

To notify the community about a colleague's death, subscribers can visit <http://www.physicstoday.org/obituaries>, where they can submit obituaries (up to 750 words), comments, and reminiscences. Each month recently posted material will be summarized here, in print. Select online obituaries will later appear in print.

Henry Gabriel Blosser

Nuclear physicist Henry Gabriel "Hank" Blosser died in East Lansing, Michigan, on 20 March 2013 at the age of 85.

Henry was born in Harrisonburg, Virginia, on 16 March 1928. After studying business for a year at the University of Virginia, he served two years in the US Navy. He returned to UVA, where he received his BS in math in 1951 and his MS in 1952 and PhD in 1954, both in physics. His PhD thesis was "Large-angle scattering of electrons at 65 kilovolts," and his thesis adviser was Frank Hereford, later president of UVA. Henry then joined Oak Ridge National Laboratory and soon became group leader of the cyclotron project there. His group took advantage of the increasing power of digital computers to determine the acceleration properties of a new generation of cyclotrons that promised to overcome the limitations in energy and precision of classical Lawrence cyclotrons.

In the 1950s Michigan State University (MSU) decided to increase the strength of its rapidly growing physics department by developing a new heavy-ion cyclotron. Henry saw an opportunity to put into practice and further develop his new ideas. He arrived at MSU in mid 1958; at age 30, he was an associate professor and director of an unfunded cyclotron laboratory.

Although federal funding was in one of its recurrent low periods, by October 1961 Henry had completed a cyclotron design in collaboration with Morton Gordon, had written proposals, and had received funding from NSF to build a precision cyclotron, now known as the K50. Although the physics department had little relevant infrastructure when Henry arrived, and although his design had many novel features, he and his team set up the K50 in a new building and made it operational in just three and a half years.

The K50 had superb properties: Its precision proton beams set a new standard for cyclotrons and made possible experiments with resolutions compara-



Henry Gabriel Blosser

ble to Van de Graaff accelerators. Henry participated in only a single pure nuclear-physics experiment at MSU, in which the laboratory's high-resolution capability was used to delineate in unique detail the nature of bismuth-208 excitations. That established the feasibility of the many experiments that followed and established the unique strength of the Cyclotron Laboratory. Over the next 14 years, the K50 supported a research program that put MSU nuclear physics on the map.

Henry developed a new generation of superconducting cyclotrons that redefined the nature of cyclotrons. The driving idea was that, compared with a typical cyclotron, the average magnetic field could be three times larger and the radius three times smaller for a given energy. That reduced the mass of the magnet steel by a factor of 15–20 and the cost of the cyclotron as well as that of the necessary building infrastructure. Henry received NSF funding to build a demonstration magnet and showed that sufficiently precise fields could be produced.

That result attracted additional NSF funding to turn the magnet into a K500 cyclotron. During K500 construction, Henry led a Midwestern group of physicists from 19 institutions that submitted a proposal to build a coupled cyclotron

facility at MSU: The K500 would inject its beam into a K1200 cyclotron to yield particle energies up to 200 MeV/nucleon. During its first exercise in setting priorities for US nuclear physics, the Nuclear Science Advisory Committee approved the construction. For a complex set of reasons, the scheme was carried out in two stages: In the first, the K1200 was injected by an electron cyclotron resonance ion source, and in the second, it was coupled with the K500 as originally planned. The coupled system has, since its inception in 2001, set the standard for research with radioactive beams.

Henry retired in 2003, but he continued his earlier interest in developing cyclotrons for cancer therapy. He used his experience in cyclotron miniaturization to build a neutron-producing machine so small that it could be mounted on a gantry and rotated around the patient being treated, which helped reduce damage to tissue surrounding the tumor. The cyclotron was installed at Harper Hospital in Detroit, and from 1992 to 2012, it treated more than 2000 patients. Later Henry developed and patented a cyclotron that produced beams of 250-MeV protons for cancer therapy; two have been built and three more are under construction.

Probably best characterized as a builder, Henry had a passion for designing new accelerators with forefront properties, thoroughly understanding their operation, and building them with

Recently posted notices at <http://www.physicstoday.org/obituaries>:

- Margherita Hack
12 June 1922 – 29 June 2013
- James Alden Van Vechten
29 July 1942 – 20 June 2013
- Robert Hilton Meservey
1 April 1921 – 18 June 2013
- Kenneth G. Wilson
8 June 1936 – 15 June 2013
- Bernard R. Cooper
15 April 1936 – 10 June 2013
- Jerome Karle
18 June 1918 – 6 June 2013
- Albert (Bacco) Messiah
23 September 1921 – 17 April 2013
- Lhadi Merhari
1961 – 21 February 2013
- Ronald Fuchs
27 January 1932 – 10 November 2012
- Roy G. Goodrich
17 September 1938 – 11 October 2012

a high standard of technical care. He carried over that passion into developing the MSU Cyclotron Laboratory, now the National Superconducting Cyclotron Laboratory; he served as either the lab's director or codirector (with one three-year hiatus) between 1958 and 1989 and built a team that has earned the lab the highest ranking in US nuclear physics. In 2009 MSU was chosen by the US Department of Energy to be the home of the Facility for Rare Isotope Beams, the major new US facility for nuclear physics that will be strongly competitive on the world scene.

