

Physics awarded him the Marie Skłodowska-Curie Award for his activities in medical physics education in developing countries.

John was full of optimism, had a great sense of humor, and was always armed with a joke or two. He took great pride in his Scottish frugality and demonstrated it with humor. Office assistants and families of graduate students remember John as the professor who played "Happy Birthday" on his teeth, cooked eggs on a camping stove at early morning "breakfast picnics," and led canoe trips down the Wisconsin River to his summer cottage.

Perhaps his greatest legacy is the many students, trainees, and young faculty whose careers he nurtured. He was an extremely caring and generous man who went out of his way to ensure that each of those young people had the best opportunity to develop their careers. Many of us in medical physics owe a debt of gratitude to John.

He is greatly missed.

Charles Mistretta

Paul DeLuca

James Sorenson

Larry DeWerd

James Zagzebski

University of Wisconsin-Madison

Piet Cornelis Gugelot

Piet Cornelis Gugelot, professor emeritus at the University of Virginia, died in Charlottesville on 2 February 2005 of heart failure. Kees, as he was known to his family, friends, and colleagues, led a distinguished career that began at ETH Zürich and took him to Princeton, New Jersey; Amsterdam; Newport News, Virginia; and ultimately Charlottesville.

Born in Bussum, Holland, on 24 February 1918, Kees grew up in the Netherlands and in Indonesia, where his father was posted as a government physician for two years. In the 1930s he moved with his family to Davos, Switzerland, where his father was the director of the Dutch Tuberculosis Sanatorium and Dutch consul to Switzerland. Kees obtained his secondary education in Davos.

In 1940 Kees received his physics diploma from ETH under Paul Scherrer, a leading and influential professor at the institution, and became a nuclear physicist and the professor's assistant. Inspired by his mentor's leadership, Kees learned an immense amount of physics and many techniques from Scherrer and the talented young researchers in his group.

Scherrer encouraged him to be on the lookout for new fields of endeavor. Kees followed that approach, and frequently carried out exploratory experiments during his career.

While at ETH, Kees, along with four other physicists, was responsible for the construction of the institution's cyclotron, which produced its first internal beam in 1943; the beam was extracted two years later. In 1945 Kees received his PhD for his work, done under Scherrer's supervision, on the nuclear activation and spectroscopy of short-lived isotopes.

After two years as a research associate at ETH, Kees left in 1947 for Princeton University, where he worked until 1956, first as a research associate and then as an assistant professor. He spent a productive period in the fast-developing field of nuclear reactions induced by proton, neutron, and alpha-particle beams. He was among a team of physicists who reconstructed the prewar Princeton cyclotron and turned it into a powerful research tool. He also built the 60-inch scattering chamber, which allowed researchers to use the cyclotron's enhanced capabilities to conduct new experiments in nuclear physics. Kees became a leader in research on the evaporation of particles from the compound nucleus, and his pioneering papers from that era are citation classics.



Piet Cornelis Gugelot

During 1955–56, Kees was a visiting professor at the University of Washington, Seattle. He then returned to the Netherlands to accept an appointment as director of the Instituut voor Kernfysisch Onderzoek (Institute for Nuclear Physics Research, or IKO, now known as the

National Institute for Nuclear Physics and High Energy Physics) in Amsterdam. His tenure there was marked by his persistent promotion of research in nuclear reactions. With Haruhiko Morinaga, he began a program of (α, xn) reactions on medium-weight nuclei, thus introducing high-angular-momentum states to study rotational bands. This area of nuclear structure research was later perfected by Richard Diamond and Frank Stephens of Lawrence Berkeley National Laboratory. Kees also stressed the need for an electron accelerator at IKO because the existing synchrocyclotron's capabilities were limited. He and a few of his students spent time at Stanford University with Robert Hofstadter measuring nuclear form factors. Kees's advocacy of the accelerator was realized in the construction at IKO, in 1979, of the 700-MeV linear accelerator, nicknamed MEA for medium-energy accelerator.

Kees left the Netherlands in 1966 to take on the scientific directorship of the Space Radiation Effects Laboratory in Newport News. Concurrently, he joined the University of Virginia as a professor of physics. Following the end of his appointment at SREL in 1969, Kees moved to Charlottesville to resume teaching and research in nuclear physics. After he retired in 1990, he maintained a keen interest in contemporary nuclear and particle physics.

Kees was a lively and approachable physicist. His congeniality, experimental ingenuity, and breadth of knowledge in nuclear and particle physics made him a welcome visitor at many laboratories, including Oak Ridge National Laboratory, Los Alamos National Laboratory, CERN, the University of Tokyo, and the Max Planck Institute for Nuclear Physics in Heidelberg, Germany. His association with Heidelberg was sponsored by the Alexander von Humboldt Foundation through a Senior Scientist Award, which was granted to Kees in 1982 and renewed in 1987.

An exceptionally engaging person, Kees had numerous friends, including renowned physicists Hendrik Casimir, Hofstadter, Leon van Hove, Bernd Matthias, and Valentine Telegdi. With friends and colleagues, he shared his hobbies—mountain climbing, skiing, orchid growing, and photography. He filmed citizens of Papua New Guinea in war dress shooting poisoned arrows and made a movie showing orchids blooming.

Kees was an endearing friend, and his presence in any surrounding was

stimulating. He is missed by his many friends scattered throughout the world.

Willem T. H. van Oers
TRIUMF

Vancouver, Canada

Charles F. Perdrisat
College of William and Mary
Williamsburg, Virginia

Hans J. Weber
University of Virginia, Charlottesville

Richard Guy Helmer

Richard Guy Helmer, an internationally recognized gamma-ray spectroscopist, died on 16 January 2005 in Idaho Falls, Idaho, of complications arising from colon cancer.

