

WE HEAR THAT

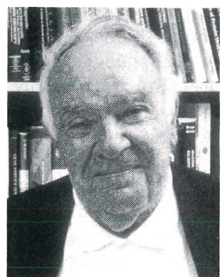
Fano and Kamen Honored with Fermi Award

President Clinton announced in December that two researchers will receive the 1995 Enrico Fermi Award, given for a lifetime of achievement in nuclear energy. **Ugo Fano**, a professor emeritus in the department of physics and the James Franck Institute at the University of Chicago, has been selected for "pioneering contributions to the theory of atomic and radiation physics, work that has had great implications for the field of nuclear medicine." His research has been important to the development of the gas laser and the use of radiation in medical diagnosis and therapy.



UGO FANO

Martin Kamen is being honored for "his co-discovery [with the late Sam Ruben] of carbon-14 and his development of its use as a tracer atom—one of the most powerful research techniques of this century—and for his work on



MARTIN KAMEN

photosynthesis." Kamen is a professor emeritus in the department of chemistry and biochemistry at the University of California, San Diego, and a professor emeritus of biological sciences at the University of Southern California.

AGU Honors Five at Fall Meeting

At its fall meeting in San Francisco, the American Geophysical Union presented medals to five individuals.

Stephen A. Fuselier, space plasma group leader at the Lockheed Martin Palo Alto Research Laboratory, received one of two Macelwane Medals given at the meeting. AGU cited

Fuselier for his analysis, with colleagues, of various ion species inside and outside the magnetopause. Their results have helped provide "persuasive direct evidence for the occurrence of reconnection [at Earth's magnetosphere]," the medal citation stated, "thus placing one of the conceptual cornerstones of magnetospheric physics on a much firmer basis."

The other Macelwane medalist was **Jonathan I. Lunine**, a professor of planetary science at the University of Arizona. "Best known in the planetary community for his work on the nature of icy bodies," the award citation noted, Lunine was also honored for his contributions to the planning of several space missions, including "his major role in the Titan probe for the upcoming Cassini mission to Saturn."

The Maurice Ewing Medal was presented to **Jean-Guy E. Schilling**, a professor of oceanography at the University of Rhode Island. AGU cited Schilling for, among other things, "his important contributions in first introducing trace elements and rare-earth chemistry to provide evidence for the existence and characterization of mantle plumes." He was also commended for leading numerous expeditions to collect seafloor basalts from ocean hot spots.

The Charles Whitten Medal went to **Donald L. Turcotte**, the Maxwell Upson Professor of Engineering at Cornell University. "[Turcotte's] 1967 paper with Ron Oxburgh on the dynamics of mantle convection was one of the pivotal theoretical advances upon which rested the widespread acceptance of the new theory of plate tectonics," the medal citation stated. Also praised was Turcotte's recent work on the role of chaos and complexity in earthquakes, hydrologic processes and weather.

Wallace S. Broecker, the Newbury Professor of Geology at Columbia University, received the Roger Revelle Medal. The citation that accompanied the medal called Broecker "a leading figure in current efforts to predict [the] effects of human activity on the carbon cycle specifically and on climate more generally" and "an authority on Pleistocene climate and on the chemistry of the ocean."

AAS Divisions Award Prizes for 1995

Each year several divisions of the American Astronomical Society bestow prizes on individuals who have furthered their particular areas of ex-

pertise. The following people are the awardees for 1995.

Brian Marsden of the Harvard-Smithsonian Center for Astrophysics received the Brouwer Award from the AAS division on dynamical astronomy. According to the award citation, Marsden "has computed an incredible number of comet and asteroid orbits," including his determination, soon after the discovery of comet Shoemaker-Levy 9, that the comet would collide with Jupiter. Marsden was also praised for "his service to the astronomical community through his stewardship of the International Astronomical Union Circulars."

The recipient of the 1995 Bruno Rossi Prize given by the high-energy astrophysics division of AAS is **Carl E. Fichtel**, chief scientist for the Laboratory for High Energy Astrophysics at NASA Goddard Space Flight Center. Fichtel was cited for his "key role in the development of the Compton Gamma Ray Observatory mission, for his leadership of the EGRET instrument team and for the discovery by EGRET of the new class of 'gamma-ray blazars.'"

At the annual meeting of the AAS division for planetary sciences, held in Hawaii in October, **Michael J. S. Belton**, an astronomer at the Kitt Peak National Observatory, was given the Gerard P. Kuiper Prize. According to the prize citation, "Belton has been a leader in merging scientific questions with spacecraft capabilities, illustrated [by] his leadership of the imaging team on Galileo and in his ideas for new types of interplanetary missions to allow the study of the numerous smaller bodies of the solar system. He also has played a key role in the availability of ground-based instrumentation for planetary science."

Also at the DPS meeting, **Emmanuel Lellouch**, a staff member of the Observatoire de Paris-Meudon in France, accepted the Harold C. Urey Prize, which recognizes outstanding achievement in planetary research by a young scientist. According to the prize citation, Lellouch "tackles difficult observational problems, particularly in microwave spectroscopy but also in other areas such as infrared spectroscopy." The citation also noted Lellouch's recent work on comets, including his observation of carbon monoxide emission from comet P/Schwassman-Wachmann and his study of Jupiter's atmosphere after the impact of comet Shoemaker-Levy 9.