Henry received numerous recognitions and awards for his work, including the 1992 Tom W. Bonner Prize in Nuclear Physics from the American Physical Society. On the side, he was an avid backpacker and grower of heirloom tomatoes.

Sam M. Austin

*National Superconducting Cyclotron Laboratory
East Lansing, Michigan*

Gert Ehrlich

Gert Ehrlich, who made important contributions to surface science, especially in the area of atomic interactions on solid surfaces, died of leukemia on 10 August 2012 in Urbana, Illinois. Up to five weeks before his death, he worked tirelessly as a professor in the materials science department at the University of Illinois at Urbana-Champaign. He coauthored more than 200 scientific articles and the book *Surface Diffusion: Metals, Metal Atoms, and Clusters* (Cambridge University Press, 2010).



Gert Ehrlich

Gert was born on 22 June 1926 in Vienna. After Germany annexed Austria in 1938, Gert and his father, who was Jewish (his mother was Catholic), were detained for questioning but, luckily, released. His father immediately departed for the US, and in May 1939 Gert and his sister, Dorothy, arrived unescorted in New York on the T.S.S. *Veen-dam* and were reunited with their father. What might have been a harrowing voyage had become a grand adventure: Gert had investigated all aspects of the ship's operation and explored the ship from top to bottom. His mother joined the family several months later.

In 1944 Gert enrolled at Columbia University. He served in the US Army from 1945 to 1947 and then returned to graduate from the university with honors in chemistry in 1948. He obtained his PhD in chemistry from Harvard University in 1952 under adviser Paul Doty; his thesis title was "Studies on synthetic polyampholytes." Gert remained at Harvard for a year as a National Institutes of Health fellow. He then served a year as a research associate in the University of Michigan physics department, where he worked with Gordon Sutherland on IR spectroscopy of macromolecules.

In 1953 Gert accepted a full-time appointment at the General Electric Research Laboratory in Schenectady, New York, where he studied the kinetics of gas-solid interactions. He developed temperature-programmed, or flash, desorption techniques for quantitative kinetic studies at the gas-solid interface and demonstrated the importance of distinct binding sites in chemisorption phenomena.

The field ion microscope, invented in 1951 by Erwin Müller, enabled Gert to probe the underlying atomic details of his macroscopic observations. Gert made unique chemisorption studies on single-crystal surfaces and the first quantitative observations of individual atoms diffusing on a metal surface. His resulting 1966 article with Frank Hudda in the *Journal of Chemical Physics* has been cited more than 1000 times.

Gert accepted a professorship at the University of Illinois in 1968. Leading a small group of graduate students and postdocs, he expanded his research toward surface studies on an atomic scale. Using an atom-probe field ion microscope, Gert and his group made the first direct observation of an adatom exchange mechanism. They observed and characterized numerous aspects of sur-

face diffusion, including interior step-edge barriers, reflective plane-edge barriers, adatom-vacancy interactions, temperature-dependent long jumps, and adatom cluster motion. Gert and his group used a variety of theoretical and experimental methods to study atomic behavior and transformed the apparently hopelessly complicated subject of surface diffusion at the atomic scale into one much more understandable and explainable.

Among the several honors Gert received were the 1979 Medard W. Welch Award from the American Vacuum Society and the 1982 American Chemical Society Award in Colloid and Surface Chemistry. Through a 1992 research award from the German Alexander von Humboldt Foundation, he worked on boundary layer chemistry and interfacial chemistry at the Fritz Haber Institute in Berlin with Gerhard Ertl and Jochen Block.

Gert was an extremely careful and extraordinarily attentive researcher, with the highest achievable vacuum and precise timing and temperature controls. Gert also was merciless in the proper statistical analysis of data—no small task in the early slide-rule days when access to a computer meant a time-sharing connection on a teletype at 10 characters per second.

Perhaps Gert's most endearing characteristic was his concern for students. His door was always open. When a student would stop by with a question, Gert usually answered with another question to challenge the student. He established a mentoring system in which current students taught the necessary know-how and unpublished techniques to incoming students. When not in the lab, he could easily be found: As he wandered the halls, he would produce a low, enigmatic, warbling whistle, usually his unique rendering of a classical opera aria.

Gert was a curious scientist, and his precise work on the behavior of atoms on surfaces was foundational to modern nanoscience and technology. He also was an excellent teacher who compulsively prepared every lecture, even on material he had previously taught. On receiving news about the success of a former student, he would sport a generous grin and his eyes would sparkle.

Grazyna Antczak
Wroclaw, Poland

Robert S. Chambers
Champaign, Illinois

Armin Gölzhäuser
Bielefeld, Germany