have become a standard for radiation-transport calculations.

Martin shifted his focus to charged-particle transport, with an emphasis on electrons and protons. His 1963 article "Monte Carlo Calculation of the Penetration and Diffusion of Fast Charged Particles," which appeared in *Methods in Computational Physics*, thoroughly delineated the taxonomy, methods, underlying single- and multiple-scattering distributions, and algorithms used in charged-particle Monte Carlo codes. That work was a departure from the few earlier papers done by other authors mostly for calculations of showers in high-energy approximations. In his study, Martin developed a comprehensive approach in which he used the most accurate distributions available to describe the transport of radiation at energies of interest in medical and radiation-protection physics.

With his 1963 paper, Martin literally established the modern Monte Carlo calculation of charged-particle transport. The methods he developed and the cross-section data for which he was largely responsible are imbedded in nearly all of today's coupled photon–charged-particle Monte Carlo codes. The use of electron–photon Monte Carlo calculations are now widespread, and the field has matured so much that scientists in many disciplines now rely heavily on the results of the better-known Monte Carlo codes rather than much more difficult measurements. Perhaps the most telling compliment is that his early pioneering work is still remarkably relevant today, more than 40 years later.

Martin was also responsible for an extensive body of critically evaluated radiation-interaction data. These data were not only necessary for his transport calculations but have become standard reference data for the radiological sciences. They include stopping powers and ranges for electrons, positrons, and heavy charged particles, and cross sections for the bremsstrahlung production by electrons and for the elastic scattering of electrons and positrons.

During his Monte Carlo development work, Martin was also busily applying his methods to important problems in radiological physics. He calculated detector-response functions for radiation spectroscopy; performed microdosimetric calculations; and conducted numerous studies of the absorbed dose and the penetration of photons, electrons, bremsstrahlung, and protons in materials of interest in dosimetry, radiation protection, radiation shielding, auroral physics, and radioactivity standardization. After his retirement, he continued that work as a consultant for NBS and other agencies.

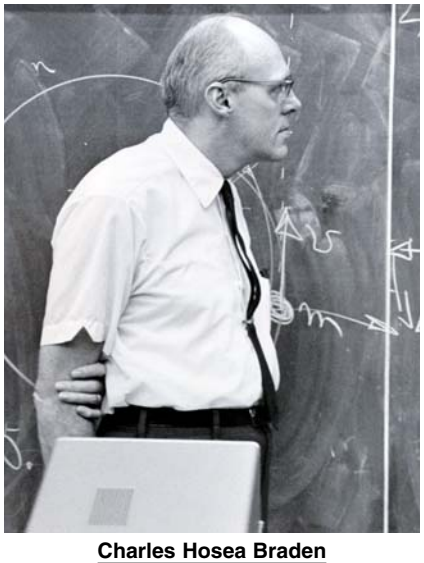
Martin's work was scientifically impeccable. He attacked each problem in his own way, which usually became the standard way. He frequently selected problems that others had not worked on and gave correct, straightforward, and useful solutions. In recognition of his enduring contributions, the International Commission on Radiation Units and Measurements awarded Martin its L. H. Gray Medal in 2003.

The radiological community has lost an important scientist.

Stephen M. Seltzer
National Institute of Standards and Technology
Gaithersburg, Maryland
Mitio Inokuti
Argonne National Laboratory
Argonne, Illinois

Charles Hosea Braden

Charles Hosea Braden, Regents' Professor of Physics Emeritus at the Georgia Institute of Technology, died at his home in Atlanta on 20 November 2004 after a long struggle with a form of cancer unique to asbestos exposure. He had likely been exposed to the substance during ship refitting some 50 years earlier.



Charles Hosea Braden

Charlie was born on 21 March 1926 in Chicago and spent his earliest years in the city. After completing his secondary-school education, and with the outbreak of World War II, he began training with the US Navy and ultimately served from 1943 to 1947 as a training and supply officer with the rank of ensign. His interests in science and engineering started to flower while he was in the service, and it is to the credit of the navy that it assigned Charlie to Columbia University in 1944. He enrolled as a student there and received his BS in engineering in 1946. Through most of 1946–47, the navy assigned him to duty with the supply corps in Boston and the *USS Crescent City* in the Pacific.

After completing his service in the military, Charlie pursued graduate studies in the physics department at Washington University in St. Louis, Missouri, where his skills as a nuclear experimentalist soon became evident. He joined Franklin Shull's group and within two years had collaborated on three papers in the area of beta-ray spectrometry. The Washington University cyclotron provided the focus for his doctoral research. By the time he completed his PhD in 1951, he had not only published his dissertation study on proton–alpha scattering but had collaborated on two other investigations into alpha–alpha and proton–proton scattering.

It has been said that Charlie's arrival at Georgia Tech as assistant professor in the fall of 1951 marked the turning point in establishing a significant research presence in physics at the university. Soon after his arrival, he and several other active young faculty members constructed and equipped an experimental nuclear physics research laboratory, lined up prospective graduate students, and obtained the necessary external support to fund the program. The first paper to come out of that Georgia Tech nuclear collaboration appeared in the *Physical Review* in 1954.

