

materials and completed direct studies of the decay in time of coherently generated optical phonons, polaritons, and coupled phonon-plasmon modes of doped semiconductors.

In 1993, Walter conducted an ingenious experiment that verified a theoretical prediction discussed actively during the late 1960s. The prediction was that, in the semiconducting material gallium phosphide, an acoustic phonon at the boundary of the Brillouin zone should have an anomalously long lifetime. Walter was justly proud of his experiment, which verified this long-standing prediction.

Among his professional honors, Walter received a Guggenheim Fellowship in 1966 from the John Simon Guggenheim Memorial Foundation. In 1973, he received the Senior Scientist Award from the Alexander von Humboldt Foundation in Germany.

Walter and his wife enjoyed a warm marriage of 50 years. He has two daughters and two granddaughters who will miss him as we will.

Douglas L. Mills

Alexei A. Maradudin

University of California, Irvine

Kenneth Melvin Evenson

Kenneth Melvin Evenson, NIST fellow and distinguished laser metrologist, died at his home in Sunshine Canyon, Colorado, on 29 January 2002 after a two-year battle with Lou Gehrig's disease. He was an inventor and experimentalist par excellence in the fields of laser metrology and spectroscopy.

Ken was born on 5 June 1932 in Waukesha, Wisconsin, but grew up in Montana. He received a BS in physics from Montana State College in 1955. That year, he married his classmate Vera Stucky, a microbiology major, and they left for a year of studies on Fulbright scholarships at the University of Tübingen. In 1963, he received a PhD in physics from Oregon State University. His research, done under the guidance of David Burch, was on the gas phase recombination of nitrogen atoms using electron paramagnetic resonance.

After graduation, Ken took a job at NIST in Boulder with a group that was studying electrical discharges. His long career at NIST was characterized by a remarkable series of inventions and developments, more than 300 publications, and highly productive collaborations with scientists worldwide. One of his first projects,



Kenneth Melvin Evenson

done in 1964 with Herb Broida and Fred Fehsenfeld, was to test and develop microwave discharge cavities. Ken's design for a compact, quarter-wave cavity powered by a 2450-MHz magnetron was an immediate success. Their 1965 paper (published in *Review of Scientific Instruments*), which included engineering drawings, remains one of the most requested and cited NIST publications. Ken's device is still used in laboratories to generate emission spectra, atoms, radicals, metastables, and ions, and is commercially marketed as the "Evenson cavity."

Another collaboration with Broida led to the development of microwave-optical double resonance, a powerful spectroscopic technique. In their experiments, fine structure transitions in cyanogen (CN) radicals were optically detected using modulated microwave pumping. This early 1960s study foreshadowed generations of double-resonance experiments, which have evolved into the myriad of two-photon spectroscopic techniques in use today.

Much of Ken's research involved measurements in the far-infrared region. He was a pioneer in the development and discovery of many new FIR lasers powered by electrical discharges or IR pumping. In 1968, he led a team that developed laser magnetic resonance (LMR), a sensitive spectroscopic method for detecting paramagnetic species using the Zeeman effect and a fixed frequency FIR or IR laser oscillator. The method has been exploited around the world to study the spectra of transient species, including ions, atoms, and radicals. The excellent sensitivity of LMR has led to its application by chemists as a

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detector to study the kinetics of atmospheric and combustion chemistry.

During the mid-1980s, another powerful tool developed in Ken's laboratory was a tunable FIR source. He achieved this source by mixing tunable and fixed-frequency IR laser beams. The spectra of many trace nonparamagnetic species in the FIR region has been revealed using tunable FIR techniques.

One of Ken's most significant achievements was as the lead researcher on a team of NIST scientists who, in the early 1970s, developed and improved methods for measuring optical frequencies. Using the NIST atomic clock as the standard, they created a ladder of highly accurate frequency standards from the microwave region up to a measurement of the frequency of the methane-stabilized helium–neon laser at $3.37\text{ }\mu\text{m}$. The result, combined with an accurate

measurement by John Hall and Richard Barger at JILA of the wavelength of the laser, produced a 100-fold improvement in the value of the speed of light. Recognizing c as one of the most fundamental of all physical constants, Ken and his coworkers suggested in their 1972 *Physical Review Letters* article that one could eliminate the problem of combining independent time and length standards to determine c by redefining the length standard as the distance traveled by light in a fixed period of time. A decade later, after their result for c was confirmed and improved upon by measurements in other laboratories, the meter was redefined as the length of a path traveled by light in a vacuum during a time interval of $1/299\,792\,458$ of a second.

