

American Physical Society bestows eight prizes

The American Physical Society is awarding many of its prizes this March at its Detroit meeting.

Howard C. Berg and Edward M. Purcell are the winners of the 1984 Biological Physics Prize "for the elucidation of complex biological phenomena, in particular, chemotaxis and bacterial locomotion, through simple but penetrating physical theories and brilliant experiments." The prize is sponsored by friends of the APS Biological Physics Division, including Spectra-Physics Corporation and Boehringer-Mannheim Biochemicals Corporation.

Berg received his BS in 1956 from Caltech and, from Harvard, his MA in 1960 and his PhD in chemical physics in 1964. He was a junior fellow at Harvard until 1966, when he became an assistant professor of biology there. After three years in that position he was associate professor of biochemistry and molecular biology for one year. In 1970 he became associate professor and, in 1974, professor, of molecular, cellular and developmental biology at the University of Colorado. He assumed his present position, professor of biology at Caltech, in 1979. His research has concerned the chemical structure of cell membranes and motility and chemotaxis of bacteria.

Purcell was educated at Purdue Uni-



PURCELL

versity (BS 1933) and Harvard (SM 1935, PhD in physics 1938). He started working at Harvard as an instructor in 1938, became professor in 1949 and Gerhard Gade University Professor in 1960. Since 1980 his position has been emeritus. His work has been in nuclear magnetism (for which he shared a Nobel prize with Felix Bloch), radio astronomy, astrophysics and biophysics, in particular, the behavior of microorganisms.



BERG

The winners of the 1984 Oliver Buckley Condensed Matter Physics Prize are Daniel Chee Tsui, Horst Ludwig Störmer, and Arthur Charles Gossard "for the discovery of the fractional quantized Hall effect." (See *PHYSICS TODAY*, July 1983, page 19.) Endowed by Bell Laboratories, the prize has been presented annually since 1953.

Tsui received a BA from Augustana College in 1961 and MS and PhD (1967) in physics from the University of Chi-

TSUI



STORMER



GOSSARD



cago. He joined the technical staff of the solid-state physics division at Bell Labs in 1968, where he has worked since. In 1982 he also became professor of electrical engineering at Princeton University. He has done research on electronic properties of metals, on surface properties of semiconductors and in low-temperature physics.

Störmer studied at Goethe University (BS 1970) and the University of Frankfurt (diploma in physics 1974). His PhD, from the University of Stuttgart, 1977, was in physics. After a postdoctoral fellowship at Bell Labs in 1977-78, he joined the technical staff in 1978. In 1983 he became head of electronic and optical properties in the solids research department. He has studied magnetic and transport properties of superlattices.

Gossard received a BA in 1956 from Harvard University and a PhD in physics from the University of California at Berkeley in 1960. After graduation, he joined the technical staff at Bell Labs. His research has been in solid-state physics: nuclear magnetic resonance in ferromagnetic materials, transitional metals, superconductivity, semiconductor films, heterostructures, interfaces, superlattices and molecular beam epitaxy.

Manfred A. Biondi and Gordon H. Dunn are the 1984 winners of the Davison-Germer Prize, donated by Bell Labs, "in recognition of their remarkable ingenuity in the development of innovative experimental techniques for the study of electron-ion collision processes."

Biondi received an SB degree at MIT in 1944 and a PhD in physics there in 1949. He worked at Westinghouse Research Lab from 1949 to 1960, the last three years as a manager of the physics department. He assumed his present position, professor of physics at the University of Pittsburgh, in 1960. He has studied interactions and reactions involving electrons, ions and excited atoms; plasma physics; electromagnetic properties of metals at liquid helium temperatures; and airglow.

Dunn studied at the University of Washington (BS 1955 and PhD in physics 1961). He joined NBS as an NBS-NRC fellow in 1961, and since 1962 he has been a physicist at the Joint Institute of Laboratory Astrophysics. He has investigated collisions of electrons and photons with ions and with other simple atomic and molecular systems.

George Carrier is the winner of the 1984 APS Fluid Dynamics Prize, sponsored by the Office of Naval Research. The prize was bestowed at the Annual Meeting of the Division of Fluid Dynamics, November 1983. Carrier is cited "for his keen physical insight into many complex problems in fluid dy-



BIONDI



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namics which led to significant contributions to viscous vortical flows, to various wave phenomena, and to the development of innovative mathematical methods for the solution of challenging nonlinear problems."

Carrier received an ME degree in 1939 and a PhD in applied mechanics in 1944, both at Cornell. He worked at Brown University from 1946, starting as an assistant professor of engineering, until 1952, by which time he was full professor. In 1952 he went to Harvard University as professor of mechanical engineering. He attained his present position, T. Jefferson Coolidge professor of applied mathematics, in 1972. His research has been in applied mathematics and hydrodynamics.

The 1984 APS High Polymer Physics Prize is going to Frank E. Karasz and William J. MacKnight, "for their pioneering research in defining the experimental and theoretical factors controlling miscibility and compatibility in polymer blends." The prize is sponsored by the Ford Motor Company.