William Brunk received the DPS's Harold Masursky Meritorious Service

Award in recognition of "his service to planetary science and planetary astronomy during his long tenure as a program manager at NASA headquarters." Among the projects that benefited from Brunk's "judgment and wisdom in the allocation of resources," the award citation stated, were the University of Hawaii's 88-inch telescope and the NASA Infrared Telescope Facility, both on Mauna Kea in Hawaii; the McDonald Observatory 107-inch telescope near Austin, Texas; and the 61-inch telescope at the University of Arizona's Steward Observatory near Tucson. Brunk, who is retired, was NASA's program chief of planetary astronomy from 1965 to 1982 and chief of the planetary sciences branch from 1982 to 1985.

IN BRIEF

In Finland, **Olli Lounasmaa** retired in January as director of the low-temperature laboratory at the Helsinki University of Technology in Espoo. His successor is **Mikko Paalanen**, who was in the physics department at the University of Jyväskylä from 1992–95 and at AT&T Bell Labs before then. Lounasmaa has a Humboldt Research Award to spend the next nine months at the Hahn–Meitner Institute in Berlin, Germany.

The Carnegie Foundation for the Advancement of Teaching annually selects a US Professor of the Year from each of four different types of institutions of higher education. The winner in the category of research and doctoral institutions for 1995 was **Howard Goldberg**, a professor of physics at the University of Illinois at Chicago.

Last fall, **Manfred Robert Schroeder**, a professor of physics at the University

of Göttingen in Germany, was awarded the Helmholtz Medal by the German Acoustical Society. Schroeder was cited for "outstanding contributions to number theory and its application to physics and acoustics."

The 1996 Coblenz Award, which recognizes outstanding achievement by a molecular spectroscopist under the age of 36, has gone to **X. Sunney Xie**, a researcher at the Environmental Molecular Sciences Laboratory, a unit of the Pacific Northwest Laboratory in Richland, Washington.

David E. Carlson has garnered the 1995 Karl W. Boör Solar Energy Medal of Merit, sponsored by the University of Delaware. Carlson, vice president of the thin film division of Solarex, an AMOCO subsidiary located in Newtown, Pennsylvania, was honored for "his discovery and development of thin film amorphous silicon solar cells for the conversion of sunlight to electricity."

The Electron Devices Society of the Institute of Electrical and Electronics Engineers has presented its 1995 Distinguished Service Award to **Lewis M. Terman** of IBM Corp's Thomas J. Watson Research Center in Yorktown Heights, New York. Terman was honored for his service to the society.

The University of Colorado at Boulder has created a new award, the George Gamow Memorial Lecture Award, to honor the faculty member who has made the most significant contribution to the public's understanding of science. Its first recipient is **Albert Bartlett**, a professor emeritus of physics, who frequently is asked to give his lecture "Arithmetic, Population and Energy," to lay audiences.

met his wife, also a physicist, Eugenia Kannegiesser, at Odessa. He returned the next year to marry her in Lenin-grad, a courageous act since the couple then had a long battle to get her out of the country.

Peierls's first publications appeared in 1929, and for some decades thereafter he produced a stream of seminal papers. Quantum mechanics was new, and its applications largely unexplored. He and Lev Landau published their thoughts on quantum electrodynamics, which survived their battering, but the work for which Peierls is best remembered from this period is on the physics of phonons. He actually established "zones" before Léon Brillouin (whose name is now attached to them) and extended the concept to phonons, established the Boltzmann equation for phonons and discovered the Umklapp process whereby the analog of momentum conservation in a lattice is modulo a reciprocal lattice vector. His many papers on electrons in metals have now passed so deeply into the literature that it is hard to identify his contributions to conductivity in magnetic fields and to the concept of a hole in the theory of electrons in solids.

A Rockefeller fellowship took him from Zurich to Rome and then to Cambridge. The political disasters overtaking the European continent in 1933 took Peierls to Manchester where a fund had been set up for refugees. He and Hans Bethe found themselves together there. They published fruitfully on photodisintegration (put to them by James Chadwick) and on the statistical mechanics of alloys, and their results still serve as the basis of mean-field theories of structural phase changes in complex alloys. After Manchester, Bethe moved to Cornell University and Peierls moved to the University of

OBITUARIES

Rudolph E. Peierls

Rudolph Peierls, one of the last survivors from the heroic age of quantum mechanics and a major player in the drama of the irruption of nuclear physics into world affairs, died on 19 September 1995 at the age of 88.

Peierls was born in Berlin of a Jewish father and Catholic mother and was baptized a Protestant because his father believed in leaving options open. He went to the Humboldt School in Berlin and then, as was the custom in Germany, sampled several universities in building up his first degree: Berlin (where Max Planck's lectures were among the world's worst), Munich

(where Arnold Sommerfeld's were among the world's best) and Leipzig, where he gained his doctorate. His grounding in classical physics by Sommerfeld had an interesting consequence many years later when Egon Orowan was stuck on the force required to move a dislocation. As Peierls remarked, he knew nothing about dislocations but did know classical elasticity, and the solution he derived for Orowan's problem was later developed further by David Nabarro as the Peierls–Nabarro force.

His postdoc years took him around Europe, notably to Zurich, from 1929–32, where he was Wolfgang Pauli's assistant, and to the USSR, where he



RUDOLPH E. PEIERLS