

Academy of Engineering Announces New Members

The National Academy of Engineering has elected 84 engineers and 7 foreign associates to membership, bringing the academy's total US membership to 1941 and the number of foreign associates to 155.

The new members and foreign associates include the following individuals who work in physics or closely related fields:

John H. Bruning, the president and chief executive officer of Tropel Corp in Fairport, New York.

Michael L. Corradini, a professor of nuclear engineering and engineering physics at the University of Wisconsin—Madison.

James A. Fay, a professor and senior lecturer in mechanical engineering at MIT.

William J. MacKnight, a distinguished university professor in the department of polymer science and engineering at the University of Massachusetts at Amherst.

George C. Maling Jr, a managing director for the Institute of Noise Control Engineering of the USA Inc in Poughkeepsie, New York.

John H. McElroy, the dean of engineering and vice provost of the graduate school at the University of Texas at Arlington.

John P. McTague, vice president for technical affairs, at the Ford Motor Co in Dearborn, Michigan.

D. Bruce Montgomery, the president of MTechnology Inc in Wayland, Massachusetts.

Duncan T. Moore, the associate director for technology in the Office of Science and Technology Policy, Executive Office of the President, Washington, DC.

Donald W. Murphy, the head of the applied materials research department at Bell Laboratories, Lucent Technologies in Murray Hill, New Jersey.

Un-Chul Paek, dean of the College of Communications at Kwangju Institute of Science and Technology in Kwangju, South Korea.

C. Paul Robinson, the president of Sandia Corp and director of Sandia National Laboratories in Albuquerque, New Mexico.

Theofanis G. Theofanous, professor in the departments of chemical engineering and of mechanical and environmental engineering and director of the Center for Risk Studies and Safety at the University of California, Santa Barbara.

Charles H. Townes, who holds the

title Professor in the Graduate School, in the physics department at the University of California, Berkeley.

H. Kumar Wickramasinghe, the manager of physical measurements at IBM's Thomas J. Watson Research Center in Yorktown Heights, New York.

Manfred Rühle, the director of the Institute for Materials Research of the Max Planck Institute for Metals Research in Stuttgart, Germany.

Ten Physicists Honored by IOP

In December, the UK's Institute of Physics announced the recipients of its 1998 awards, which were given in London last month.

IOP selected **Cyril Hilsum** to receive the Glazebrook Medal and Prize for "his sustained and successful efforts in advocating the importance of basic, applied and strategic research in the physics and materials science of functional materials, and for being a leading instigator of, and an energetic participant in, national research programmes on gallium arsenide in the 1960s, liquid crystals in the 1970s and high-temperature superconductors in the 1980s." Hilsum is a business development consultant for the Centre for Advanced Instrumentation Systems and a visiting professor of physics at University College London.

The Guthrie Medal and Prize went to **Derek Robinson**, director of fusion at the UK's Atomic Energy Authority. He was chosen for "his outstanding and generous scientific, managerial and advisory contributions to the international fusion programme, thus securing that fusion is being researched seriously as a potential energy source for future generations."

David Deutsch of the University of Oxford has garnered the Paul Dirac Medal and Prize for "his pioneering work in quantum computation, leading to the concept of a quantum computer, and for contributing to the understanding of how such devices might be constructed from quantum logic gates in quantum networks."

IOP has designated **Shaun Fisher** to receive its Charles Vernon Boys Medal and Prize. Fisher is being cited for "his distinguished early research career in low-temperature physics, in particular for contributing to the relatively new research area of superfluid physics by studying the helium-3 quasi-particle radiator and by recording one of the lowest temperatures ever measured." Fisher is at the University of Lancaster.

Maurice Ebison, formerly deputy chief executive of IOP, has been named

to receive the Bragg Medal and Prize. He is being honored for "a lifetime's devoted contribution to the teaching of physics as a schoolmaster, a college lecturer, a gifted leader of the education department of the American Institute of Physics and a participant in the work of the Association for Science Education, of the Royal Society, of the International Commission on Physics Education and of the European Physical Society."

Meirion Lewis has won the Duddell Medal and Prize for "his fundamental contributions to the understanding of surface acoustic waves and surface-skimming bulk waves, and to the subsequent development of devices relying on these phenomena." Lewis is a visiting professor at the University of Cambridge.

The Kelvin Medal and Prize have been awarded to **Lesley Glasser**, in part for "her outstanding and prolonged contribution to the public understanding of physics, particularly in Scotland, by managing of financial, human and technological resources required for running SATRO North Scotland and for organizing several scientific exhibitions and festivals including SATRO-SPHERE, TechFest and Science on the Move." Following her early retirement from the University of Aberdeen, Glasser cofounded SATRO North Scotland, part of a national team of people dedicated to supporting science and technology.

