

To notify the community about a colleague's death, subscribers can visit <http://www.physicstoday.org/obits>, 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.

Stig Hagström

Stig Hagström, who was instrumental in developing x-ray photoelectron spectroscopy (XPS) and synchrotron radiation research, helped the Stanford University and Silicon Valley scientific, technological, and educational communities build strong collaborations with Sweden. He died of a stroke on 28 May 2011 in Stanford, California.

Born in Esperyd, Sweden, on 21 September 1932, Stig got his BSc in 1958 and his PhD in 1964 from Uppsala University. The title of his thesis, done under adviser Kai Siegbahn, was "Studies of some atomic properties by electron spectroscopy." Stig was one of Siegbahn's younger colleagues on the research team that discovered the chemical shift in XPS and established it as a critical observable in materials analysis. Siegbahn was awarded the 1981 Nobel Prize in Physics for that discovery.

Stig did postdoc work first at MIT and then at Lawrence Berkeley National Laboratory. At Berkeley, working with David Shirley and one of us (Fadley, then Stig's graduate student), he helped establish the first experimental XPS program in the US. Shirley's and Fadley's groups later made significant contributions to the field, a part of Stig's legacy.

In 1966 Stig returned to Sweden as an associate professor at Chalmers University of Technology. Two years later he suggested to William Spicer of Stanford that the high-energy physics storage ring, SPEAR, to be constructed at SLAC, be used as a source of synchrotron radiation. That suggestion led to the development of the Stanford Synchrotron Radiation Lightsource.

Stig was appointed as a professor in 1969 to Sweden's newly founded Linköping University. As chairman of the science department, Stig started programs at both the graduate and undergraduate levels while still pursuing his own research in the fields of surface physics, surface analysis, and surface coatings with physical vapor deposition techniques. The groundwork he laid in Linköping in materials science has led to its being one of the strongest research environments in Sweden in that field. As Linköping's pro vice chancellor from 1970 to 1976, he



Stig Hagström

greatly increased the contacts between the university and local industry.

In 1976 Stig moved to California to lead the Xerox Palo Alto Research Center's General Sciences Laboratory, a legendarily creative and productive group. The lab was internationally recognized for its work on synchrotron radiation, surface and bulk properties of metals and semiconductors, magnetism for vertical recording, and read-write magnetic and optical disks, among other accomplishments.

Stig then joined the department of materials science and engineering at Stanford in 1987 and served as chairman for five years. He initiated a transformation of the department, whose faculty became known for its work on thin films and nanotechnology. Stig also greatly strengthened work on surface science by attracting leaders of that field to the university, introducing advanced instrumentation to the facilities, and promoting connections between the university and industry.

In the early 1990s Stig became heavily involved in the development of higher education in Sweden. He was also active in promoting Swedish research in information technology. In 1992 Stig became chairman of the board for a new governmental agency, the Swedish National Agency for Higher Education, whose task was to introduce a system for evaluating the quality of

education and research at Swedish universities and colleges. He also headed a parliamentary investigation of the Swedish research-funding system in 2000. Early on he concluded that a major increase of the base grants for Swedish university research was necessary, although it was not until a change of government in 2007 that such grants were increased substantially.

During the years Stig was back in Sweden, he was involved in the Royal Swedish Academy of Sciences, including selecting Nobel laureates, and in the Royal Swedish Academy of Engineering Sciences, where he was chairman from 1993 to 1996. After returning to the US, he still enjoyed going back to Sweden every year for the Nobel ceremony, until his health made it too difficult for him to travel.

Stig returned to Stanford in 1999 to help establish the Wallenberg Research Link (WRL) and the Wallenberg Global Learning Network (WGLN). The WGLN nurtures collaborations between Stanford and Swedish university faculty on using innovative information-technology methods to facilitate the learning process. The WGLN and WRL have led to long-standing linkages between Stanford and Swedish scholars and continue to be a vibrant part of Stig's legacy. During his years in the US, he and his wife, Brita-Stina, always warmly received Swedish scientists, politicians, industrialists, and journalists to their home in Menlo Park.

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

- David Sayre
2 March 1924 – 23 February 2012
- Susan Niebur
9 September 1978 – 6 February 2012
- Charles Weiner
12 March 1930 – 28 January 2012
- David Allen Park
13 October 1919 – 19 January 2012
- Alan Bowen Smith
30 June 1924 – 5 January 2012
- Alan Burgess
9 November 1933 – 27 December 2011
- Meinhard E. Mayer
18 March 1929 – 11 December 2011
- Henry George Horak
26 March 1919 – 11 October 2011
- Saul Altschuler
11 June 1919 – 10 October 2011
- Robert Blinc
31 October 1933 – 26 September 2011
- Arthur Komar
26 March 1931 – 3 June 2011
- Bruce Winstein
25 September 1943 – 28 February 2011

LINDA A. CICERO/STANFORD NEWS SERVICE

In Sweden, the many words in memory of Stig Hagström share a common theme; they express gratitude for his interest in the well-being of his beloved native country and for his contributions to Swedish higher education and research and its interactions with US institutions. Here in the US, he will be missed for his long-term vision, his warm and thoughtful guidance, and his enthusiasm for bringing together scholars from Sweden and Stanford.