Although Ken officially retired from NIST in 1999, he continued his research on electrical discharges until

his declining health prevented him from working. His extensive contributions to physics have been acknowledged by many awards and honors: In 1981, the British Chemical Society honored him with the Spiers Memorial Lecture and Prize. Five years later, he won the Humboldt Research Award from the Alexander von Humboldt Foundation in Germany. From the US Department of Commerce, he received a Silver Medal in 1971 and a Gold Medal in 1974. In 1991, he was awarded the Earle K. Plyler Prize by the American Physical Society.

Ken had a wonderful sense of humor and didn't take himself or the events of life too seriously. He loved brewing and consuming beer, fly-fishing, camping, and hiking. He advocated the preservation of open space and nature. For 30 years, he served as chief of the local volunteer fire department. He supported his wife's in-

David Abraham Katcher

David Abraham Katcher, the founding editor of *PHYSICS TODAY*, died of cancer at his home in Chevy Chase, Maryland, on 31 May 2002. He was a pioneer technical editor and science journalist during the post-World War II period, when the importance of science in national security and public policy greatly expanded. In addition to his work with *PHYSICS TODAY*, he was instrumental in the startup of another institution—JASON.

Katcher was born in Brooklyn, New York, on 28 April 1915. He received his BA in physics at the University of Wisconsin in 1936 and subsequently did some graduate work there in English. After working from 1941 to 1943 as an editor at the Naval Ordnance Laboratory, Katcher volunteered for service in the US Army. Following a stint as a private, he was sent to Officer Candidate School and then to the Philippines, where, until his discharge in 1946, he served as a speechwriter for the US high commissioner.

In September 1947, the American Institute of Physics (AIP) selected Katcher as the editor of a new monthly magazine, *PHYSICS TODAY*. He worked with AIP to arrive at an approach that would, as he put it in his first editorial (May 1948, page 3), serve "the student, the teacher, the lawyer, the doctor, and all who are curious about physics." Katcher stayed on as editor until 1950.

For the next several years, Katcher continued as an editor of technical subjects, working at Johns Hopkins University's operations research office, where he supervised a staff of about 40 people who conducted studies for the US Army. In 1956, he was an editor in the weapons system evaluation group of the Institute for Defense Analyses, in Northern Virginia.

From 1959 to 1966, Katcher was the first executive director of JASON, the self-selecting group of scientists that advises the federal government chiefly on national security issues. That assignment came about on the recommendation of Nobel laureate Charles Townes, who had known Katcher from his *PHYSICS*



David Abraham Katcher

TODAY era. Katcher worked closely with Marvin Goldberger, the first chairman of the JASON steering committee, to communicate the needs of the larger JASON group and to set up activities such as visits to military installations and the JASON group's signature summer studies.

Katcher left JASON to join the management consulting firm of Arthur D. Little in Cambridge, Massachusetts. He returned to Washington, DC, in 1972 as a senior staff member of the National Advisory Committee on Oceans and Atmosphere (NACOA). In that capacity, he advised the National Oceanic and Atmospheric Administration on marine mammals, commercial fisheries, and funding for its satellite programs. Robert M. White, the first administrator of NOAA, noted the uncommon grace with which Katcher discharged his duties to ensure the soundness of the recommendations.

Four years later, Katcher moved into the newly created White House Office of Science and Technology Policy as a senior policy analyst, returning briefly to NACOA in 1978 to help in its transition under a new statute. Later that year, he worked as a special assistant in the State Department's Office of the Undersecretary for Security Assistance. Following his retirement from that position in 1980, Katcher engaged in freelance editorial work for the National Research Council and other clients.