Karasz received a BS degree at the University of London in 1954, a PhD in physical chemistry from the University of Washington in 1957, and a DSc from the University of London in chemistry in 1972. He was a senior research fellow at the Basic Physics Division of the National Physical Laboratory in England 1959-61, then research chemist, physical polymer branch, General Electric, 1961-67. In 1967 he came to the University of Massachusetts at Amherst as an associate professor of polymer science and engineering. In 1971 he became professor and in 1973 took on the additional job as codirector of the material research lab. His work has involved the physical chemistry of polymers, chiefly in the solid state, as well as thermodynamics and statistical thermodynamics of liquids and biological macromolecules.

MacKnight attended the University of Rochester (BS 1958) and Princeton University (MS 1963, PhD in physical chemistry, 1964). After spending a year as a research associate at Princeton, he became assistant professor in

KARASZ



MACKNIGHT



the chemistry department of the University of Massachusetts, Amherst, in 1966. He attained his present positions, full professor, in 1974, and head of the department of polymer science and engineering, in 1976. He has done work on the physical chemistry of high polymers and in sulfur chemistry.

Joseph P. Remeika is the winner of the APS International Prize for New Materials, sponsored by the International Business Machines Corporation. Remeika is cited "for the synthesis of single crystals important in opening new areas of condensed-matter physics. His intuitive understanding of crystal chemistry and imaginative use of the flux technique have led to the growth of ferroelectric titanates and niobates, magnetic garnets and orthoferrites and a wide variety of other crystals which have been studied in laboratories throughout the world."

Remeika joined Bell Labs in 1949. He is now a member of the technical staff, having worked in materials synthesis and crystal growth.

Manuel Cardona is the recipient of the Frank Isakson Prize for Optical Effects in Solids, sponsored by the Photoconductivity Conference, "for his vastly influential work elucidating the electronic and vibrational properties of semiconductors, particularly for his systematic studies using reflectance, modulation spectroscopy, and resonance Raman techniques."

Cardona received a degree in physics at the University of Barcelona in 1955 and in 1958 a doctorate in physics from the University of Madrid. In 1959 he obtained a PhD in applied physics at Harvard. He worked at RCA Laboratories in Zurich, Switzerland, from 1959 to 1961 and at RCA, Princeton, from 1961 to 1964. From 1964 he was associate, then professor of physics, at Brown University. Since 1971 he has been a director of the Max Planck Institute for Solid-State Research in

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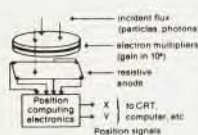
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CARDONA



ANDERSON



HOUGEN

Stuttgart.

The 1984 George E. Pake Prize is going to Arthur G. Anderson. Anderson is the first recipient of the prize, which is sponsored by the Xerox Corporation. He is cited for "pioneering work on vhf pulse techniques and on nuclear magnetic resonance in metals; in addition, for innovative executive direction of International Business Machines Corporation's research organization as well as its component development operation."

Anderson received his bachelor's degree from the University of San Francisco in 1949, his MS from Northwestern in 1951, and his PhD in physics

from New York University in 1958. Starting in 1951 as a technical engineer, he has worked at IBM ever since. He was director of the San Jose Research Laboratory 1961-63, associate director of research 1967-70, vice president and group executive, informations systems and technology group, since 1981. His research has concerned nmr in solids and computer engineering.

Jon T. Hougen is the winner of the 1984 Earle K. Plyler Prize, sponsored by the George E. Crouch Foundation, "for his contributions to the theory and analysis of high resolution molecular spectra, especially the concept of vibration-rotation double groups and a uni-

fied treatment of rotational energy levels and line intensities in diatomic molecules." Hougen received a BSc degree from the University of Wisconsin in 1956 and from Harvard, an AM in 1958 and a PhD in physical chemistry in 1960. He worked at the National Research Council (Ottawa) as a postdoctoral fellow 1960-62 and as a member of the molecular spectroscopy group 1962-66. He joined the National Bureau of Standards in 1967, becoming chief, molecular spectroscopy section, in 1969. From 1974 he was research scientist; since 1983, senior research fellow. He has studied quantum mechanical problems in spectroscopy.

ASP presents awards to six astronomers

The Astronomical Society of the Pacific has presented its 1983 awards to: Yakov B. Zel'dovich, who receives the Catherine Wolf Bruce Medal for a lifetime of achievement in astronomical research; Donald Winge and Nicholas Suntzeff, who receive Robert J. Trumpler Awards for outstanding PhD theses; Helen Sawyer Hogg, who receives the Klumpke-Roberts Award for contributions to public understanding of astronomy; François and Monique Spite, who were given the Muhlmann Prize for research done at one of the observatories on Mauna Kea in Hawaii; and Jay Gunter, who won the Amateur Achievement Award.

Zel'dovich receives the Bruce medal for his contributions to the theory of galaxy formation, to models of the early stages of the expanding universe, to the theory of accretion onto black holes and neutron stars, and for his many other ideas in relativistic astrophysics and cosmology.

Zel'dovich currently directs the work of scientific research teams in astrophysics at the Institute of Applied

Mathematics and the Space Research Institute, both at the USSR Academy of Sciences, as well as a group at the Sternberg State Astronomical Institute. In addition, he is a professor at the Moscow State University. Zel'do-

ZEL'DOVICH



vich received his Doctor of Science degree from the Institute of Chemical Physics in 1939. In addition to his work in astrophysics, he has also done considerable research in hydrodynamics, plasma physics, nuclear physics, and

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