

obituaries

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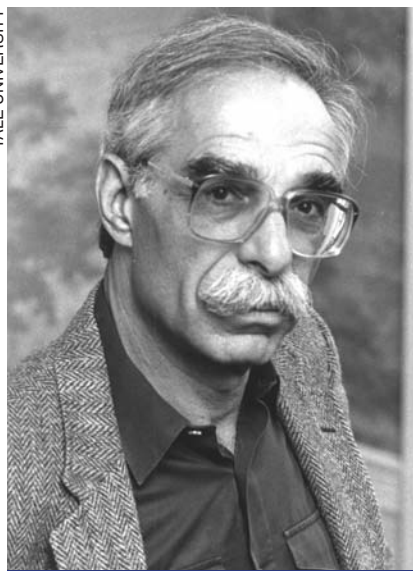
Martin Jesse Klein

Martin Jesse Klein, a physicist, distinguished historian of modern physics, and general editor of *The Collected Papers of Albert Einstein* (Princeton University Press), died 28 March 2009 in Chapel Hill, North Carolina.

Born in New York City on 25 June 1925, Martin graduated at the age of 14 from James Monroe High School in the Bronx, where he and classmate Leon Lederman began their lifelong friendship. He received his bachelor's degree in 1942 and his master's in 1944, both in physics, from Columbia University. As part of the effort during World War II, he worked as a physicist at the Columbia Underwater Sound Reference Laboratory in 1944–45 and as a member of the US Navy Operations Research Group in 1945–46. He received his PhD from MIT in 1948 for his dissertation, "Statistical Mechanics of Critical Point Phenomena," supervised by Laszlo Tisza. Martin was a member of the faculty of the physics department at Case Institute of Technology (now Case Western Reserve University) from 1949 to 1967, and he served as acting chairman of the department in his last year there.

Martin's work in physics was primarily concerned with how statistical physics provides the connection between thermodynamics and the microscopic features associated with molecules. Many of his papers in the 1950s addressed fundamental features of the theory more than applications to specific problems. His work in statistical mechanics was in the Dutch school; he paid careful attention to scholarship and the relation of his results to others' work and to the topic being addressed.

When Martin was a National Research Council fellow at the Dublin Institute for Advanced Studies in 1952–53, his interest in Paul Ehrenfest was stimulated when Erwin Schrödinger referenced Ehrenfest's work during a conversation with Martin. In the 1950s, when still primarily a physicist, Martin



Martin Jesse Klein

began to examine the origins of several theoretical developments in the 20th century, particularly Ehrenfest's work on understanding the second law of thermodynamics and Albert Einstein's quanta. Ehrenfest's life and work were the route that led Martin from theoretical physics to the history of physics. He learned Dutch and spent 1958–59 as a Guggenheim fellow at the University of Leiden, where Ehrenfest had been a professor of theoretical physics. During his visit he came to know Ehrenfest's wife and collaborator, mathematician Tatyana Ehrenfest-Afanasyeva, and was given access to his papers, notebooks, manuscripts, and correspondence. In 1959 Martin published a two-part paper on Ehrenfest's contributions to quantum statistics and an edition of his collected scientific papers.

In the 1960s Martin extended his historical range and published a series of seminal papers by Max Planck and Einstein on the foundation of quantum theory. He also translated into English and published letters on wave mechanics by Einstein, Schrödinger, Planck, and Hendrik Lorentz. In 1966–67 he received a second Guggenheim fellowship to com-

plete his biography of Ehrenfest, titled *Paul Ehrenfest: The Making of a Theoretical Physicist* (North-Holland, 1970), which was greeted with acclaim by both physicists and historians of science. Martin later turned to the investigation of the foundations of thermodynamics and statistical mechanics in the 19th century, writing important papers on Ludwig Boltzmann, Sadi Carnot, Rudolf Clausius, J. Willard Gibbs, and James Clerk Maxwell.

Having made the transition from theoretical physicist to historian of physics, Martin moved to Yale University in the fall of 1967 as a professor of both physics and the history of physics. In 1974 he was named Eugene Higgins Professor, one of the top-ranking chairs for scientists at Yale, and became emeritus in 2000.