Arthur Bienenstock

*Stanford University
Stanford, California*

Charles S. Fadley

University of California, Davis

Bo Sundqvist

*Uppsala University,
Uppsala, Sweden*

Aden Baker Meinel

Aden Baker Meinel, an astronomer, optical scientist, atmospheric physicist, and telescope designer, died in Henderson, Nevada, on 2 October 2011. He was the founding director of Kitt Peak National Observatory and of the College of Optical Sciences at the University of Arizona (UA).



Aden Baker Meinel

Born in Pasadena, California, on 25 November 1922, Aden developed an interest in astronomy in high school. By age 18 he was working at the Mount Wilson Observatory optical shop. The next year he entered Caltech as a sophomore. In 1942 Aden dropped out of school to join the US Navy's Caltech rocket program, and by 1944 he was designing rocket launchers and had become a US Navy ensign. The navy sent him to Europe in 1944 to investigate the German V-2 rocket factory at

Nordhausen and its underwater-rocket testing facility at Toplitzsee. In addition to convincing German rocket scientists to come to the US, Aden advised the navy on which rocket hardware to ship back from Germany.

Aden returned from Europe in 1945 and was admitted to the graduate school of astronomy at the University of California, Berkeley, where he earned his PhD in three years, under the GI bill. His adviser was C. D. Shane. For his dissertation, he designed and built a Schmidt telescope with which he made the first observations of the IR emission bands of molecular oxygen and hydrogen in the atmosphere and demonstrated that auroras are produced by solar protons. He graduated in 1947 and accepted an appointment to Yerkes Observatory at the University of Chicago.

In 1955 NSF appointed Aden to search potential sites for a national observatory to provide telescope access for astronomers in the US. The result was Kitt Peak National Observatory, and Aden was its first director. There he invented a slumping process for the honeycomb Pyrex mirror, which was used in an innovative 84-inch telescope.

In 1960 Aden became director of the UA's Steward Observatory and astronomy program. He designed the Multiple Mirror Telescope, a joint project of UA and the Smithsonian Institution that proved the practicality of segmented telescope mirrors. The UA astronomy department, which Aden began expanding, was instrumental in the development of the Large Binocular Telescope and of Roger Angel's mirror laboratory, which has produced many of the world's large telescope mirrors.

Aden recognized the need for an interdisciplinary academic center of excellence in optical science. In 1964 he became the first director of the UA's Optical Sciences Center—now the College of Optical Sciences—and created a graduate degree program in optics. During his nine-year leadership, a 77 000-square-foot building was constructed, the department grew from 4 to 25 faculty members, and the number of students grew to 100. Today the college has more than 1 500 graduates and 100 faculty teaching more than 90 courses.

Aden joined NASA's Jet Propulsion Laboratory (JPL) in 1983 to work on concepts for a 50-meter-diameter submillimeter, segmented space telescope. His work laid the foundation for today's *James Webb Space Telescope*. In 1986 JPL director Lew Allen Jr asked Aden for his ideas on future missions for NASA. Aden concluded that although extremely difficult, the characterization of

exoplanets using space telescopes was feasible. Those efforts became the NASA exoplanet program.

After his official retirement from JPL in 1993, Aden worked on the design of the Keck telescopes' interferometer and on the proposed Caltech–University of California 30-meter telescope. In 2002 he published two papers on lightweight space telescopes built using blazed high-order diffractive membranes.

During an active research career that spanned almost 70 years, Aden published more than 200 papers and 6 books—covering pioneering work in solar energy, atmospheric science, and telescope design—and a catalog of emission lines in astronomical objects. He was recognized for the diversity of his work with numerous awards. Among them were the first Helen B. Warner Prize in 1954 from the American Astronomical Society and the Optical Society's 1980 Frederic Ives Medal. He and Marjorie Meinel, his wife and long-time research collaborator, jointly received three awards from SPIE.

Aden conceived of many successful projects and laid a firm technical and scientific foundation for others to carry on while his interests jumped to the next amazing project. Aden was a high-energy, hard-working individual focused on starting successful innovative ventures in telescopes, instruments, and science. He was approachable and friendly and infused those around him, particularly students and faculty, with the excitement of discovery and accomplishment. He was as knowledgeable discussing detailed aerospace and systems engineering problems as he was discussing aspects of astrophysics.

James B. Breckinridge

*University of Arizona
Tucson, Arizona*

Helmut A. Abt

*Kitt Peak National Observatory
Tucson, Arizona*

Rosalyn Sussman Yalow

Renowned medical physicist Rosalyn Sussman Yalow, a co-recipient of the 1977 Nobel Prize in Physiology or Medicine, died on 30 May 2011 in New York City.

Rosalyn was born on 19 July 1921 in New York City. Although her parents were not able to attend high school, they passed down to Rosalyn their lifetime love of learning. Her fondness for chemistry was influenced by her high school chemistry teacher. In 1941 she