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.

Martin Lewis Perl

STEVE CASTILLO FOR STANFORD NEWS SERVICE

Martin Lewis Perl

Martin Lewis Perl passed away unexpectedly on 30 September 2014 in Palo Alto, California. A consummate and independent-minded experimentalist, he was world renowned for his discovery of the tau lepton, for which he received the 1995 Nobel Prize in Physics.

Martin was born in New York City on 24 June 1927. An excellent student, he graduated from James Madison High School in Brooklyn at age 16 and entered the Polytechnic Institute of Brooklyn. Influenced by his parents' practicality, he studied chemical engineering. During World War II, Martin served in the US Merchant Marine and US Army; he then returned to school and completed his BA in 1948.

After graduating, Martin worked as a chemical engineer at General Electric. He became interested in physics while "touching up" his education for his job. In 1950 he entered graduate school at Columbia University; he received his PhD in atomic physics in 1955 under Nobel laureate I. I. Rabi. Instrumental in molding Martin as a physicist, Rabi launched him toward particle rather than atomic physics.

Martin joined the faculty of the University of Michigan in 1955 and studied strong interactions. In 1963 he became a faculty member at the nascent SLAC. Martin searched for unknown differences between the electron and muon. He also steadfastly maintained that there was no good reason to assume just two families of leptons.

Martin saw that the e^+e^- storage ring, SPEAR, that was being built at SLAC provided a practical way to search for heavy leptons. His experimental group joined Burton Richter's group and a team from the Lawrence Berkeley Laboratory in building what came to be known as the Mark I detector. Martin proposed to search for final states containing an electron, a muon, missing energy, and nothing else, since no conventional process could produce such states.

The initial data taken in 1973–74 had 24 opposite-sign electron–muon pairs with no other particles and an estimated background from misidentifications of fewer than 4.7 events. The analysis of those early experiments was much more challenging than it is today because the lepton identification in the Mark I was quite weak. The major question was not the statistics but whether the misidentifications had been calculated correctly. Martin determined that an average hadron would be misidentified as an electron 18% of the time and as a muon 20% of the time. He also estimated that the probability for an electron to be identified as a muon and vice versa was about 1%. Martin challenged everyone in the Mark I collaboration to find an error in his method. Some used other techniques to calculate the misidentifications, but eventually everyone agreed that the signal could not be explained by backgrounds.

The next question was, What could those events come from? The two leading hypotheses were pairs of new bosons, each decaying to a charged lepton and a neutrino, and pairs of new leptons, each decaying to a charged lepton and two neutrinos. The two possibilities could be distinguished by the amount of energy carried by the charged leptons, but the initial 24 events had insufficient statistical power to do that. After months of study, the collaboration went public with the results in the summer of 1975. Martin called the new particle the "U" because it was unknown.

By the following summer, the data had grown to 139 electron–muon events with an estimated 34 backgrounds, and the energy spectrum was consistent with the weak decay of a heavy lepton and inconsistent with the two-body decay of a boson. In 1977 two experiments running at the German e^+e^- storage ring DORIS confirmed a heavy lepton. Martin abandoned the name "U" and named the new heavy lepton the tau from the Greek word $\tau\rho\iota\tau o\nu$ (triton), meaning "third."

With acceptance of the tau, Martin turned to measuring its properties. True to his style, he relentlessly hunted for "forbidden" tau decays and excluded decays like eγ and eπ. Having struck gold once, he carefully sifted through the whole data set of SLAC's Positron–Electron Project for additional nuggets: unstable neutral leptons, anomalous events with low multiplicity, and charged-lepton-specific forces.

The decays of taus into three pions and a neutrino were perfectly suited for measuring the hitherto predicted but unmeasured tau lifetime. On hearing about a proposal to build a vertex detector to make the measurement, Martin gave emphatic instructions to "go do it!" and added his support for the Mark II secondary vertex detector. The new Mark II detector boasted much improved electron and muon identification over that of the Mark I. The secondary vertex detector measured the lifetime to better than 20% precision, at the value predicted, and thereby confirmed electron-muon-tau universality and helped complete a first pass at the tau's profile.

In 1991, following the end of the Mark II program at the Stanford Linear Collider, a CERN colleague came to SLAC promoting a dedicated high-luminosity e^+e^- storage ring to generate large samples of tau leptons and charmed mesons. Martin was enthusiastic, as it promised a way to test for subtle deviations from the standard theory and to limit the mass of the tau neutrino. Martin and his colleagues engaged the SLAC accelerator group to work on the machine design, developed a detector design, and began building a new physics collaboration. In 1993, after the tau–charm proposal failed to get approval at SLAC, they pursued a possible facility in southern Spain. That proposal also failed.

