

that was responsible for the first lunar radar echo experiments performed in 1946.

At the conclusion of World War II, McAfee decided to continue his education at Cornell University. Under the guidance of Hans Bethe, he received his PhD in 1949 with a thesis on meson production in nuclear collisions. At the time McAfee was one of very few African Americans to hold a doctorate in theoretical physics.

On his return to the Signal Laboratories McAfee became a member of the nucleonics branch, which was responsible for the development of radiological instrumentation and nuclear weapons diagnostics. He spent the year 1957–58 doing astrophysics at Harvard. From 1958 to 1975 he taught part-time at Monmouth College, in West Long Branch, New Jersey.

In his later years of service (1978–85) McAfee became scientific adviser at the Fort Monmouth US Army Research and Development Command. He also served as the director of a NATO study on surveillance and target acquisition, high-priority technologies during the cold-war era. McAfee spent a total of 42 years in government service, and his analytical skills were often sought by his colleagues.

Those of us who had the good fortune to know Walter had our lives enriched.

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Peter Vander Arend

Peter Vander Arend died on 3 January, at the age of 72, while jogging near his home in Bluffton, South Carolina. Vander Arend had a determining influence on the development of cryogenic systems for large bubble chambers and modern particle accelerators.

Peter was born in the Hague, the Netherlands. In 1945 he received a master's degree in applied physics from the Institute of Applied Physics at Delft. He came to the United States in 1946, and in 1951 he joined the National Bureau of Standards in Boulder, Colorado, where he worked on the design of a small liquid-hydrogen plant.

Peter's involvement with high-energy physics began in 1956 through his work on the 72-inch hydrogen bubble chamber with Luis Alvarez's group at the Radiation Lab in Berkeley, California. Peter later moved to Air Products Inc, in Allentown, Pennsylvania, where he pio-

neered the design and fabrication of very large hydrogen liquefiers for both the defense and space programs. He also helped design the 12-foot bubble chamber at Argonne in the mid-1960s and the 15-foot chamber at Fermilab in 1970.

Through his company, Cryogenic Consultants Inc, also in Allentown, Peter began working on the cryogenic system for Fermilab's Tevatron in 1973. He devised the cooling scheme for the magnets, invented the concept of using 24 satellite refrigerators equally spaced around the four-mile accelerator ring and also designed the satellite refrigerators. Peter's contribution was recognized at the 1993 dedication of the cryogenic system, when the Tevatron was named a National Engineering Landmark by the American Society of Mechanical Engineers.

Peter worked on the superconducting magnets and cryogenic systems for the Superconducting Super Collider, assisting in early SSC designs at Fermilab and at the Texas Accelerator Center. He was a major consultant for the SSC's precursor, the Central Design Group, from its beginning in 1984 until 1988, when a crippling heart incident, from which he made a courageous recovery, led to his retirement.

Peter could recall from memory the exact formula he needed for any occasion, and his back-of-the-envelope calculations were famed for their accuracy. He retained a lively interest not only in the evolution of the technology he did so much to develop but in the high-energy physics to which it is so closely linked. His talents were unique, as his contributions to high-energy physics continue to attest. His friends and colleagues will miss him.

WILLIAM B. FOWLER

PETER J. LIMON

Fermilab

Batavia, Illinois

F. R. HUSON

Texas A&M University

College Station, Texas

Harvey Wegner

Harvey E. Wegner, a long-time senior physicist at Brookhaven National Laboratory, died on 27 November 1994 of a massive heart attack at his home in La Jolla, California, at the age of 69.

Wegner received his BS in physics from the University of Puget Sound in 1948. He earned his graduate physics degrees from the University of Washington in Seattle, an MS in 1951 and a PhD in 1953. Wegner then joined the physics department at

Brookhaven and for three years worked on nuclear reaction studies with the 18- and 60-inch cyclotrons. In 1956 he moved to Los Alamos National Laboratory, where he worked with the cyclotron group doing particle spectroscopy measurements with the first ^3He beams using the newly developed solid-state detectors.

In 1962 Wegner was persuaded to return to Brookhaven to head up a double Emperor-type (the largest tandem then available) three-stage tandem Van de Graaff facility. His approach to this position was unique. Armed with a camera and a portable tape recorder, he visited numerous accelerator laboratories across the country to discover the best features of their facilities to incorporate into the Brookhaven machine. Under Wegner's able and energetic leadership the facility was completed in 1970, on time and within the initial \$12 million budget.

With Wegner and David Alburger as group leaders for the first three years, the tandem project embarked on a highly productive 14-year period of nuclear structure research. In this period Wegner's research concentrated on heavy-ion fusion-fission reactions and studies of the Coulomb breakup of molecules.

Wegner, together with Peter Thieberger and Michael McKeown, developed a high-current pulsed source of negative ions with about 100 times more intensity than previously thought possible. The source for the tandem accelerator was used after 1983 to inject heavy ions into the Alternating Gradient Synchrotron, and in 1987 a beam of ^{16}O ions at 233 GeV/c was extracted from the AGS, initiating the relativistic heavy-ion program at Brookhaven. Near the time of his retirement, Harvey's dream of a high-energy gold beam on a gold target was achieved. The tandem is expected to serve as the preinjector to the Relativistic Heavy-Ion Collider now being built at the lab.

In addition to his scientific and technical achievements, Harvey spent much time transmitting his enthusiasm and love of physics to students and the public through his spectacular demonstrations. His warm and generous personality, his considerable technical expertise and his enthusiasm for life will be sorely missed by his friends and associates at Brookhaven as well as many other laboratories worldwide.

DAVID E. ALBURGER

PETER D. BOND

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