

ACA WILL BESTOW THREE AWARDS AT ANNUAL MEETING THIS MONTH

The American Crystallographic Association will honor four individuals with awards at its annual meeting in Philadelphia later this month.

Paul M. Horn (IBM, Yorktown Heights) and Robert Birgeneau (MIT) will receive the Bertram Eugene Warren Diffraction Physics Award for their contributions to solid-state physics, "including studies of surface physics, inhomogeneous superconductivity, organic conductivity and charge density wave phenomena, magnetic critical phenomena, the structure of quasicrystals and high-temperature superconductivity." In 1978 Horn and Birgeneau began x-ray studies of structure, ordering and critical phenomena in monolayer films of krypton and xenon, and bilayers of oxygen adsorbed on graphite. With David Moncton (Exxon), they were among the first to use synchrotron radiation in such studies. Horn and Birgeneau have investigated commensurate-incommensurate and rotational transitions in monolayer films of xenon adsorbed on graphite; ordering in quenched random alloys; the adsorption of multilayer films of ethylene on graphite; and phases and phase transitions in two-dimensional systems

with competing interactions. With J. David Litster (MIT) and Joel Brock (MIT), they were able to grow single-domain hexatic liquid crystals and to study their properties using synchrotron radiation. Horn's work on high- T_c superconductors explores the relation between their crystalline structure and the mechanism for superconductivity. Birgeneau, Gen Shirane (Brookhaven), Marc Kastner (MIT) and Yasuo Endoh (Tohoku University, Japan) have used neutron-scattering techniques to observe two-dimensional dynamical spin fluctuations in high- T_c materials.

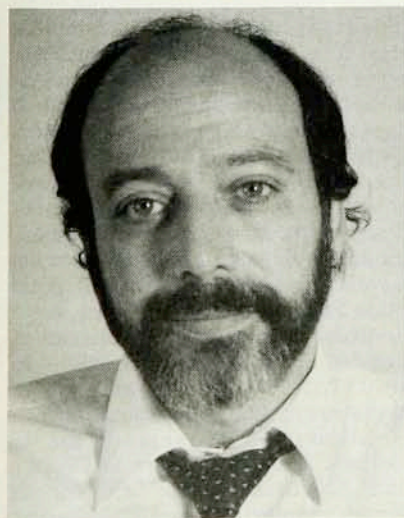
Horn received his undergraduate degree from Clarkson College of Technology and his PhD from the University of Rochester in 1973. He became an assistant professor in the James Franck Institute and the physics department of the University of Chicago in 1973. He went to IBM in 1979, and he became acting director of the physical sciences department there in 1987.

Birgeneau received his BSc from the University of Toronto in 1963 and his PhD from Yale University in 1966. In 1968 he became a member of the technical staff at Bell Laboratories

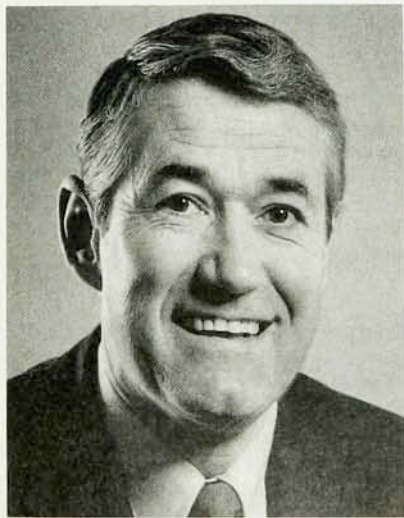
(Murray Hill, New Jersey); he became research head of the scattering and low-energy physics department in 1975. Birgeneau has been a professor of physics at MIT since 1975. He was named the Cecil and Ida Green Professor of Physics in 1982, and was appointed head of solid-state, atomic and plasma physics in 1987. On 1 July he will become head of the physics department at MIT.