For the next 20 years, the group led by Lemuel David "Dave" Wyly and Charlie was responsible for a series of investigations into nuclear structure through observations of beta and gamma rays from radioactive nuclides. That successful nuclear program led to the creation of additional research areas and ultimately laid the foundation for the current level of research activity within the school of physics.

Howard McMillen, then program director for physics at NSF, invited Charlie to go to Washington, DC, to serve as an associate program director during 1959–60. Charlie and his colleagues in Washington spent most of that year studying the personnel situation in the burgeoning area of high-energy physics. A report of their findings was published in the December 1960 issue of PHYSICS TODAY.

Charlie's contributions, however, were not confined to research. He was

also active in education and administrative service. He introduced new courses, and, having recognized that many of Georgia Tech's physics majors went directly into industry, he assumed major responsibility for developing an undergraduate applied physics degree program. He served the school of physics as associate director (1972–80) and interim director (1980–82). In 1973 the chancellor of the University System of Georgia appointed him chair of the Committee on Tenure Policy; Charlie held that position for seven years.

The acuity of Charlie's thought processes was apparent to all who had contact with him. He was endowed with a remarkable physical insight that allowed him to cut to the heart of a problem and quickly develop a solution. For that reason, he was a much sought-after teacher, almost revered by his students. Over the years, he served as an inspiration to generations of Georgia Tech students at all levels. The university presented its Outstanding Teacher award to him in 1970 and its highest academic rank of Regents' Professor in 1971. In 1983 the student body's ANAK Society chose him for its award in recognition of his outstanding administrative and educational contributions.

After retiring in 1991, Charlie maintained an active interest in current physics research and science education. He was a consultant to the Fernbank Science Center of the DeKalb County School System.

Charlie had broad interests ranging from the latest in societal models and physical theories to model railroading. As those of us who saw him regularly can attest, one could have a thought-provoking conversation with him on just about any subject, theoretical or practical. We miss him, the quality of his thought, and those conversations. His loss is felt by the entire Georgia Tech community and all those who knew him.

David R. Finkelstein
Ronald F. Fox
James R. Stevenson
Henry S. Valk
Georgia Institute of Technology
Atlanta

John Roderick Cameron

John Roderick Cameron, emeritus professor of medical physics at the University of Wisconsin–Madison, died of complications stemming from renal failure on 16 March 2005 in Gainesville, Florida.

John was born on a farm in Chippewa County, Wisconsin, on 21 April 1922. He served in the US Army Signal Corps from 1941 to 1946. A year later, he received his BS in mathematics from the University of Chicago. He did his graduate work in physics at the University of Wisconsin under Ray Herb and received a doctorate in 1952 for his thesis entitled "Elastic Scattering of Alpha Particles by Oxygen."

During the next two years, John was an assistant professor at the University of São Paulo in Brazil, and for two years after that he was an assistant professor at the University of Pittsburgh. In 1958 he joined the UW–Madison radiology department as an assistant professor, with a joint appointment in the department of physics.

Under his guidance over the next three decades, the UW medical physics program grew from a one-physicist operation to one of the largest and most productive in the world. In 1981 the program became the first US department of medical physics, and John served as chair from its beginning until his retirement in 1986. Among the department's graduates are leading medical physicists in the field, a record that was a source of great personal pride for him.

Known for several innovative contributions to medical physics, John investigated and advanced the use of thermoluminescence for dosimetry. With Nagalingam Suntharalingam and Gordon Kenney, he wrote *Thermoluminescent Dosimetry* (U. of Wisconsin Press, 1968), one of the first books in the field. That technology replaced traditional film densitometry to become the standard for radiation monitoring of individuals who work in areas where they might be exposed to x rays and other sources of radiation. John also invented bone densitometry, which uses precise radiation measurements to determine the mineral content of bone. One of his early bone densitometry publications was listed as the most-cited article in the 25th-anniversary issue of *Investigative Radiology*. His seminal work in that field led to many useful clinical applications of highly accurate bone densitometry, and numerous companies have commercialized the technology.

John Roderick Cameron

John was interested in developing new applications of physics in medicine. At UW–Madison he encouraged early developments in ultrasound, positron imaging, digital angiography, and magnetoencephalography. In 1978, *Medical Physics* (Wiley), written by John and James Skofronick, was published. He also developed tools to evaluate the quality of x-ray images, work that led to quality-assurance product development by several companies. In 1985, John founded Medical Physics Publishing, a nonprofit corporation whose initial objective was to provide reprints of useful out-of-print books. That company now publishes its own books in medical physics, including John's *The Physics of the Body* (1999), which John wrote with Skofronick and Roderick Grant. That text has been translated into Greek and Korean and has been used in major universities in a number of countries.

After retirement, John used his imagination and creativity to educate people about the benefits and risks of radiation used in medicine. Especially concerned about the public's fear of low-level radiation, he spent time analyzing data and argued that those fears were probably unfounded.

John was involved in numerous professional activities and served many organizations as an officer, board member, or adviser. He was a founding member of the American Association of Physicists in Medicine and served as its 10th president in 1968. He retained a lifelong interest in promoting medical physics around the world; he lectured extensively in Europe and supported activities in developing countries, especially in Central and Latin America.

John received many honors, including the Coolidge Award from AAPM in 1980 and the Roentgen Centennial Award from the Radiological Society of North America in 1995. He received his most recent honor in 2000, when the International Organisation for Medical