

Harry Barkus Gray

Harry Gray is the Arnold O. Beckman Professor of Chemistry and the Founding Director of the Beckman Institute at the California Institute of Technology. After graduate work in inorganic chemistry at Northwestern University and postdoctoral research at the University of Copenhagen, he joined the chemistry faculty at Columbia University, where in the early 1960s he developed ligand field theory to interpret the electronic structures and reactions of transition metal complexes. After moving to Caltech in 1966, he began work in inorganic photochemistry that led to the development of light absorbers and robust catalysts for production of solar fuels. He also began research in biological inorganic chemistry, focusing on investigations of the mechanisms of metalloprotein redox reactions. In the course of this work, he and coworkers demonstrated that electrons can tunnel rapidly over long molecular distances through folded polypeptide structures. This discovery opened the way for experimental and theoretical work that shed new light on the mechanisms of electron flow through proteins that function in respiration and photosynthesis.

Gray has published over 900 research papers and 18 books. He has received the Ira Remsen Award (1979); the Edgar Fahs Smith Award (1984); the Bailar Medal (1984); the Centenary Medal (1985); the National Medal of Science (1986); the Pauling Medal (1986); California Scientist of the Year (1988); the AIC Gold Medal (1990); the Waterford Award (Scripps Research Institute, 1991); the Linderstrøm-Lang Prize (Denmark, 1992); the Gibbs Medal (1992); the Basolo Medal (1994); the Chandler Medal (1999); the Harvey Prize (2000); the Nichols Medal (2003); the

Wheland Medal (2003); the Dwyer Medal (Australia, 2003); the NAS Award in Chemical Sciences (2003); the Benjamin Franklin Medal in Chemistry (2004); the Wolf Prize in Chemistry (2004); the City of Florence (Italy) Prize in Molecular Sciences (2006); the Welch Award in Chemistry (2009); the International Coordination Chemistry Award (Japan, 2010); the Othmer Gold Medal (2013); the T. W. Richards Medal (2014); the MacDiarmid Medal (2017); the Cotton Medal (2018); the Westheimer Medal (2018); the Richard P. Feynman Prize for Excellence in Teaching (2017-2018); six national awards from the American Chemical Society, including the Priestley Medal (1991); and 20 honorary doctorates.

Gray is a member of the National Academy of Sciences; the American Academy of Arts and Sciences; the American Philosophical Society; a foreign member of the Royal Danish Academy of Sciences and Letters; the Royal Swedish Academy of Sciences; the Royal Society of Great Britain; and the Accademia Nazionale dei Lincei. He served on the Council of the National Academy of Sciences (1986-1989) and on the Governing Board of the National Research Council (1986-1989). He was President of the Society of Biological Inorganic Chemistry (2002-2004), Chairman of the Board of Trustees of the Gordon Research Conferences (2000), and Chairman of the Board of Directors of the Arnold and Mabel Beckman Foundation (2013-2015). He is Principal Investigator of the NSF CCI Solar Fuels Program and a Director of University Science Books.