

berg's investigations provided "extremely precise information on molecular energies, rotation, vibrations and electronic structures which, in turn, yield data on molecular geometries, that is, the distances between atoms of a molecule. From such investigations many results of fundamental importance for chemical physics and quantum theory were obtained. The work on the hydrogen molecule is especially outstanding." Herzberg's original measurements on the hydrogen molecule were extremely precise, and his data on the vibrational-rotational levels are still quoted in all the handbooks.

Through his determinations of the Lamb shifts in the ground state of deuterium and the ground and first excited states of helium and Li^+ , Herzberg helped confirm predictions of quantum electrodynamics.

In 1931 Herzberg found what are now called the "Herzberg bands" of O_2 , which are important for the absorption spectrum of air and the understanding of the upper atmosphere. Later he developed multiple-reflection equipment to produce a long path for absorption spectra. He subsequently used this equipment to analyze other forbidden transitions in O_2 , and to study the infrared spectra of H_2 and HD.

In the 1950's Herzberg did a series of experiments on free radicals, which proved to be valuable to chemistry in general, the Academy said. Free radicals had been very difficult to analyze spectroscopically, because they react violently and it is very difficult to get an atmosphere of them sufficiently dense to obtain a spectrum. To do his free-radical studies Herzberg used and further developed the flash-photolysis method originally pioneered by Ronald Norris and George Porter (who won the Nobel chemistry prize in 1967).

The Academy said that in the 1960's Herzberg obtained results of fundamental importance for many free radicals of particular interest to organic chemistry. It said that Herzberg's "ideas and discoveries have stimulated the whole modern development, from chemical kinetics—dealing with forces that influence the motion of bodies and with gases used as refrigerants—to cosmic chemistry."

Herzberg has had a continuing interest in astrophysics, successfully applying his spectroscopic studies to identification of certain molecules in planetary atmospheres, comets and interstellar space.

For many years Herzberg's books have been veritable bibles to spectroscopists. They are *Atomic Spectra and Atomic Structure* (1937) and *Molecular Spectra and Molecular Structure*, Volumes I (1939), II (1945) and III (1966). His latest is *The Spectra and Structures of Simple Free Radicals*.

Born in Hamburg in 1904, Herzberg earned a Dr Ing at the Technical University in Darmstadt. He taught there until 1935, when he went to the University of Saskatchewan, remaining there until 1945. For three years he was at the Yerkes Observatory of the University of Chicago, when he returned to Canada to join the National Research Council. Herzberg's wife, Luise, was a scientific collaborator of his until her recent death. He served as president of the Canadian Association of Physicists (which named a medal after him), as president of the Royal Society of Canada and as vice-president of the International Union of Pure and Applied Physics. —GBL

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Nuclear-physics data program begins with support from NSF

A crash program to update nuclear-data compilations throughout the periodic table is being supported by the National Science Foundation. In the first year of a proposed three-year program, 12 recent PhD's in nuclear physics (to be known as "Nuclear Information Research Associates") will be working on a variety of *A* (atomic number) chains under the sponsorship of 12 senior nuclear physicists.

The project was conceived about two and a half years ago by a group of nuclear physicists, who were concerned that the information explosion in nuclear physics was such that existing nuclear-physics data groups could not cope with it without additional help. They realized that evaluated compilations of nuclear data are essential for nuclear physicists as well as for scientists in many other fields.

The group, which grew into a committee of the American Physical Society's Division of Nuclear Physics, then approached NSF for support. NSF agreed to give a grant to the National Academy of Sciences-National Research Council, whose Committee on Nuclear Science established an *ad hoc* panel on nuclear-data compilation, with Herman Feshbach (MIT) as chairman and Fay Ajzenberg-Selove (University of Pennsylvania) as executive

secretary.

The program has \$200 000 for the first year in seed funds transferred from the nuclear-physics program of the Physics Section to the Office of Science Information Service. The total amount for the three-year program will be \$900 000, with the remainder of the funds to come from the Office of Science Information Service.

The 12 NIRA's, who received two-year appointments, were selected from 70 applicants. In 1972, 12 more two-year appointments will be made. The program is interacting primarily with the Nuclear-Data Center at Oak Ridge National Laboratory. Daniel Horen, director of the center, suggested which *A* chains were most in need of coverage; some of the compilations are ten years out of date. Results of the compilation will be published in *Nuclear Data Sheets*, and in other journals. —GBL

in brief

Five one-year postdoctoral research fellowships are being offered by Corning Glass Works. For further information, contact the Scientific Review Committee, Sullivan Park, Corning Glass Works, Corning, N. Y. 14830.

For information on postdoctoral research associateships in federal laboratories write to the Associateship Office, JH 606, National Research Council, 2101 Constitution Avenue, Washington, D. C. 20418. Deadline for applications is 15 January.

The Joint Institute for Laboratory Astrophysics is offering a number of postdoctoral fellowships. For further information, contact David G. Hummer, Visiting Scientists Program, JILA, Univ. of Colorado, Boulder, Colo. 80302.

The American Vacuum Society has applications available for the AVS scholarships for graduate study in the academic year 1971-72. Scholarships are awarded for graduate work in vacuum science and technology, vacuum metallurgy, surface physics, thin films and related areas. Applications are due 1 April. Contact the American Vacuum Society, 335 East 45th St, New York, N.Y. 10017.

The new National Science Foundation program on understanding of science will attempt to enhance the citizen's understanding of the capabilities and limitations of science through the use of information projects, university training programs and research and development programs. NSF 70-42 offers guidelines for the preparation of proposals and is available from NSF, Washington, D.C. 20550.