

Keith O. Hodgson joined the Stanford chemistry faculty in 1973 after earning a PhD at the University of California, Berkeley and spending a postdoctoral year at the Swiss Federal Institute of Technology (ETH) in Zürich. His interest in chemical and biological structure soon led him to become involved with what is now SLAC's Stanford Synchrotron Radiation Lightsource (SSRL). Using X-rays from the SPEAR storage ring, his lab carried out pioneering experiments in developing and using two synchrotron-based techniques – X-ray absorption spectroscopy and X-ray macromolecular crystallography – to determine the structures of proteins and metal sites within them, laying the foundation for new methodologies that are now in broad use worldwide.

In the early '80s, he began developing one of the world's first synchrotron-based structural molecular biology research and user programs, centered at SSRL. He served as SSRL director from 1998 to 2005; SLAC deputy director (2005-2007), associate laboratory director for photon science (2007-2011) and chief research officer (2009-2015); and both associate dean and senior associate dean for SLAC at Stanford (2008-2015). Among other things, he was involved in development and applications of SLAC's Linac Coherent Light Source (LCLS) X-ray free-electron laser, the SPEAR3 storage ring upgrade, creation of three joint research institutes with Stanford and establishing the first endowed professorship linking SLAC and Stanford.

Today, Hodgson is the David Mulvane Ehrsam and Edward Curtis Franklin Professor of Chemistry and a professor of photon science at Stanford. In 2020, he completed a 6-year term as chair of the Stanford Chemistry Department. His research group investigates how molecular structure at different organizational levels relates to biological and chemical function, using a variety of X-ray spectroscopy, diffraction and scattering techniques. One major focus over many years has been the investigation of metal ions that serve as active sites for chemical reactions in biomolecules, including the conversion of nitrogen gas from the atmosphere into ammonia – a process known as nitrogen fixation that injects vital nutrients into the biosphere.

In 1983, Hodgson served on a seminal committee to define the national need for new synchrotron facilities in the U.S. Since then, he has assisted the federal government in a number of review and advisory capacities, including serving on and chairing the U.S. Department of Energy's Biological and Environmental Research Advisory Committee. He is a recipient of DOE's E.O. Lawrence Award, a member of the National Academy of Sciences and a fellow of the American Association for the Advancement of Science, among other honors, and has served on numerous national and international boards and committees involved in the development and scientific use of light sources.

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