fused,

Not a mystical Cause,

Barrie Ripin, APS News Editor



Classical

Doin' its Own Thing

by Edward H. Green

The first law of Newton I sing My voice has a relevant ring: "An object left free Of hassles will be Engrossed in just doing its thing."

May the Force Be With You

by David Morin, Eric Zaslow, E'beth Haley, John Golden, and Nathan

On a merry-go-round in the night, Coriolis was shaken with fright. Despite how he walked, 'Twas like he was stalked, By some fiend always pushing him right.

Condensed Story of Ms Farad

by A. P. French

Miss Farad was pretty and sensual And charged to a reckless potential; But a rascal named Ohm Conducted her home – Her decline was, alas, exponential.

Wish I Were a Fly on the Wall

by Robert D. Cowan

There once was a fly on the wall I wonder why didn't it fall Because its feet stuck Or was it just luck Or does gravity miss things so small?

A Brief History of Gravity

by Bruce Elliot

It filled Gallileo with mirth To watch his two rocks fall to Earth. He gladly proclaimed,

"Their rates are the same, And quite independent of girth!"

Then Newton announced in due course His own law of gravity's force:

'It goes, I declare, As the inverted square Of the distance from object to source."

But remarkably, Einstein's equation Succeeds to describe gravitation As spacetime that's curved, And it's this that will serve As the planets' unique motivation.

Yet the end of the story's not written; By a new way of thinking we're smitten. We twist and we turn,

Attempting to learn

The Superstring Theory of Witten!

[13 stanzas]

Limerico di Galileo® by Martin J. Murphy While watching a cannonball's motion,

Galileo conceived of the notion

I'm sure I won't flunk," But they gave him an Absolute Zero.

clear-o;

The Bose-Einstein Story (Condensed)

'Modern'

by Jonathan P. Dowling

"Why study this junk

A couple of young guys in Boulder, Cooled their gas cloud down colder and colder.

Then with much exhortation, They hit Bose Condensation, And beat out their rivals (much older).

Relatively Good Advice

by Edward H. Green

Dear S': I note with distress

The length of your yardstick is less And please wind your clock To make it tick-tock More briskly. Your faithful friend, S.

Proton Decay

by David Halliday

A proton once said, "I'll fulfill My long-term belief in free will. Though theorists (may) say That I ought to decay I'm damned if I think that I will."

And Then There Were Photons

by William Rolnick

An electron, while trav'ling in space, Met a positron there "face-to-face." The electron then sighed,

At the sight of his bride And they "died" in a loving embrace.

Einstein, Podolsky and Rosen

by David Halliday

Two photons, close-coupled at start, Flew several parsecs apart. Said one, in distress,

"What you're forced to express Removes any choice on my part."

Fussy Electrons

by David Morin, Eric Zaslow, E'beth Haley, John Golden, and Nathan

An electron is sure hard to please. When spread out, it sometimes will

Though agoraphobic, It's still claustrophobic, And runs off when put in a squeeze.

The Cat in the Tree

by Peter Price

Another great Dane has made free With a question of Be or Not be. Now might Schrödinger's puss

In descending by Schuss, Leave one track on each side of a tree?

Protecting Schrödinger's Cat

by Devlin Gualtieri

PETA was out in full force, But not for a dog or a horse. At Schrödinger's place

They pleaded their case For the sake of his cat, of course

General

Desperately Surfing for Science

by David Morin, Eric Zaslow, E'beth Haley, John Golden, and Nathan Salwen

Who needs the balance and check?

Screw peer review —what the heck! Send all of your crap To the internet —zap! Who cares if it's nothing but dreck!

On What's New and True

author unknown

A certain Phys Rev referee Considers all papers with glee: "What's new is not true, And what's true is not new, Unless it was written by me."

[Editors Note: Several varients on this theme were submitted.]

The Past Isn't What it Used To Be

by Bruce Elliott

A professor of Physics named May Complains of the classroom today,

"The problem, you know,

Is that they're too slow. We were far better students than they."

His friend, a professor named Beecham, Said "It's true, you don't seem to reach

But they're not to blame, For they haven't the same Class of teachers that we had, to teach 'em!"

See You at Work

by Steve Langer

The chairman of AT&T Said, "Your graduate physics degree Is not worth a — penny, Of your kind we've too many. Perhaps you can program in C?"

Great Lies

grow!'

by Beall Flower

There are several Great Lies that we know.

One is "I'll love you tomorrow."

Here's another false word That we've recently heard, "With less money your research will

Quark-Dork Symmetry Group

by Kay R. Devicci®

When we physicists talk about quarks, And "sleptons," "sneutronos," and

We shouldn't be stunned When the Congress won't fund Our big projects - they think that we're

A Physicist from Nantucket

by Michael Van Leeuwen

There once was a man from Nantucket Who...

...oops...just got a life.

An online limerick submission form is set up through the APS home Page [aps.org] under the APS News and Limerick buttons. Additional finalists and winners will appear periodically in APS News