

Vladimir Ivanovich Vernadsky Medal. Westbroek is a professor emeritus in geophysics at the University of Leiden in the Netherlands.

NAE Adds to Its Ranks

In February, the National Academy of Engineering elected 77 new members and nine foreign associates. Those who are physicists or who work in physics-related fields include the following:

Rod Alferness, senior vice president of the optical networking research division at Lucent Technologies in Murray Hill, New Jersey

James R. Asay, associate director of the Institute for Shock Physics at Washington State University, Pullman

Bernard Cohen, professor emeritus in the University of Pittsburgh's physics and astronomy department

Stephen Forrest, professor of electrical engineering at Princeton University

Glenn Fredrickson, director of the Mitsubishi Chemical Center for Advanced Materials at the University of California, Santa Barbara

Robert Fugate, senior scientist for atmospheric compensation at the Air Force Research Laboratory in Albuquerque, New Mexico

Joseph Greene, director of the Frederick Seitz Materials Research Laboratory at the University of Illinois at Urbana-Champaign

Tatsuo Itoh, TRW Chair in Microwave Electronics and professor of electrical engineering at UCLA

Charles Jakowatz, manager of the signal processing and research department at Sandia National Laboratories in Albuquerque, New Mexico

Michael King, senior project scientist of the Earth Observing System at NASA's Goddard Space Flight Center in Greenbelt, Maryland

Oliver Kingsley Jr., president and chief operating officer of Exelon Corp in Chicago

David C. Larbalestier, Grainger Professor of Superconducting Materials and L. V. Shubnikov Professor in the materials science and engineering department and a professor of physics at the University of Wisconsin-Madison

Ronald Larson, chair of the chemical engineering department at the University of Michigan, Ann Arbor

R. Noel Longuemare Jr., consultant at Longuemare Consultants in Ellicott City, Maryland

Tso-Ping (T. P.) Ma, Raymond John Wean Professor of Electrical Engineering at Yale University

Alfred MacRae, president of MacRae Technologies in Berkeley Heights, New Jersey

Richard Meserve, president of the Carnegie Institution of Washington in Washington, DC

Elaine S. Oran, senior scientist for reactive flow physics at the Naval Research Laboratory in Washington, DC

Charles Pryor Jr., chief executive of the BNFL Nuclear Utilities Business Group in Cheshire, England

Emery Reeves, independent aerospace consultant in Palos Verdes Estates, California

Thomas E. Romesser, vice president of technology development at the Northrop Grumman Corp space technology sector in Redondo Beach, California

Alton Romig, vice president of science, technology, and partnerships and chief technology officer at Sandia National Laboratories in Albuquerque, New Mexico

Adel Sarofim, Presidential Professor in the combustion research group at the University of Utah, Salt Lake City

Dudley Saville, Stephen C. Macaleer '63 Professor of Engineering and Applied Science and a professor of chemical engineering at Princeton University

Stephen Senturia, professor of electrical engineering at MIT

Soroosh Sorooshian, Regents Professor and director of the NSF science and technology center at the University of Arizona, Tucson

R. Bruce Thompson, director of the center for nondestructive evaluation at Iowa State University and Distinguished Professor of Materials Science and Aerospace Engineering at the university

Alan Title, senior fellow in the advanced technology center of Lockheed Martin Corp in Palo Alto, California

Thomas H. Vonder Haar, director of the Cooperative Institute for Research in the Atmosphere at Colorado State University and University Distinguished Professor of Atmospheric Science at the university

Eli Yablonovitch, professor of electrical engineering at UCLA.

The foreign associates include

John Knott, Feeney Professor of Metallurgy and Materials at the University of Birmingham and an Extraordinary Fellow of Churchill College, Cambridge, England

Giuseppe Marrucci, professor of chemical engineering at the University of Naples in Italy

Shuji Nakamura, professor of materials and electrical and computer engineering at the University of California, Santa Barbara

Gary Purdy, University Professor in the department of materials science and engineering at McMaster University in Hamilton, Ontario, Canada

Evgeny Velikhov, president of the Russian Research Center at the Kurchatov Institute, in Moscow.

In Brief

This month, physicist **Robert A. Eisenstein** is taking office as president of the Santa Fe Institute (SFI), a New Mexico research organization that encourages multidisciplinary collaborations among visiting and resident scientists from the physical, mathematical, biological, computational, and social sciences. Eisenstein was NSF's assistant director for mathematical and physical sciences from 1997 to 2002 and, during the past year, has been on leave at CERN. He succeeds **Ellen H. Goldberg**, who became president in January 1996. She stepped down this past January, when she was appointed as a research professor at SFI and codirector of the initiative entitled Santa Fe Institute Consortium: Increasing Human Potential.

Albert Chang, professor of physics at Purdue University, will be joining the physics faculty at Duke University on 1 August.

