

Weinberg and Peierls receive Enrico Fermi Award

Alvin M. Weinberg and Rudolf E. Peierls were presented the Department of Energy's highest scientific prize, the Enrico Fermi Award, for 1980. In a ceremony on 8 January then Secretary of Energy Charles Duncan presented each winner with a gold medal, presidential citation, and \$25 000 that comprise the award.

Weinberg was cited for "pioneering contributions to reactor theory, design and systems, untiring work to make nuclear energy serve the public good, both safely and economically, inspiring leadership of the Oak Ridge National Laboratory, and wise counsel to the executive and legislative branches of government."

Peierls citation noted his "many path-breaking discoveries in theoretical physics, including contributions to the understanding of the nucleus and the solid state, inspiration to several generations of students, pioneering contributions to early atomic energy developments in England and America, and efforts in working towards the responsible development and control of nuclear weapons."

The Fermi Award is presented in recognition of "exceptional and altogether outstanding scientific and technical achievement in the development, use, or control of atomic energy." It originated in 1954 with the special recognition the AEC bestowed on Fermi. In 1956 the award was established on a permanent basis.

Weinberg, (see page 48) is the director of the Institute for Energy Analysis of Oak Ridge Associated Universities. He was educated at the University of Chicago, where he received AB, MS, and PhD (1939, physics) degrees. There he was also (1939-41) a research associate and (1941-45) a physicist in the Metallurgical Lab, where he joined Arthur Compton working to develop the uranium chain reaction for plutonium production. The following three years he was a physicist at Clinton Labs in Tennessee. In 1948 he joined Oak Ridge, serving first as the director of the Physics Division (1948-49), then the research director (1949-55), then the lab's director (1955-74). In 1974 he



PEIERLS (LEFT) AND WEINBERG

became director of the Office of Energy Research and Development of the Federal Energy Administration. In 1975 he returned to ORNL and assumed his present position.

At Oak Ridge he pursued the development of pressurized-water and fluid fuel reactors. Then and since he has written extensively on problems of public policy raised by the growth of the scale of modern science. He has also been a vocal partisan of the view that fission and fusion can provide safe long-term energy resources.

Peierls, born in Germany, studied at the Universities of Berlin, Munich, under Arnold Sommerfeld, and Leipzig, under Werner Heisenberg, where he received his PhD in 1928. From 1929 to 1932 he worked as Wolfgang Pauli's assistant in Zurich. Subsequently he had fellowships in Rome and Cambridge (England) (1932-33), at the University of Manchester (1933-35), and at the Royal Society Mond Lab (1935-37). In his early work he investigated the Hall effect and properties of electron bands. He proposed a general theory of diamagnetism of metals and an explanation of the oscillatory behavior of the susceptibility of bismuth in terms of I. D. Landau's theory of the quantization of electron orbits in the magnetic field.

In 1937 he was appointed to a chair

at the University of Birmingham, which he held until 1963. At Birmingham he extended the theoretical work begun by Francis Perrin on the critical fissile material needed to sustain a chain reaction. With O. R. Frisch in 1940, Peierls described how U-235 might be separated from other isotopes and what the radiative effects might be of a nuclear detonation. This work stimulated British scientists, and, in turn, the US effort to develop the bomb. From 1943 to the end of the war, Peierls lived in the US and led a group at Los Alamos concerned with the theory of implosions. Afterwards, he returned to Birmingham. From 1963 until his retirement in 1974 he was Wykeham Professor of Theoretical Physics at Oxford. During the following three years he held the Battelle Professorship at the University of Washington.