Of all his career milestones, Katcher was the most proud of his role at *PHYSICS TODAY*. After leaving the magazine, he observed a ritual of contacting each of his successors to wish them well as editor. In honor of the magazine's 50th anniversary, Katcher was invited to write a retrospective article (see *PHYSICS TODAY*, May 1998, page 6). His insight into what nourished him over a long career was this: "Among the joys of physics is knowing physicists."

Martin C. Offutt
National Research Council
Washington, DC

terest in mycology, contributing his expertise in optics and photography in the preparation of her book on mushrooms of Colorado.

A highly motivated and creative researcher, Ken exhibited incredible enthusiasm and optimism every day he spent in the laboratory. He made experiments work because he expected them to work and confronted setbacks or failures with a list of new approaches to try. His attitude was infectious. He accumulated a broad circle of friends and colleagues throughout his career, including many who periodically returned to Boulder to work on a project in Ken's lab. At a symposium in 2001 honoring Ken, John Brown, a physical chemist at Oxford University and frequent visitor to Ken's lab, described him as the "most creative and gifted laboratory scientist I have ever had the pleasure to work with."

Carleton J. Howard
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Boulder, Colorado

Michael John Rice

Michael John Rice, a distinguished condensed matter physicist, died on 3 November 2002 at his home in Webster, New York, after a long battle with colon cancer. During his career, he made important contributions to the theory of liquid helium-3, to work on super-ionic conductors and superconductors, and to the field of quasi-one-dimensional conductors and conducting polymers.

Michael was born on 25 December 1940 in Cowes, Isle of Wight, England. He received a BSc (1962) and PhD (1965), both in physics, from Queen Mary College, London. His dissertation work, on the statistical mechanical theory of nonequilibrium phenomena, was completed in 1965 under the guidance of Ricardo K. Eisenshitz. Michael's relationship with Eisenshitz was somewhat stormy, which led to one of the formative events of his career: an all-day thesis defense. In front of the external examiner, Ernest Sondheimer, Michael was grilled by Eisenshitz for four hours during which he derived the formulas in his thesis on the blackboard, was dismissed to correct typographical errors in the copies of his thesis while the committee enjoyed a leisurely lunch, and was then grilled for four more hours. Passage of the oral defense was hardly automatic, but he did pass, and the experience colored his view of the rigors of theoretical physics and his expectations of his coauthors for the rest of his life.

Michael accepted a postdoctoral



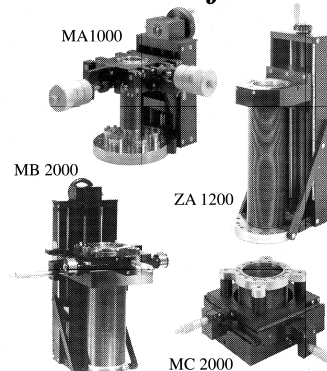
Michael John Rice

appointment at Imperial College, London. There, between 1965 and 1968, he worked on the transport properties of Fermi liquids and published key papers with Seb Doniach on "Spin Fluctuations in Liquid ^3He " and with Tony Leggett on "Spin Echoes in ^3He and Mixtures."

In June 1968, he crossed the pond to the General Electric Research and Development Center in Schenectady, New York, to take the post of member of the technical staff. He published 16 papers on tunneling, transport in dilute magnetic and liquid metal systems, and super-ionic conduction. One of Michael's colleagues at GE, Ivar Giaever, was also a runner. Michael, who suffered from chronic back pain, was nevertheless an enthusiastic runner who won many championships. Giaever bet him a dollar that he could not reduce his time from six to five minutes for a mile. Michael trained religiously and on the appointed day missed his goal by only three seconds. To pay his debt, he invited Giaever to his office, produced two exquisite crystal sherry glasses, poured a fine port into both, and delivered the dollar to Giaever with great flourish while they toasted Michael's ability to run a mile in one minute less than Giaever.

In 1971, Michael returned to Europe to take a position as a member of the technical staff with the Brown Boveri Labs in Baden, Switzerland. There, he expanded his work on Fermi liquids and ionic conductors and began new research on quasi-1D conductors. During the next few years, he acquired a new set of coauthors, most notably J. Bernasconi, G. A. Toombs, and S. Strässler. His work with Strässler on Peierls transitions in quasi-1D metals is particu-

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