

periments on the violation of Bell inequalities in atomic radiative cascade, and the manipulation of atoms by laser light."

The Joseph Fraunhofer Award/Robert M. Burley Prize goes to **David F. Welch**, chief technical officer and vice president of corporate development at SDL in San Jose, California. OSA has chosen Welch for his "significant contributions to the invention and development of advanced laser diode products [including] over 50 high power semiconductor laser products, developed either directly from his research or under his supervision."

Dennis G. Deppe, a professor of electrical engineering at the University of Texas at Austin, is getting the Nick Holonyak Jr Award for the "development of the oxide-confined vertical-cavity surface-emitting laser."

The Ellis R. Lippincott Award is being given to **Mitsuo Tasumi** for his "outstanding contributions to vibrational spectroscopy in studying the structures and dynamics of synthetic polymers, proteins, photosynthetic systems, and a number of related small molecules." Tasumi is a professor emeritus at the University of Tokyo and a professor and dean of the faculty of science at Saitama University in Tokyo.

David Nesbitt is to receive the William F. Meggers Award for his "experimental and theoretical contributions to the understanding of the molecular structure and dynamics of weakly bound molecules through the use of high-resolution infrared laser spectroscopy." Nesbitt is a JILA fellow as well as a professor adjunct in the chemistry and biochemistry department at the University of Colorado at Boulder.

The John Tyndall Award, cosponsored with the IEEE/Laser and Electro-Optics Society, is going to **John B. MacChesney**, a researcher in the photonics materials research department at Lucent Technologies, Bell Laboratories. MacChesney is being honored for the "invention and development of the MCVD (modified chemical vapor deposition) process, which is one of the major techniques for the manufacture of low loss optical fibers and for high purity overladding tubes using sol-gel techniques."

Bahaa E. A. Saleh, a professor in and chairman of the electrical and computer engineering department at Boston University, is this year's recipient of the Esther Hoffman Beller Award. Saleh is being cited for his "outstanding contribution to optical science and engineering education through innovative curricular development, imaginative teaching, textbook writing,

editorial activities, and administrative leadership."

The Edwin H. Land Medal is going to **Robert H. Webb** for his "numerous inventions, which have accelerated the development of new diagnostic tools to help prevent the loss of sight." Webb is a senior scientist at the Schepens Eye Research Institute and the Wellman Laboratories of Photomedicine in Boston, and an associate professor of dermatology and ophthalmology at Harvard Medical School.

The winner of the Adolph Lomb Medal is **Jun Ye**, an R. A. Millikan Prize postdoctorate fellow at Caltech. Ye is being recognized for his "pioneering achievements and technical leadership in the areas of ultrahigh sensitivity laser spectroscopy, frequency metrology and quantum optics."

The C. E. K. Mees Medal is going to **Toshimitsu Asakura** for his "outstanding seminal contributions to the broad field of optics, interdisciplinary distinguished contributions to numerous applications of lasers, and leadership and various significant contributions to international cooperation in the optics community." Asakura is a professor emeritus at Hokkaido University in Sapporo, Japan, and a professor in the faculty of engineering and dean in the graduate school of engineering at Hokkai-Gakuen University, also in Sapporo.

Milan R. Kokta, the manager of R&D at Bicon Crystal Products in Washougal, Washington, is to receive the David Richardson Medal for "the development of low loss, high optical quality laser crystals, particularly Ti-doped sapphire."

The R. W. Wood Prize is to be shared by **Carl Wieman** and **Eric Cornell** for their "creative inventiveness and persistent ingenuity applied to the development of laser techniques for cooling atoms, which led to the first demonstration of Bose-Einstein condensation in an atomic vapor." Wieman is a Distinguished Professor of Physics at the University of Colorado at Boulder and a JILA fellow. Cornell is a physicist at the National Institute of Standards and Technology facility in Boulder, Colorado, a JILA fellow, and a professor adjunct in the physics department at the University of Colorado at Boulder.

Helmut Lotsch, a retired physics editor at Springer-Verlag in Heidelberg, Germany, is to receive the OSA Leadership/New Focus Prize. Lotsch was chosen by OSA in recognition of his "outstanding accomplishments as editor of optics related journals and books of the highest scientific standard, and his ability in attracting internationally acclaimed scientists to contribute to well integrated and rapid pub-

lications that disseminate new aspects of optical science and technology to the optical community worldwide."

National Academy of Sciences Adds to Ranks

At the 136th annual meeting of the National Academy of Sciences in April, 60 new members were elected, bringing the total number of active members to 1825. Also elected were 15 foreign associates from ten countries, raising the number of foreign associates to 313. Among the newly elected members are

Robert H. Austin, a professor of physics at Princeton University

William A. Bardeen, a scientist at Fermilab

William F. DeGrado, a professor of biochemistry and biophysics at the University of Pennsylvania

Paul A. Fleury, dean of the University of New Mexico's school of engineering

Thomas J. Hanratty, the James W. Westwater Professor of Chemical Engineering emeritus at the University of Illinois, Urbana-Champaign

Wick C. Haxton, director of the National Institute for Nuclear Theory and a professor of physics at the University of Washington

Arthur Karlin, the Higgins Professor of Biochemistry and Molecular Biophysics at Columbia University

Margaret G. Kivelson, a professor of space physics at UCLA

Cherry Ann Murray, director of the Physical Research Laboratory at Bell Laboratories, Lucent Technologies in Murray Hill, New Jersey

Robert O. Pohl, a professor of physics at Cornell University

David E. Pritchard, a professor of physics at MIT

Ronald F. Probst, the Ford Professor of Engineering at MIT

Richard J. Saykally, a professor of chemistry at the University of California, Berkeley

Kerry E. Sieh, a professor of geological sciences at Caltech

Norman H. Sleep, a professor of geophysics at Stanford University

William J. Welch, a professor of electrical engineering and holder of the Watson and Marilyn Alberts Chair in the Search for Extraterrestrial Intelligence in the department of astronomy at the University of California, Berkeley.

