

Fraser Stoddart / Biosketch 494 words

Fraser Stoddart, presently a Board of Trustees Professor of Chemistry at Northwestern University, was previously (1997–2002) the Saul Winstein Professor of Chemistry at the University of California, Los Angeles (UCLA) before holding the Fred Kavli Chair of NanoSystems Sciences at UCLA while he was the Director of the California NanoSystems Institute (CNSI) from 2002–2007. Stoddart pioneered the development of the use of molecular recognition and self-assembly processes in template-directed protocols for the synthesis of mechanically interlocked molecules (MIMs), i.e., bistable catenanes and rotaxanes. The initial impetus for his fascination with chemistry beyond the molecule was a publication by Charles Pedersen on the potassium ion templated synthesis of dibenzo[18]crown-6, a concept which led to Stoddart's template-directed synthesis, based on molecular recognition and self-assembly processes, of a wide range of MIMs which have found their way into molecular electronic devices, drug delivery systems, and molecular shuttles, switches, and machines. See *"The Nature of the Mechanical Bond: From Molecules to Machines"* (Wiley, 2016) written in conjunction with ex-graduate student, Carson Bruns.

Fraser obtained all his degrees (BSc / PhD / DSc) from Edinburgh University and has spent time (1967–1970) at Queen's University in Canada, Imperial Chemical Industries' Corporate Laboratory (1978–1981), as well as at the Universities of Sheffield (1970–1990) and Birmingham (1990–1997) in the UK before moving to the US in 1997. It was during the period at ICI that he first became interested in redox-active bipyridinium compounds.

Stoddart was made a Knight Bachelor by Her Majesty Queen Elizabeth II in her 2007 New Year's Honors List for his services to chemistry and molecular nanotechnology. He is a Fellow of the Royal Society of London, the German Academy (Leopoldina) of Natural Sciences, the Royal Netherlands Academy of Arts and Sciences, the American Chemical Society, as well as an Honorary Fellow of the Royal Society of Edinburgh and the Royal Society of Chemistry. His awards include the King Faisal International Prize in Science (2007), the Albert Einstein World Award of Science (2007), the Feynman Prize in Nanotechnology (2007), the Royal Medal (2010), granted by Her Majesty Queen Elizabeth II, and the Nobel Prize in Chemistry (2016) along with co-laureates Ben Feringa and Jean-Pierre Sauvage. He received the Science and Technology Cooperative Award from the Chinese Government in 2019. He was elected a Member of the American Academy of Arts and Sciences in 2012, the National Academy of Sciences in 2014, a Foreign Member of the Chinese Academy of Sciences in 2018, the National Academy of Inventors in 2020, and a Foreign Member of the Australian Academy of Science (2021). During the past five decades, he has published over 1250 papers and has mentored >500 graduate students and postdoctoral scholars from over 50 different countries, of which >100 have subsequently embarked on successful independent academic careers. Stoddart also holds positions as Part-Time Professor of Chemistry at the University of New South Wales and as Dean of the Stoddart Institute of Molecular Science in Zhejiang University.