NAS honors Wasserburg, Patterson, Zimm, Donahue

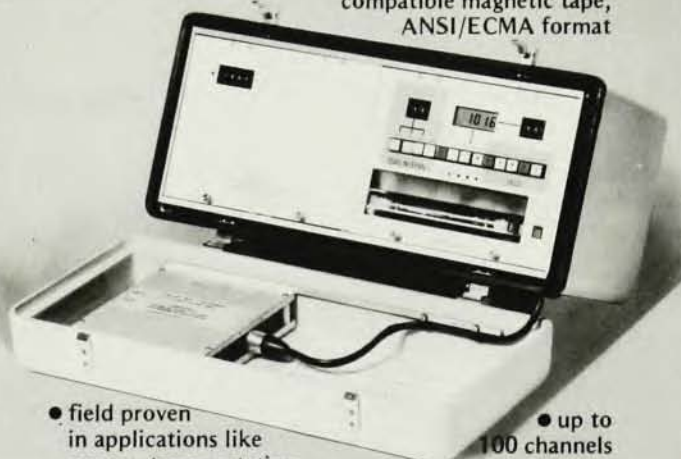
Four physicists will be among the eleven recipients of awards from the National Academy of Sciences at a ceremony in April.

Gary D. Patterson, as the first recipient of the new Award for Initiatives in Research, established by Bell Labs in

Now a data logger specifically designed for field use.

- fully portable, operates on rechargeable batteries

- records on computer compatible magnetic tape, ANSI/ECMA format



- field proven in applications like energy, transportation, agriculture and environmental research

- up to 100 channels of analog and/or digital inputs

Crodata's M1600L is believed to be the only data logger on the market today with completely self-contained, data recording and replay capabilities. For scientists and engineers, this means:

Convenient, fully-portable operation - M1600L operates on its own internal batteries with more than sufficient capacity to fully record and replay each cartridge between recharging. The unit is housed in a rugged, weather resistant case.

Accurate, versatile performance - M1600L uses individual conditioning cards, for each of 20 input channels (expandable up to 100). The user configures to his specific requirement. When needs change, cards are available at low cost to reconfigure the system.

Fast, convenient data processing - M1600L records data in the ANSI/ECMA format on standard 1/4-inch tape which can be replayed at high speed directly into a computer. For on-site verification the logger has built-in replay and display capabilities.

For specifications, price and delivery, write or call: Crodata Corp., 255 Bear Hill Road, Waltham, MA 02154, Telephone: 617-890-0145, Telex: 951693.



CRODATA

we hear that

honor of William O. Baker, will receive \$15 000. He will be cited for "outstanding theoretical and experimental contributions to polymer science, particularly in the application of light scattering measurements to the understanding of polymer chain dynamics." Patterson received his BS from Harvey Mudd College in 1968 and his PhD from Stanford in physical chemistry in 1972, when he joined the technical staff in chemical physics at Bell Labs, a position he still holds.

Gerald Wasserburg will receive the Arthur L. Day Prize and Lectureship. The prize includes an invitation to deliver four to six lectures at a single institution and \$10 000. Wasserburg was educated at the University of Chicago (BSc 1951, MS 1952, PhD in geology 1954). He was a research associate at the Enrico Fermi Institute at the University of Chicago 1954-55, then went to Caltech, where he was assistant professor (1955-59) and associate professor (1959-62), and has been professor of geology and geophysics since 1962.

Applying methods of chemical physics to geological matters, Wasserburg has investigated the time scale of nucleosynthesis, the time of the formation of the solar system, and the chronology and evolution of Earth, Moon and meteorites. He will be commended by the Academy "for his work on the use of isotopes in studying geophysical problems of the solar system, ranging from the early solar nebula to rock formation on the Moon and in Earth's mantle."

The Academy's Award in the Chemical Sciences, established by the Occidental Petroleum Corporation, will go to Bruno H. Zimm. He will receive \$5000. Zimm studied at Columbia University: AB 1941, MS 1943, and PhD in chemistry 1944. He was a research associate and instructor at Polytechnic Institute of Brooklyn 1944-46, rose from instructor to associate professor at the University of California, Berkeley, 1946-52. After he worked as a research associate at General Electric (1951-60), he returned to teaching chemistry, becoming professor at the University of California at San Diego, his current position.

He will receive the award in recognition of his contributions and influence in theoretical and experimental polymer chemistry, notably his work on polymer interactions, polymer viscoelasticity, the helix coil transition in biopolymers, the theory of light scattering, and the study of extraordinarily large DNA molecules.