By 1988 Martin was recognized as one of the world's preeminent historians of modern physics. In that year he assumed the job of general editor of *The Collected Papers of Albert Einstein* and oversaw the publication of volumes 3 through 6, which cover the years 1909 through 1917. In that period Einstein devoted his efforts mainly to developing a general theory of relativity. Martin stepped down as editor after a decade. To date, 12 volumes of the projected 25 have been published.

Martin was elected to many societies, including the National Academy of Sciences (1977), a rare honor for a historian of science. In 2005 he was the first recipient of the Abraham Pais Prize for the History of Physics, presented by the American Physical Society and the American Institute of Physics.

Martin had a major influence on the history of physics. His many students aimed to emulate his scholarly style of focusing on fundamental conceptual issues and the intellectual framework in which they developed. Other historians of science were deeply influenced by his papers, and they, too, became his students. Physicists have been heard to say

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E. Leonard Jossem

19 May 1919 – 29 August 2009

Hans Christoph Siegmann

1935 – 19 June 2009

admiringly of his work that “he gets the physics.” Martin’s refined sense of style and his profound understanding of physics and its history were evident in his enthralling, lucid, and enlightening lectures and writings. Those who knew him frequently, and aptly, described him as generous, gracious, and elegant.

Raymond Mountain

*National Institute of Standards and Technology
Gaithersburg, Maryland*

Alan E. Shapiro

*University of Minnesota
Minneapolis*

Vladilen Stepanovich Letokhov

Vladilen Stepanovich Letokhov, an outstanding scientist in laser physics and laser spectroscopy, died of heart failure on 21 March 2009 in Troitsk near Moscow.

Vladilen—Vladik to his friends and coworkers—was born on 10 November 1939 in the small Siberian town of Taishet, not far from Lake Baikal. After graduating from the Moscow Institute of Physics and Technology (MIPT) in 1963, he attended the P. N. Lebedev Physical Institute of the USSR Academy of Sciences. He did his postgraduate studies under the supervision of Nobel laureate Nicolay Basov.

As a collaborator on Basov’s laser-physics studies, Vladilen helped obtain a number of fundamental results: the features of the propagation of laser pulses with nonlinear amplification, including “superluminal” pulse propagation; the discovery of nonresonance feedback in random lasers; the generation of ultrashort pulses in passively mode-locked lasers; and lasers with highly stable frequency. Although Vladilen was a theoretical physicist, he understood well the significance of experiments and carefully analyzed all experimental details, which are often ignored by theoreticians. In 1969 he defended his PhD thesis in the theory of laser pulse generation and amplification, and a year later he received a second doctor of science degree in quantum radiophysics from the Lebedev Physical Institute.

In 1970 Vladilen went to the new Institute of Spectroscopy at the USSR Academy of Sciences in Troitsk. He became the deputy director for research and organized the department of laser spectroscopy, which he headed to his last days. Vladilen was also a faculty member at the MIPT, where he served



Vladilen Stepanovich Letokhov

as a professor of physics from 1972 to his death and as head of the chair of quantum optics from 1986 to 1998.

Vladilen’s scientific interests included various areas of laser physics, spectroscopy, chemistry, and biomedicine. His most important contributions, however, were to the field of laser spectroscopy. He was the first to realize selective detection of atoms and molecules by multiphoton resonant ionization, which made it possible to develop methods of ultrasensitive analysis. Vladilen was also among the first to achieve laser spectroscopy with sub-wave spatial resolution. With his collaborators, he suggested and developed methods of laser control of atomic motion, resulting in creation of atom traps based on gradient forces. His group carried out the first experiments on cooling, collimation, and reflection of atom beams by laser radiation.

With his coworkers, Vladilen made decisive contributions to the development of methods of selective laser chemistry, including isotope-selective multiphoton dissociation (MPD) of molecules by IR laser radiation and vibrationally mediated photochemistry. He developed several effective schemes of laser isotope separation; for example, based on isotope-selective IR MPD, the first commercial plant for laser isotope separation was created in 1998. Vladilen and his coworkers performed groundbreaking experiments in laser mass spectroscopy of organic molecules, and they also developed methods of picosecond and femtosecond nonlinear laser spectroscopy for investigation and control of ultrafast processes in condensed medium. In recent years

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