

WE HEAR THAT

Fermi Award Given for Work in Nuclear Energy

President Clinton announced in June the three winners of the 1997 Enrico Fermi Award, which recognizes lifetime achievements in nuclear energy: **Richard Garwin**, a fellow emeritus of IBM's Thomas J. Watson Research Center in Yorktown Heights, New York, and a consultant to Sandia National Laboratories; **Mortimer Elkind**, a cell biologist at Colorado State University; and **H. Rodney Withers**, an oncologist at the Jonsson Comprehensive Cancer Center at the University of California, Los Angeles.

Garwin is being honored for "his contributions to a wide range of problems in science, technology and national security policy. These achievements have been as diverse as fundamental physics of condensed matter, elementary particles and fields; nuclear weaponry, gun and bomb sights; and practical applications such as laser printers, computer touch screens, medical imaging equipment, the global positioning system and superconductors." The award citation also takes note of Garwin's "participation in the formulation of national security policy."

Elkind and Withers are being given a joint award for "describing the response of normal and malignant cells to ionizing radiation, thus establishing a scientific basis for radiation therapy of cancer."

AGU Presents Awards in Baltimore

At the spring meeting of the American Geophysical Union, held in Baltimore, Maryland, in May, seven individuals were recognized for their contributions to geophysics.

The William Bowie Medal, AGU's top honor, was presented to **Raymond Hide**, a professor of physics at Oxford University in England. The citation that accompanied the medal noted that "over more than forty years, Ray has provided the geophysical community with a steady flow of new ideas and fundamental advances on a broad spectrum of topics, including, among others, basic hydrodynamics and magnetohydrodynamics of spinning fluids, the dynamics of the atmospheres of the Earth and other planets, geomagnetism and the magnetohydrodynamics



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of the Earth's core, the magnetism of other planets and the dynamics of their interiors, the magnetism of the Moon and other small bodies in the solar system and fluctuations in Earth rotation."

Marc B. Parlange, a professor in the department of geography and environmental engineering at Johns Hopkins University, garnered the James B. Macelwane Medal. Parlange was cited for his work in hydrology, including studies of evaporation, the atmospheric boundary layer, turbulence theory and flow in porous media and groundwater. Also mentioned was his and Rick Katz's construction of "stochastic precipitation generators, a major advance over conventional approaches."

The Maurice Ewing Medal, presented jointly by AGU and the US Navy, was given to **Karl K. Turekian**, the Benjamin Silliman Professor of Geology and Geophysics and director of the Center for the Study of Global Change at Yale University. Turekian "has laid the foundation for a vast array of geochemical topics in the Earth and ocean sciences," the medal citation stated, noting his research on the fundamental distribution of chemical properties in the ocean, his studies of the coastal ocean and his most recent work involving "the use of $^{187}\text{Os}/^{186}\text{Os}$ isotopic ratios to uncover extraterrestrial influences, from the Cretaceous-Tertiary boundary to interplanetary dust fluxes to the oceans."

Stanley R. Hart, a senior scientist and holder of the Iselin Chair of Oceanography at Woods Hole Oceanographic Institution, accepted the Harry H. Hess Medal. In the late 1960s, the medal citation noted, Hart "was one of the few

geochemists to realize the potential of the field opened by plate tectonics and how it was important to study basalts of the ocean floor." The citation also praised Hart's efforts in "the development of models of the structure and evolution of the Earth's mantle."

The Charles A. Whitten Medal was presented to **Gordon H. Pettengill**, a professor of planetary physics at MIT. Pettengill's research career has been based on the use of radar, the medal citation noted, including his use of the Arecibo Observatory to make "the spectacular discovery that Mercury's spin period was about 59 Earth days, not the 88 days that had been widely believed for nearly a century." His work on the Pioneer Venus Orbiter and Magellan spacecraft has led Pettengill to become known as "the one individual many planetary scientists feel is most responsible for our present knowledge of Venus," the citation stated.

Hans A. Oeschger, a professor of physics at the University of Bern in Switzerland, received the Roger Revelle Medal. According to the accompanying citation, Oeschger, together with his colleagues and students, "has pioneered many innovations which have led to a better understanding of how the carbon cycle currently operates, how it might have differed during glacial time and how human activity might alter it in the future."

This year's Edward A. Flinn III Award was given to **Jack D. Fellows**, branch chief for science and space programs at the Office of Management and Budget. During Fellows's 13 years at OMB, the citation stated, he helped establish the Committee on Earth Sciences within the Federal Coordinating Council for Science, Engineering and Technology and was "the critical keystone in the Executive Offices of the President that led to the establishment of the US Global Change Research Program."

Astrophysicists Selected to Receive 1997 Crafoord Prize

This fall the Royal Swedish Academy of Sciences will present the 1997 Crafoord Prize to **Fred Hoyle** and **Edwin E. Salpeter**. The annual prize, worth \$500,000 this year, recognizes achievements in scientific fields not covered by the Nobel Prizes—specifically, mathematics, biosciences, geosciences and astronomy. It is given for astronomy only once every seven years.