George Jeffrey (University of Pittsburgh) will receive the Martin J. Buerger Award in recognition of his "outstanding crystallographic studies of clathrates and carbohydrates by the use of both x-ray and neutron diffraction techniques and the many contributions he has made to the crystallographic community." In 1966 Jeffrey founded the department of crystallography at the University of Pittsburgh, the only such department in this country; he served as its chairman from its founding until 1985. In the mid-1960s he began extensive crystallographic studies of organic molecules, in particular of carbohydrates and of the hydrogen bonding of water in hydrated crystals. The latter include clathrate hydrates, in which hydrogen-bonded water

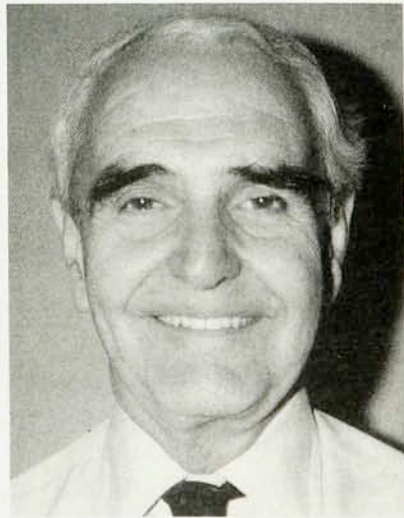
Paul M. Horn



Robert Birgeneau



George Jeffrey



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forms cage-like structures around guest molecules. Jeffrey discovered clathrates having cages of various sizes and symmetries, depending on the guest molecules. The guest molecules ranged in size from small molecules like Br_2 to bulky organic amines. In addition, Jeffrey has conducted crystallographic studies in carbohydrate chemistry and hydration chemistry. Jeffrey has served ACA as treasurer (1954-58), vice president (1962) and president (1963). He was chairman of the NAS-NRC committee of chemical crystallography (1960-64), and chairman of the US National Committee for Crystallography (1964-66). In addition, he has been the US delegate to several congresses of the International Union of Crystallography.

Jeffrey was educated at the University of Birmingham (UK), where he received his BSc in 1936, his PhD in chemistry in 1939 and his DSc in 1953. He was a research physicist at the British Rubber Producers Research Association (1939-45) and a lecturer in inorganic and physical chemistry at the University of Leeds (1945-53) before becoming professor of chemistry and physics at Pittsburgh in 1953. He was named University Professor of Crystallography in 1966, and became professor emeritus in 1985.

Representative William Nelson, a Democrat from Florida, will receive the first ACA Public Service Award. The award will be bestowed occasionally to recognize noncrystallographers who have made "unusual contributions to public policy issues related to science, to the funding of fundamental areas of science that impact on crystallography and to the communication of crystallography to the general public." Since 1978 Nelson has been elected to five terms in the House of Representatives. He has been a strong advocate for increased funding for basic science within NASA. As chairman of the House Subcommittee on Space Science and Applications he trained and flew with the crew of the space shuttle Columbia in January 1986. During the flight he performed protein crystal growth experiments on several important proteins.

APS ESTABLISHES ADLER LECTURESHIP

The APS Materials Physics Topical Group has established a new award, the David Adler Lectureship, to recognize "outstanding contributions to the advancement and diffusion of the



Jan Tauc

knowledge of materials and their properties," with "special attention... to the clarity of written and oral skills of the recipient." It will be presented annually at the APS March meeting and will consist of a certificate and an honorarium of no less than \$1000. The recipient will present an invited talk at the meeting. The lectureship was established by contributions from friends of David Adler, a professor of electrical engineering and computer science at MIT who was known for his work on transition-metal oxides and amorphous semiconductors. He died on 31 March 1987. (See PHYSICS TODAY, February, page 104.)

Jan Tauc (Brown University), who became the first recipient of the prize at the 1988 APS meeting in New Orleans, was cited for his "incisive contributions to our understanding of the electronic structure and properties of amorphous semiconductors and his concomitant skills in communicating these advances." His studies have included the optical properties and electronic structure of noncrystalline, molten and amorphous semiconductors; the theory of metallic glass formation; and picosecond studies of vibrations and electronic relaxations and absorptions. He holds doctoral degrees from the Technical University (Prague, 1949), the Czechoslovak Academy of Sciences (1956) and Charles University (Prague, 1956). He headed the semiconductor department in the Czechoslovak Academy's Institute of Solid State Physics (1953-69), and he was a professor of experimental physics at Charles University (1964-69). In 1970 Tauc became a professor of engineering and physics at Brown University; he was named the L. Herbert Ballou Professor of Physics and Engineering and director of Brown's materials research laboratory.