

“Bob was truly a great accelerator physicist. He was widely respected throughout the high energy physics community for his capability in accelerator physics as well as his intellectual integrity.”

Tor Raubenheimer

Professor at the SLAC National Accelerator Laboratory

## Remembering Robert H. Siemann



ROBERT SIEMANN LED FORMULATION OF THE ACCELERATOR PHYSICS ACADEMIC PROGRAM AND THE DEVELOPMENT OF THE FACULTY AT SLAC.

In early 2007, physicists working at the SLAC National Accelerator Laboratory announced a new way to boost speeding electrons with a dramatic burst of energy. As electrons traveled through the first two miles of the linear accelerator at SLAC, they reached the speed of light, gaining 42 billion electron volts of energy. But as they hurtled through a mere 33 inch plasma chamber, the electrons jumped another 42 billion electron volts, doubling their output. Achieving the startling energy leap in such a short distance was a breakthrough.

Then, during the summer of 2008, the power of visible laser light was used for the first time to prepare trains of attosecond electron pulses and accelerate them. This marked the first step toward realizing the dream of creating inexpensive micro-accelerators. These novel technologies will drive the future of accelerator design, leading to smaller, less expensive machines that will enable profound discoveries about the origin of our universe and its mysterious contents.

For nearly a decade, SLAC Professor Robert Siemann led the team of collaborators from Stanford, UCLA and USC who pursued these discoveries. Sadly, it was also the culmination of a brilliant career in accelerator science for Siemann, who died soon after. He left an indelible impression on his field, students, and colleagues. In his honor, Stanford University is creating two fellowships bearing Siemann's name.

### A REMARKABLE SCIENTIFIC CAREER

Siemann earned his bachelor's degree in physics from Brown University and completed doctoral studies at Cornell University. His first exposure to Stanford came in 1969 with a postdoctoral appointment at the Stanford Linear Accelerator Center (SLAC). In 1973, after a year at Brookhaven National Laboratory, he joined the faculty at Cornell, becoming a recognized leader in his field. He arrived at Stanford in 1991 as a professor of particle physics at SLAC, with a courtesy appointment in Applied Physics starting in 2000.

Siemann immediately played a central role in understanding some of the fundamental accelerator physics of the Stanford Linear Collider. A few years later he established a department at SLAC specifically devoted to long-term accelerator research with an emphasis on educating graduate students. Siemann always treated accelerator physics with academic integrity, an approach that was reflected both in the character of his department and in the quality of the journal he co-founded with the American Physical Society.

Siemann was instrumental in creating *Physical Review Special Topics – Accelerators and Beams*, a widely respected, peer-reviewed journal for accelerator physics. In a memorial editorial, his colleagues wrote, “During his nine years as journal editor he oversaw and guided PRST-AB's astonishing growth in size and importance.” They praised his vision, courage, and leadership in making the journal one of the first to become open-access and free of charge. Their memorial concluded, “Robert Siemann's passing is a tragic loss for the worldwide accelerator community.”

*Seeking Solutions, Educating Leaders*

“Bob was devoted to teaching and his students, and these fellowships are a wonderfully appropriate way to recognize his contributions in educating generations of accelerator physicists.”

**Persis Drell**

Director, SLAC National Accelerator Laboratory

### DEDICATION TO STUDENTS

In addition to his many professional accomplishments, Siemann will be remembered as an outstanding colleague, friend, and mentor. He enjoyed working with students more than anything else, and was the quintessential professor who advised young physicists with unmatched commitment and enthusiasm. He lived and worked by the highest standards and demanded nothing less from his students. He was very fair and one always knew where he stood. He critiqued thoroughly and also complimented freely when praise was earned.

Siemann's former students laud his demanding and exacting teaching style, and speak highly of their educational experience with him. His colleagues also feel fortunate to have collaborated with him on his many projects that were on the frontier of accelerator research.

“Bob Siemann's contributions to our field are many, deep, and diverse, but perhaps none more important than his mentoring of young scientists,” says his former student, Srinivas Krishnagopal of the Bhabha Atomic Research Centre in Mumbai. “Those of us who were fortunate enough to be his students will miss him; the best tribute we can pay to him is to follow his example with coming generations of scientists.”

### THE SIEMANN GRADUATE FELLOWSHIPS

In honor of his scientific achievements and dedication to teaching, Stanford University has established two graduate fellowships in Siemann's name. A gift from his widow, Hannah Siemann, will endow the fellowships to support outstanding physics PhD students who are conducting research at SLAC or in the fields of high energy, particle, or accelerator physics.

Graduate fellowships are such a high priority that Dean Richard Saller of the School of Humanities and Sciences will match Mrs. Siemann's gift with funds from The William and Flora Hewlett Foundation. “Graduate students are an integral part of the intellectual fabric of the university,” says Dean Saller. “I am grateful for Mrs. Siemann's generosity in creating these fellowships, which allows us to support talented physics students who—like Robert Siemann—will shape the future of their field.”

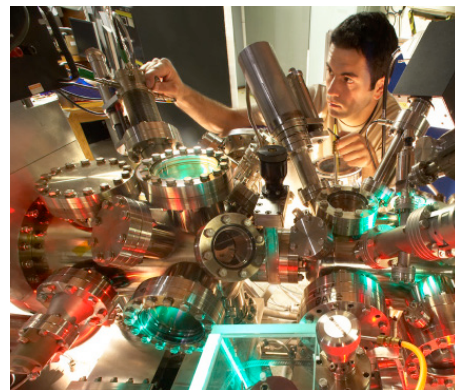
Stanford has long been known as a leader in physics education and research. This eminence can be attributed to our exceptional faculty and their research programs, which have led to 15 Nobel Prizes and countless other accolades.

A gifted and visionary scientist, Robert Siemann was committed to educating young physics students throughout his lifetime. With graduate fellowships endowed in his honor, Stanford students will continue to benefit from his legacy forever.

SLAC, Stanford University, and Hannah Siemann welcome additional contributions to this fund in honor of Bob. Contributions may be made by check to:

Stanford University  
c/o Cynthia Brandt, Associate Dean for External Relations  
School of Humanities & Sciences  
450 Serra Mall, Bldg. 1, Stanford, CA 94305-2070

The Robert H. Siemann Graduate Fellowship in Physics, fund KAAWY



A YOUNG SLAC SCIENTIST AT WORK

COURTESY OF PETER GINTER/SLAC

Ralph W. Aßmann, a former research associate and staff member at SLAC, put it simply: “Bob Siemann truly liked to work with young people, and young people liked to work with him.”