The newly elected foreign associates include

Albrecht W. Hofmann, director of the geochemistry division of the Max Planck Institute for Chemistry in Mainz, Germany

Ramon Latorre de la Cruz, executive director of the Centro de Estudios Científicos de Santiago in Santiago, Chile

Raphael D. Levine, a professor of theoretical chemistry at Hebrew University of Jerusalem in Israel

Enid MacRobbie, a professor of plant biophysics at the University of Cambridge

Yakov G. Sinai, a professor of mathematics at Princeton University

Horst L. Stormer, a professor of physics and applied physics at Columbia University

Yasuyuki Yamada, president of the Nara Institute of Science and Technology in Nara, Japan

IN BRIEF

Anton Zeilinger has left the University of Innsbruck for the University of Vienna, where he has accepted the Chair of Experimental Physics.

In June, **Goetz Oertel** retired as president of the Association of Universities for Research in Astronomy. **William Smith** has been named interim president until Oertel's successor is appointed.

The National Science Board has presented its organizational Public Service Award for 1999 to the producers of the Public Broadcasting System's television series *Bill Nye the Science Guy*. The production team includes executive producers **Elizabeth Brock**, **Erren Gottlieb**, and **James McKenna**, as well as host and head writer **Bill Nye**. The individual Public Service Award for 1999 was awarded to **Stephen Jay Gould**. Gould is the Alexander Agassiz Professor of Zoology and a professor of geology at Harvard University, and curator of invertebrate paleontology in the university's Museum of Comparative Zoology.

Ramon E. Lopez, director of education and outreach for the American Physical Society, has received the first Scientist in Education Achievement Award from the Space Science Institute for what the institute calls "his extraordinary efforts during the past 7 years to engage scientists in the science reform process."

Among the winners of the 1999 Natural Sciences and Engineering Research Council of Canada's Steacie fellowships are **Mark Freeman**, an associate professor of physics at the University of Alberta; **Douglass Bonn**, an associate professor of physics at the University of British Columbia; and **Barbara Sherwood Lollar**, an associate professor of geology and di-

rector of the Stable Isotope Laboratory at the University of Toronto.

The UK's Institution of Electrical Engineers presented its 1998 Achievement Medal for Science, Education and Technology to **John Allen**, a professor emeritus of engineering science at the University of Oxford.

The European Space Agency has conferred its first Director of Science Medals on four European astronomers for their roles in the Hipparcos mission: **Jean Kovalevsky** of the Cote d'Azur Observatory in Grasse, France; **Erik Høg** of the Copenhagen University Ob-

servatory in Denmark; **Catherine Turon** of the Paris Observatory in Meudon, France; and **Lennart Lindegren** of the Lund Observatory in Sweden.

At its annual meeting in October, the National Academy of Engineering will present its 1999 Founders Award to **Stephen D. Bechtel Jr.**, chairman emeritus and director of the Bechtel Group in San Francisco and the first NAE chairman (1982–1986). He is being cited "for his exceptional accomplishments in civil engineering, corporate management, and civic, educational and professional development."

OBITUARIES

Bjørn Wiik

News of Bjørn Wiik's untimely death was greeted with disbelief and profound sadness by his friends and particle physicists all around the world. The director of the German Electron-Synchrotron (DESY), Wiik died on 26 February after having an accident while cutting down trees in his garden near Hamburg. Wiik shaped his field, experimental particle physics, through his outstanding contributions to experiment and accelerator technology, as well as through his success as a science innovator and administrator.

Born on 17 February 1937 in Bruvik, Norway, Wiik studied physics at the Technical University of Darmstadt, Germany, where he earned his diploma in 1963 and his PhD in 1965. He then moved to Stanford University and the Stanford Linear Accelerator Center, where he worked on particle production using photon beams.

In 1972, he returned to Germany and joined the staff of DESY. Despite many tempting offers from abroad, he remained in Hamburg for the rest of his career—first as a physics professor at the University of Hamburg and later, from 1993 on, as the director of DESY.

Wiik was a leading member of the DASP collaboration at DESY's first electron-positron storage ring, DORIS, which in 1975 discovered the P-wave charmonium states. The discovery proved that the J/ψ is a bound state of the charmed quark and its antiquark, which gave birth to the rich field of heavy quark spectroscopy. Many still remember Wiik's talk at the lepton-photon symposium at Stanford in 1975 in which he presented the P-wave charmonium discovery in his typically quiet, utterly convincing way.

In 1976, he started working at the PETRA electron-positron storage ring



BJØRN H. WIIK

with the TASSO collaboration. Three years later, the collaboration announced the first evidence of three-jet events in electron-positron collision, and thereby got credit for having made the first direct observation of the gluon. (In three-jet events, one of the two quarks created in the annihilation of an electron and positron radiates a gluon, leading to a third jet of particles.)

Wiik developed a strong interest in accelerators during his early days at Stanford and maintained it throughout his career. In 1972, he studied the question of whether the electron-positron collider DORIS could be used as an electron-proton storage ring to achieve higher resolution in the structure analysis of the nucleon in deep inelastic scattering.

He returned to this idea when he initiated the HERA electron-proton collider project, which was approved in 1984. Gustav-Adolf Voss was responsible for the electron ring and the civil engineering, while Wiik became the driving force behind the 820 GeV superconducting proton ring. This very