The possible existence of fractionally charged particles initiated a fascinating chapter in Martin's experimental life. In his early days at SLAC, he had looked for fractional charges in collision products, and in the mid 1980s he developed a rotor electrometer to examine bulk samples. But in the early 1990s, he turned to automating Robert Millikan's famous oil-drop experiment; he used modern techniques to provide uniform drop size, real-time charge measurement, and high throughput. No fractional charge candidates were seen in a decigram sample of terrestrial matter, nor in 4 mg of the Allende meteorite, suspended in 40 million drops.

Throughout his career Martin served admirably as a mentor and pedagogue, encouraging younger physicists and his peers to be thorough and systematic, to question the conventional wisdom, and to pursue new directions when the old were exhausted. SLAC was Martin's home and SLAC colleagues his scientific family. Even in recent years he came to the lab daily to work on experiments and engage his coworkers. Martin had a tremendous impact on everyone at SLAC and on the field at large. We miss him.

Gary Feldman
Harvard University
Cambridge, Massachusetts
John Jaros
Rafe H. Schindler
SLAC
Stanford University
Stanford, California

George L. Trigg

George L. Trigg, assistant editor and then editor of *Physical Review Letters* (*PRL*) from 1958 through 1988, died on 24 June 2014 in Pennington, New Jersey. From the very beginnings of the journal, Trigg played a crucial role in setting its character and establishing it as one of the world's preeminent and timely physics journals.

In response to the post–World War II burgeoning field of physics, Samuel Goudsmit, then editor of *Physical Review,* conceived the idea of converting the Letters to the Editor section into a heftier, separate publication. He was quick to identify Trigg as the person to get it off on the right foot. He easily convinced Trigg to take leave of his professorship at Oregon State College (now University) and then, after a short time, to accept the permanent editorship at *PRL*.

The new journal was confronted with two basic challenges. The first was to rethink the publication process itself. *Physical Review*, sometimes semiaffectionately called the Green Plague because of its cover color and its ever-increasing size, had a carefully organized publication process involving hot type that, while accurate and readable, was also time consuming to prepare—a property not conducive to the new journal's need for rapid publication. Trigg was instrumental in devising a speedier technique that used skilled typists and some specially designed typewriter keys for the abundant and convenient use of symbols. The time frame for publication was thereby reduced to what would eventually become an insignificant portion of the total editorial and production time.


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George L. Trigg

The second challenge faced by *PRL* was to reduce the time it took to undergo the peer-review process. In the early days, Goudsmit and Trigg, in consultation with Brookhaven National Laboratory colleagues, handled both editorial and peer-review processes pretty much by themselves. Formal refereeing gradually developed and, as the journal acquired ever more prestige and status, eventually became the determining submission-to-publication time factor. Trigg shepherded the journal through that adolescent period with his cool and steady hand.

During his approximately 30-year tenure as assistant editor and editor, Trigg managed to publish, either alone or with colleagues, more than 60 editorials. Written in his pithy style, many of them were motivated by his never-ending quest to educate his authors on the fine points of proper scientific writing, with occasional reports on the need to control the size and quality of the journal. While, of course, many individuals contributed to the success of *PRL*, the unique role played by Trigg was possibly its most critical factor.

Probably the most famous of Trigg's editorials was his spoof on style, entitled "Grammar," which appeared in *PRL* on 19 March 1979 (volume 42, issue 12, page 747).

Trigg was born on 30 September 1925. He received his BA, MA, and PhD degrees from Washington University in St. Louis. His PhD thesis, with Eugene Feenberg as his adviser, was on the theory of beta decay. He then took an academic position at Oregon State. He started at *PRL* in 1958 as a part-time assistant editor. The job became full-time in 1962; he was promoted to editor in 1969 and remained in that position until he retired in 1988. Besides his editorial work, he wrote many volumes on modern physics, scientific histories, and mathematical physics. He edited the Encyclopedia of Applied Physics series and coedited with Rita Lerner the Encyclopedia of Physics series. He was also known locally as a strong advocate of barbershop singing and other musical styles. In retirement he became devoted to genealogy research.

On a personal note, I remember with great fondness the happy days we spent together on the American Physical Society (APS) journals while I was a part-time editor at its Brookhaven offices. While Trigg was officially employed only at *PRL*, he was always available for consultation on any APS journal matters, and his advice and counsel were always greatly valued by us.

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