Andrew Fisher of University College London has been named the recipient of the Maxwell Medal and Prize for "his theoretical and computational studies leading to a more profound understanding and interpretation of the images of molecules on surfaces as obtained by scanning tunneling microscopy."

Neil Loxley received the Paterson Medal and Prize for "applying the physics of x-ray diffractometry and reflectivity in a commercial setting by successfully developing and manufacturing a number of exceptionally high-quality, high-resolution x-ray optical instruments." Loxley is managing director of Bede Scientific.

IOP has awarded its Rutherford Medal and Prize to **Michael Hilas** of the University of Leeds. The institute praises Hilas for a "lifetime's authoritative contributions to the theoretical and experimental understanding of cosmic ray physics, particularly in the extremely-high-energy range."

IN BRIEF

In late February, **Hermann A. Grun-der**, director of the Thomas Jefferson National Accelerator Facility, in New-

port News, Virginia, was honored as the state's outstanding scientist of 1998. The award is one of five given each year by the Science Museum of Virginia and the Commonwealth of Virginia to outstanding scientists and industrialists.

OBITUARIES

Joseph Ballam

Joseph Ballam, associate director of the research division of the Stanford Linear Accelerator Center (SLAC) for 19 years, died in Stanford, California, on 14 December 1997 of emphysema. He was 80 years old.

Born in Boston, Ballam earned his BS in physics in 1939 from the University of Michigan, whose cosmopolitan community of physicists kindled his enduring interest in basic physics. After one semester at MIT, Ballam joined the US Navy's Bureau of Ships, where he worked during World War II principally on underwater mine sweeping and infrared signaling.

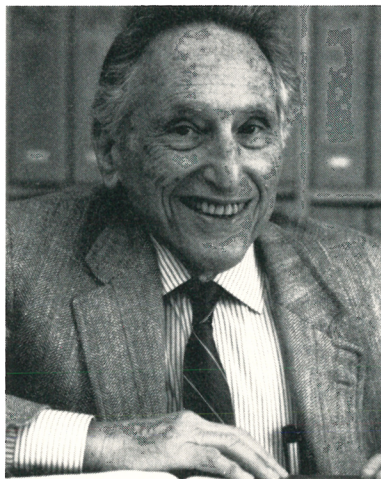
After the war, Ballam became a member of Robert Brode and Bill Fretter's cloud chamber group at the University of California's Berkeley campus. He then joined Berkeley's Radiation Laboratory. Ballam's PhD, which he received in 1951, was on the proton component of cosmic rays at sea level.

Ballam spent the years 1951–52 as an instructor at Princeton University, where he continued his cloud chamber work in cosmic rays—this time at high altitude. He also studied strange particles at the Brookhaven Cosmotron. He continued his research on pion scattering, using a propane bubble chamber, after joining the physics faculty at Michigan State University in 1952.

In 1961, Ballam joined SLAC as an associate professor and the first associate director of the research division. After Sidney Drell predicted large yields of secondary beams from high-energy photons, Ballam extended and confirmed those predictions through measurements at the Cambridge Electron Accelerator. In that way, he greatly extended SLAC's experimental program, of which he was a key early planner.

Ballam oversaw the construction of a wide variety of advanced particle detectors. As an active leader of a research group at the laboratory, he initiated a double-headed hydrogen bubble chamber program. A rapid-cycling hybrid hydrogen bubble chamber, which measured 40 inches in diameter, was designed and built. Inside the chamber, photographs could be triggered by electronic detectors. He also arranged for the transfer from

Stephen Hawking was chosen to deliver the second White House Millennium Lecture in early March on the theme of science and creativity in the 21st century. Hawking is the Lucasian Professor of Mathematics at the University of Cambridge.



JOSEPH BALLAM

Lawrence Berkeley Laboratory to SLAC of Luis Alvarez's large bubble chamber, which was converted into an 82-inch chamber operating at high expansion rate.

The 82-inch chamber was installed in diverse hadron beams, whereas the 40-inch chamber operated in photon beams of original designs. At first, monochromatic gamma rays resulting from electron-positron annihilation were used, followed later by backscattered high-intensity laser photons from high-energy electron beams. The two chambers developed such high productivity that for some time they saturated the worldwide data analysis capacity by producing as many as six million photographs per year. Ballam was personally involved in studies of the photoproduction of Vector mesons, the first measurements of photoproduction of charmed particles at high energies and other photoproduction studies.

When colliding-beam physics got under way, Ballam joined the Mark II detector group at the SLAC Positron Electron Asymmetric Ring. He took part in the early experiments at the SLAC Linear Collider, including studies of the parameters at the Z_0 resonance, measurements of the strong coupling constant and various particle searches. Until his death, Ballam participated personally in SLAC's research and remained a collaborator in GLAST, a second-generation gamma-ray astronomy detector.

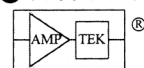
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