

Princeton University

HONORS FACULTY MEMBERS
RECEIVING EMERITUS STATUS



May 2017

The biographical sketches were written by staff and colleagues in the departments of those honored.

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ARTHUR JOHN STEWART SMITH



Born in Victoria, British Columbia, in 1938, A. J. Stewart Smith grew up as a sports-minded youngster playing rugby and lacrosse. He attended Victoria High School and upon graduation was awarded the Governor General's Medal for having achieved the highest standing in British Columbia. Stew studied physics and math at the University of British Columbia (UBC), earning a B.A. in 1959 and a M.Sc. in 1961. During his time in Vancouver, Stew, a scholar athlete, was a member of two highly successful lacrosse teams: the Junior Shamrocks, who were finalists in Canadian Junior Lacrosse in 1957 and 1958, and the Vancouver Carlings, who won the Mann Cup in 1961. His time on the lacrosse field, however, did not detract from his studies, and Stew was awarded a UBC medal for having attained the highest standing among students in the Faculty of Science.

From UBC, Stew moved to Princeton, where he enrolled as a physics graduate student, conducting research at the Princeton-Penn Accelerator under the supervision of then-Assistant Professor Pierre Piroué. Stew was awarded a Ph.D. in 1966 for studies of the production of antiprotons resulting from proton-nucleus collisions.

From Princeton, Stew moved to Hamburg, Germany, as a postdoctoral fellow, where he worked with Samuel C. C. Ting of the Massachusetts Institute of Technology. In 1968, Stew returned to Princeton to join the physics faculty. During his five decades at Princeton, Stew, the Class of 1909 Professor of Physics, had a remarkable career in research, teaching, and administration. He managed to serve as chair of the physics department for eight years while doing experiments at the Brookhaven National Laboratory, Fermi National Accelerator Laboratory near Chicago, and SLAC National Accelerator Laboratory.

At Brookhaven, Stew and his team set up an experiment to hunt for an exceedingly rare form of decay of the K meson. The experiment ran for a decade before it finally observed a one-in-10 billion event. He was awarded the 2011 W. K. H. Panofsky Prize in Experimental Particle Physics of the American Physical Society for outstanding experimental research in high-energy physics as a result of this work.

As a visiting professor at SLAC, he served as scientific spokesperson for the BaBar experiment, an international collaboration comprising over 600 scientists and engineers. BaBar found a stunning new example of matter-antimatter asymmetry in nature, which helped explain why the universe contains a slight excess of matter over antimatter, which takes the form of stars, planets (and people!).

Stew served from 2006 to 2013 as Princeton's first dean for research. During his tenure, he became a very effective advocate for research, focusing his boundless energy on supporting scientific inquiry at Princeton. He also understood the value of supporting the patenting and licensing of Princeton discoveries, thus greatly raising the visibility of Princeton's technology licensing activities. (Stew also made a serious impact in another area: care of research animals, which are so important to the advancement of research that benefits the health of both humans and other animals.)

Stew advised numerous graduate students over the years, several of whom went on to highly successful research careers of their own. Undergraduate alumni recall how encouraging Stew was as they approached their study of physics with no small degree of trepidation.

A fellow of the American Physical Society, Stew has served on the boards of numerous organizations, including Brookhaven National Laboratory, the U.S. Department of Energy, the National Academy of Sciences, and the National Research Council of Canada. Over the past decade, Stew has worked tirelessly to advise the management of the Large Hadron Collider at CERN (the European Organization for Nuclear Research) on their experimental program. Stew generously shared the experience he gained working on BaBar to help CERN gear up for the hunt of the Higgs boson, the particle that gives other particles their mass. The Higgs, which some have dubbed the "god particle," was the final undiscovered piece in the highly successful standard model of particle physics. From 2004 to 2009, he served as chief referee for the construction of the Compact Muon Solenoid (CMS) experiment. He said, "My goal was to give tough love to keep the project on track and help it avoid problems we had experienced in BaBar." In 2012, CMS and its companion experiment ATLAS announced the discovery of the long-sought Higgs.

"Stew is a dedicated and immensely talented scientist, who demands a high standard for himself and anyone around him," said Sir Tejinder Virdee, who co-founded the CMS experiment

and headed it for many years. “He wants to see results and with his probing mind, his inquisitive nature, and through constructive collaboration, we all got to see amazing results from CMS with the discovery of the Higgs boson—a momentous discovery in which Stew can rightly claim a part.”

On July 1, 2013, Stew assumed a newly created position as vice president for the Princeton Plasma Physics Laboratory (PPPL). There he served as the University’s primary liaison with PPPL’s government sponsor, the U.S. Department of Energy. In addition, Stew oversaw the scientific, operational, and strategic functions of the laboratory. Among the major initiatives developed on his watch was the construction of the \$94 million upgrade of the National Spherical Torus Experiment, the laboratory’s major fusion facility.

At CERN, Stew continues to chair an advisory committee for the planned 2023 upgrades of experiments at the Large Hadron Collider, the world’s largest and most powerful particle accelerator. He also chairs a high-level advisory committee at the National Institute of Nuclear Physics in Italy, and he heads an international panel, which advises on the next generation of experiments at SNOLAB, an underground laboratory in Ontario, Canada, specializing in neutrino and dark matter research.

If (or when) Stew finally slows down, he can always spend more time tending his own garden. He is an accomplished gardener.