



WEB SEMINAR ENERGY

DANIEL NOCERA

Patterson Rockwood Professor of Energy, Director of Graduate Studies

Daniel G. Nocera is the Patterson Rockwood Professor of Energy at Harvard University. He is widely recognized in the world as a leading researcher in renewable energy. His group has pioneered studies of the basic mechanisms of energy conversion in biology and chemistry with a particular focus on multielectron transformations and the coupling of protons to electron transfer (i.e., proton-coupled electron transfer). A recent focus in the group has been to exploit this mechanistic knowledge for the generation of solar fuels. His group has recently accomplished a solar fuels process that captures many of the elements of photosynthesis and he has now translated this science to produce the artificial leaf. This discovery sets the stage for a storage mechanism for the distributed, deployment of solar energy. Other areas of interest in the group include the development of proton-coupled electron transfer and its application to radical enzymology, the development of new cancer therapies by creating nanocrystal chemosensors for metabolic tumor profiling, the creation of spin frustrated materials, which has culminated in the discovery of the quantum spin liquid, and the invention of molecular tagging velocimetry technique for the measurement of highly turbulent fluid flows.

His contributions to the development of renewable energy have been recognized by a number of awards, some of which include the Eni Prize, IAPS Award, Burghausen Prize, Elizabeth Wood Award and the United Nation's Science and Technology Award and from the American Chemical Society the Inorganic Chemistry, Harrison Howe and Remsen Awards. He is a member of the American Academy of Arts and Sciences, the U.S. National Academy of Sciences and the Indian Academy of Sciences. Before joining Harvard, Nocera began his career at Michigan State University, where he was a University Distinguished Professor and then was on the faculty of MIT where he was the Henry Dreyfus Professor of Energy. He earned his B.S. degree at Rutgers University and his Ph.D. at Caltech. Nocera has mentored 120 Ph.D. graduate and postdoctoral students, published over 350 papers, given over 750 invited talks and 80 named lectureships. In 2008, he founded Sun Catalytix, a company committed to bringing personalized energy to the non-legacy world.