Brian DeMarco has been awarded the 2003 Michelson Postdoctoral Prize Lectureship by Case Western Reserve University in Cleveland, Ohio, for his "seminal contributions to the field of trapped atomic gases, including the creation, with his collaborators, of the first degenerate Fermi atomic gas and his work on quantum computing using trapped ions." DeMarco, National Research Council postdoctoral fellow at NIST in Boulder, Colorado, spent a week in late April in residence at CWRU, where he gave three seminars and a colloquium on the quantum behavior of trapped Bose and Fermi gases and on quantum computing using atomic and optical systems. In August, he will be joining the physics department at the University of Illinois at Urbana-Champaign as an assistant professor.

Last month, **Edwin Lyman** joined the Union of Concerned Scientists in Washington, DC, as a senior staff scientist in the global security program. He had been president of the Nuclear Control Institute in Washington, DC.

The Chinese government has announced that **Joseph Hamilton**

is the recipient of the 2002 International Scientific and Technological Cooperation Award of the People's Republic of China. The award honors Hamilton, Landon C. Garland Distinguished Professor of Physics at Vanderbilt University, for his "important contributions, along with Chinese scientists and engineers, toward the development of science and technology in China." The ceremony, originally scheduled for April, has been postponed until later this summer.

The Royal Swedish Academy of Sciences will award the 2003 Gregori Aminoff Prize in Crystallography to **Axel T. Brunger** and **Alwyn Jones** at a ceremony in Stockholm, Sweden, this September. The academy is recognizing Brunger for his "development of refinement techniques for macromolecules." He is an investigator at the Howard Hughes Medical Institute and a professor of molecular and cellular physiology at the Stanford University School of Medicine. The academy is citing Jones, professor of structural biol-

ogy at Uppsala University in Sweden, for his "pioneering development of methods to interpret electron density maps and to build models of biological macromolecules with the aid of computer graphics."

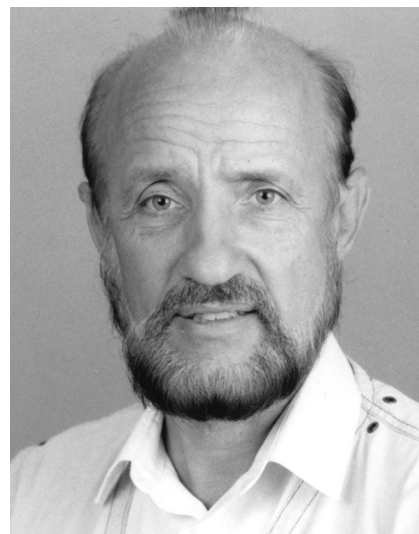
This month, the Abdus Salam International Centre for Theoretical Physics is awarding its ICTP Prize for 2002 to **Mohit Randeria** at a ceremony in Trieste, Italy. According to the ICTP, he is regarded as "the world's expert in the implications of the Angle Resolved Photoemission (ARPES) experiments for the properties of strongly correlated electron systems." He also is being acknowledged for contributing his "theoretical interpretation of experiments on the pseudogap state in the normal state of high- T_c superconductors." Randeria, theoretical physicist at the Tata Institute of Fundamental Research in Mumbai, India, is on sabbatical for 2002–03 as the George A. Miller Visiting Professor at the University of Illinois at Urbana-Champaign.

Obituaries

Arthur Taylor Winfree

Arthur Taylor Winfree, a distinguished theoretical biologist whose discoveries repeatedly opened new lines of inquiry in physics, died of brain cancer on 5 November 2002 in Tucson, where he was Regents' Professor at the University of Arizona.

Art was born on 15 May 1942 in St. Petersburg, Florida. As a boy fascinated by the mysteries of the living world, he decided somewhat paradoxically that the best strategy was to acquire the quantitative tools and training of a physicist. He majored in engineering physics at Cornell University and received his BS in 1965. His senior thesis gave another early hint of his unconventional way of thinking. Motivated by the phenomenon of circadian rhythms, Art devised a model based on an enormous collection of coupled, self-sustained oscillators. Those hypothetical oscillators were supposed to represent multiple cellular clocks whose collective behavior would be mirrored in an animal's activity. Because no mathematical methods existed for analyzing large systems of nonlinear oscillators, Art built a gadget that he called the firefly machine, consisting of 71 flickering neon lamps, each coupled electrically to all the others. His hunch was that the aggregate output of that system, when plotted in the format



Arthur Taylor Winfree

used by circadian biologists, might suggest new ways of interpreting their data.

His experiments led to his first publication, in 1967, on the population dynamics of limit-cycle oscillators. Art discovered that, under appropriate conditions, such oscillator populations can spontaneously synchronize. As the variance of their natural frequencies is reduced, the oscillators remain incoherent until the dispersion falls below a certain threshold. Then synchrony breaks out cooperatively in a manner reminis-