Hoyle, who now lives in Bourne-mouth, England, is the former Plumian Professor of astronomy and experimental philosophy at Cambridge University and the founder and former director of what is now the Institute of Astronomy in Cambridge. Salpeter is the James Gilbert White Distinguished Professor in the Physical Sciences at Cornell University. The two are to share the prize for "their pioneering contributions to the study of nuclear processes in stars and stellar evolution." According to the academy's announcement, Hoyle should be "remembered as a pioneer and leading representative during the 1940s and 1950s for the study of the formation of chemical elements in stars." The academy goes on to note that "later very important work by Hoyle dealt with the dating of the Solar System and the Galaxy by nuclear methods, the structure of so-called super-massive stars and production of light elements in those and in the Big Bang."

Salpeter is cited by the academy for contributing "very essentially to the understanding of nuclear reactions in interiors of stars during the 1950s," especially for identifying the reaction chain, now called the Salpeter process, that "burns" helium to carbon. Among the other contributions mentioned in the academy's announcement are Salpeter's study during the 1960s of how matter is accreted around black holes and his investigations in the 1980s of stellar evolution in the early universe.

APS Prizes Given at Summer Meetings

Several awards of the American Physical Society are being presented during meetings this summer. At the Topical Conference on Shock Compression of Condensed Matter, held in Amherst, Massachusetts, at the end of July, the Shock Compression Science Award was presented to **Arthur C. Mitchell** and **William J. Nellis** "in recognition of their pioneering experimental investigations of molecular and planetary fluids using shock compression." Mitchell and Nellis are both physicists at Lawrence Livermore National Laboratory.

This month's International Conference on Computational Physics, in Santa Cruz, California, will be the setting for the presentation of the Aneesur Rahman Prize for Computational Physics, given to **Donald H. Weingarten** of IBM Corp's Thomas J. Watson Research Center in Yorktown Heights, New York. Weingarten is

cited for "his seminal work on lattice quantum chromodynamics including algorithmic innovations, massively parallel computer software development and hardware implementation that led to calculations of hadron masses and the mass and decay couplings of the scalar glueball."

IN BRIEF

Two prizes were awarded at the February 1997 meeting in Beijing of an international conference entitled "Materials and Mechanisms of Superconductivity-High Temperature Superconductivity" and sponsored by the International Union of Pure and Applied Physics. The John Bardeen Prize went to **Philip Anderson**, Joseph Henry Professor of Physics at Princeton University, for his "contributions to the understanding of broken symmetry, the order parameter in the A and B phases of superfluid helium three and the role of impurities in metallic superconductors." The Bernd Matthias Prize was shared by **Robert Cava**, of both the chemistry department and the Materials Institute at Princeton University, and **Bertram Batlogg**, head of the material physics research department at Bell Laboratories, Lucent Technologies. The two were recognized for "creative use of solid state

chemistry and physics in the discovery of new superconducting materials."

Peter Galison, Mallinckrodt Professor of the History of Science and of Physics at Harvard University, has received a 1997 MacArthur Fellowship worth \$265 000. According to the MacArthur Foundation's announcement, Galison "focuses on the role of scientific instruments, which not only represent the epistemological center of experimental physicists' work, but also serve as a focal point of social organization for scientists."

John Hopfield became a professor of molecular biology at Princeton University in April. Through the end of 1996 he had been a professor of chemistry and of biology at Caltech.

The Institute of Electrical and Electronics Engineers presented its Edison Medal to **Esther M. Conwell**. According to IEEE, Conwell is the first woman to receive one of the institute's medals. Conwell, a research fellow at Xerox Corp in Webster, New York, was cited for "her fundamental contributions to transport theory in semiconductors and organic conductors, and for their application to the semiconductor, electronic copying and printing industries."

OBITUARIES

Abdus Salam

Abdus Salam died at age 70 on 21 November 1996, at his home in Oxford, England. He was best known for his pioneering work on electroweak unification, for which he shared the Nobel Prize in Physics in 1979 with Sheldon Glashow and Steven Weinberg. Salam will be remembered also for his invaluable contributions to the propagation of science in the third world. He founded the International Center for Theoretical Physics (ICTP) in Trieste, Italy, and directed it for over 30 years; he also helped create other international research centers, several international foundations, such as the Third World Academy of Science, and a number of international prizes.

Salam was born in Jhang, a district in the part of British India that is now Pakistan. Known at an early age for his sharp intellect, he completed his undergraduate education at the University of the Punjab in 1946, and won a scholarship to continue his graduate studies at the University of Cambridge's St. John's College. He excelled there, securing a first (top honors) in both physics and mathematics. While



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seeking a research problem for his thesis, he asked the advice of Paul Matthews, who was about to finish his PhD. Matthews had been attempting to extend to meson theories, which describe the nuclear forces, the renormalization techniques that had recently been applied so successfully to avoid the infinities in quantum electrodynamics. Matthews challenged