Thomas M. Donahue will receive the Arctowski Medal and the \$5000 that accompanies it. Donahue was educated at Rockhurst College (AB, 1942) and



ZIMM



PATTERSON



WASSERBURG



DONAHUE

Johns Hopkins University (PhD in physics, 1948). He was a research associate and assistant professor of physics at Johns Hopkins 1948-51. He went to the University of Pittsburgh in 1951 to be assistant professor of physics, became associate in 1953, and was full professor 1959-74. Since 1974 he has been chairman of the Department of Atmospheric and Oceanic Science at the University of Michigan.

He receives the medal in "recognition of his fundamental contributions to understanding the role of solar radiations in the physics and chemistry of the atmospheres and ionospheres of the Earth, Mars, and Venus."

The French Government has declared **Cecile DeWitt-Morette**, a professor of astronomy at the University of Texas at Austin, a knight of the National Order of Merit for the role played by Les Houches School for Theoretical Physics, which she founded. Becoming "acutely aware of the void in theoretical physics in France" while she was a student in Paris during World War II, she organized the summer school, where physicists who were advancing the field could come and present their work in full technical detail. The school held its first session in 1951, on quantum mechanics. DeWitt-Morette continued to direct it until 1972, and it prospered to the extent that 13 of its faculty received Nobel Prizes in its first 15 years.

Lewis H. Nosenow has been named Associate Provost of the University of Chicago and professor in the department of physics and at the James Franck Institute. Formerly head of the section of condensed-matter sciences of the Materials Research Division at NSF, Nosenow had previously been professor of physics at the Universities of Florida and Minnesota.

The Main Board of the Polish Physical Society awarded **Ben R. Mottelson** of the Niels Bohr Institute in Copenhagen the

1980 Marian Smoluchowski Medal, the highest distinction the Society confers.

David L. Clark from Stanford University was appointed assistant professor of physics at the University of Rochester.

Rex J. Snodgrass has been named director of the Environmental Science Information Center in Rockville, Md., a part of NOAA. Snodgrass was previously manager of technical services and assistant director of the New England Research Application Center at the University of Connecticut.

Moshe Lubin has been appointed vice-president, research and development, patent and licensing, of Standard Oil of Ohio (SOHIO). He had been the director of the University of Rochester's Laboratory for Laser Energetics since

1970 and professor of both mechanical and aerospace sciences and of optics since 1974.

Jay M. Eastman, former deputy director of the lab, has become its acting director.

Paul Frampton has become assistant professor in the department of physics and astronomy at the University of North Carolina at Chapel Hill.

Wilson Ho, assistant professor of physics at Cornell University, received the Victor K. LaMer Award (from the American Chemical Society) for outstanding graduate research in colloid and surface science. Ho's research in gas-solid interactions with electron-loss spectroscopy was performed at the University of Pennsylvania in collaboration with E. Ward Plummer and J. Robert Schrieffer.

obituaries

James Leslie Tuck

James Leslie Tuck, after an extended illness, died on 15 December 1980 at the age of 70. He was a leader in thermonuclear fusion research, even in the early years of the US Project Sherwood, and contributed unique experimental and theoretical concepts to the heating and confinement of hot plasmas.

Born in Manchester, England, Tuck was educated at the Victoria University of Manchester, where he did research in physical chemistry. His interest in nuclear physics took him to the Clarendon Laboratory, Oxford, in 1937.

At the outbreak of World War II, Tuck served as a scientific assistant to Frederick Alexander Lindemann on the private staff of Winston Churchill. For his research, which included work on the mechanisms of shaped explosive charges, he was awarded a decoration,

the Order of the British Empire, by King George VI.

His expertise acquired in explosives interested the leaders of the American Manhattan Project. At their request, Tuck became one of the first of the British mission that came to Los Alamos in 1943 and 1944. Tuck, together with Seth Neddermeyer and John von Neumann, is credited with originating the high-explosive lens configurations that were used successfully to produce converging waves in implosion devices.

In 1946, he returned to England and to the Institute for Advanced Studies at Oxford to work in nuclear physics. Three years later Tuck returned to the US, to the University of Chicago, where he, together with Lee Teng, devised an ingenious scheme for deflecting the beam in the Chicago synchrocyclotron. The system, regenerative deflection, has been successfully applied to a number of proton synchrocyclotrons.

In 1950 he returned to Los Alamos to work on aspects of thermonuclear