Dick was born on 19 February 1934 in Homer, Michigan, and grew up in Ypsilanti, about 8 miles southeast of Ann Arbor. He obtained his BS (1956) and MS (1957), both in physics, from the University of Michigan, Ann Arbor, and his PhD in nuclear physics there in 1961. Dick's thesis research, on the decay properties of several rare-earth nuclides, was carried out at Argonne National Laboratory under the direction of S. Bradley Burson. On receiving his doctorate, Dick joined Russell Heath's gamma-ray spectroscopy group at the National Reactor Testing Station (now the Idaho National Laboratory), where he spent the rest of his career.

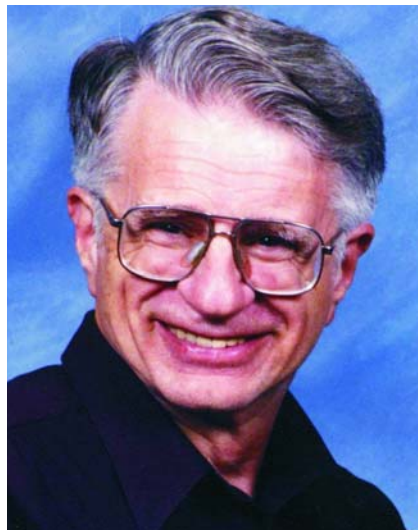
In the 1970s Dick, in collaboration with Reginald Greenwood and others at the Idaho laboratory, began work on germanium-detector-based gamma-ray spectroscopy, primarily in the measurement of gamma-ray energies and the precise calibration of germanium detector efficiencies. Throughout his career, Dick made seminal contributions to that field.

That work led to Dick's involvement with a number of collaborators, both national and international. With Pieter Van Assche of the nuclear research center SCK/CEN in Belgium and Cor van der Leun of the R. J. Van de Graaff Laboratorium of Utrecht University in the Netherlands, for example, Dick presented a set of well-documented and precisely determined gamma-ray energy standards for calibrating Ge-detector energies. Dick and van der Leun subsequently updated the standards, and after van der Leun's death in 1998, Dick completed the update and published the standards in 2000 in *Nuclear Instruments and Methods in Physics Research A*.

A large body of published work on the precise measurement of gamma-ray emission probabilities resulted

from Dick's work on the measurement of Ge-detector efficiencies. For example, he and Klaus Debertin of the Physikalisch-Technische Bundesanstalt, the national metrology institute in Brunswick, Germany, cowrote the book *Gamma- and X-Ray Spectrometry with Semiconductor Detectors* (North-Holland, 1988), a standard reference for many practicing gamma-ray spectrometrists. From the mid-1970s to 1990, his work also influenced many areas of science and technology. Examples include coordinated research programs, conducted under the auspices of the International Atomic Energy Agency (IAEA), on the measurement of actinide-nuclide decay data (1977–85), x-ray and gamma-ray standards for detector calibration (1986–90), and an update and extension of those standards—an effort that is still in progress.

Beginning in the late 1990s, Dick and John Hardy of Texas A&M Uni-



Richard Guy Helmer

versity used both careful measurements and Monte Carlo calculations to precisely calibrate the efficiency of a high-purity Ge detector. Their work resulted in the HPGe detector's being, as far as presently known, the most precisely calibrated detector in the world.

Dick was also committed to efforts to evaluate nuclear data. Beginning in 1984, he became involved in the international Nuclear Structure and Decay Data Evaluation Network, an international group of nuclear physicists, coordinated by the IAEA, that is charged with producing the Evaluated Nuclear Structure Data File from which the Nuclear Data Sheets are produced. From 1998 to 2002, Dick chaired the network's Nuclear

Structure and Decay Data Working Group.

In 1991 Dick began discussions with members of radiation standards laboratories in Germany and France to establish an international collaboration that would provide carefully documented evaluations of decay data for applications in science and technology. As a result, the Decay Data Evaluation Project was formed four years later and held its first meeting. The group's participants today include evaluators from national radioactivity standards laboratories in Brazil, France, Germany, and Russia, as well as national laboratories in the UK and the US.

Dick's achievements, though, were not restricted to standards and evaluations. He contributed significantly to fundamental nuclear physics. In 1968 he and one of us (Reich) reported the discovery of a second isomeric state in hafnium-178. The unique combination of properties—long half-life (31 years), high spin (16+), and high energy (2.45 MeV)—of this four-quasiparticle state continues to attract a lively interest and even some notoriety (see *PHYSICS TODAY*, May 2004, page 21). And those two researchers discovered in 1990 that the first excited state of thorium-229 must lie within a few electron volts of the ground state. Following that discovery, Dick carried out an extensive set of energy measurements with sub-eV precision on several gamma rays from the alpha decay of uranium-233, from which the value 3.5 eV was obtained for the ²²⁹Th energy level. That finding has led to numerous experimental and theoretical studies and continued interest in the topic.

Dick's accomplishments were rewarded well. At the 2001 Annual Winter Meeting of the American Nuclear Society, he was honored at a special session and received the society's Radiation Science and Technology Award. In 1991 he was elected a member of the International Committee on Radionuclide Metrology, the only US member of that committee not associated with NIST.

An exceptionally kind and caring person, Dick was actively involved in his community and the world. He served for six years as a trustee of the Idaho Falls school board, in lay leadership positions in his church, and on the advisory board of the Good Samaritan Nursing Center in Idaho Falls. He helped establish kindergartens for low-income children in his community; engaged in church missions to Brazil, Chile, and Nicaragua;