Bonner prize for nuclear physics to Harald A. Enge

The American Physical Society has awarded the 1984 Tom W. Bonner Prize in Nuclear Physics to Harald A. Enge of MIT for "his outstanding contributions to the design of magnetic spectrometers and beam optics."

Throughout his career, Enge has been designing magnetic spectrometers and spectrographs of ever-increasing data-collection capability and resolution. These devices have been used by physicists to do low-energy nuclear-structure studies by measuring the energies of particles emitted from nuclear reactions.

Born in Norway in 1920, Enge attended the Technical University of Norway at Trondheim to study electrical engineering. After graduating in 1947, Enge went to the University of Bergen for several years, working as a research associate and a lecturer. In 1954, he received his PhD in physics from Bergen.

In the midst of that period, he spent a year and a half at MIT doing nuclear research with a magnetic spectrograph in the Van de Graaff group. During this time he also designed his first broad-range spectrograph, which was built on his return to Bergen.

Enge came back to MIT from Norway in 1955, as an instructor. He rose to full professor of physics in 1963.

Enge designed a new multigap spectrograph at MIT that sampled many angles at once, thus avoiding a separate accelerator run for each angle in the angular distribution. He also developed the Enge split-pole spectrograph, a device providing higher resolution and larger solid angle. The split pole became a standard instrument of nuclear-physics research.

In the mid-1960s, Enge designed the Q3D spectrograph (one quadrupole, three dipoles), an instrument made to match the resolution of multiwire electronic detectors. He has been involved in the design of several spectrometers for Los Alamos Scientific Laboratory.

Enge has worked during the last ten years in the field of heavy-ion physics and has designed recoil mass selectors for experiments on heavy-ion fusion reactions at Brookhaven and Oak Ridge National Laboratories, among other projects.

ENGE

New York Academy of Sciences honors Flynn, Danby, Mathies

At its annual meeting, the New York Academy of Sciences presented the A. Cressy Morrison Award in Natural Sciences to George William Flynn of Columbia University for his work in laser chemistry and vibrational energy transfer. Also honored at the meeting were Gordon Danby of Brookhaven National Laboratory, who received the Boris Pregel Award for Applied Science for his contributions to accelerator physics and superconducting-magnet technology, and Richard A. Mathies of the University of California at Berkeley, who was chosen to receive the Harold Lamport Award for Young Investigators in Biophysics in recognition of his use of resonance Raman spectroscopy to study important photoactive pigments in the retina.

Flynn, a professor of chemistry at Columbia, is an experimental physical chemist concerned with molecular relaxation phenomena. The Academy cited his early application of laser techniques to the study of excitation and collisional energy transfer in simple polyatomic molecules—work that has led to a better understanding of chemical reactions. Flynn's recent research has focused on the physical and chemical processes underlying high-energy atom–molecule collisions.

Flynn received his BS degree in chemistry from Yale University (1960) and his MA and PhD degrees from Harvard University (1964). Flynn has been affiliated with Columbia since 1967; he was appointed full professor in 1976. Since 1979 Flynn has served as director of the Columbia Radiation Laboratory. During this period he also collaborated in a research program at Brookhaven National Laboratory.

Gordon Danby, senior physicist at Brookhaven, had made significant contributions to the design of the magnets that make possible new high-energy synchrotron machines in the US, Europe and Japan, according to the Academy's Pregel award citation. This work has included designs for beam-transport magnets, design innovations in quadrupole structures and the construction of sector magnets. Together with James Powell, Danby has also invented a magnetic levitation technique that is the basis for a Japanese-designed high-speed rail transport.

Born in Canada, Danby attended Carleton College for his undergraduate degree (1952) and McGill University for his doctorate (1956). He joined the Brookhaven staff in 1957 and was named a senior physicist in 1980.

The Lamport Award winner, Richard A. Mathies, is an associate professor of chemistry at Berkeley. Mathies has developed a 77-K cold stage for a laser-resonance Raman microscope, which makes it possible to freeze retinas for structural studies of the vitamin A chromophore in photoreceptor cells, which are difficult to isolate. The Raman spectral data may shed some light on why cone cells, for example, have different color absorption maxima. Mathies also employed this tech-