

Daniel G. Nocera is the Patterson Rockwood Professor of Energy at Harvard University. Widely recognized in the world as a leading researcher in renewable energy, he is the inventor of the artificial leaf and bionic leaf. Nocera has accomplished the solar fuels process of photosynthesis – the splitting of water to hydrogen and oxygen using light from neutral water, at atmospheric pressure and room temperature at efficiencies of greater than 10%. This discovery, called artificial leaf, was named by Time magazine as Innovation of the Year for 2011. He has since elaborated this invention to accomplish a complete artificial photosynthetic cycle. To do so, he created the bionic leaf, which is a bio-engineered bacterium that uses the hydrogen from that artificial leaf and carbon dioxide from air to make biomass and liquid fuels. The bionic leaf, which was named by the World Economic Forum as the Breakthrough Technology for 2017, performs an artificial photosynthesis that is ten times more efficient than natural photosynthesis. Extending this approach, Nocera has achieved a renewable and distributed synthesis of ammonia (and fertilizer) at ambient conditions by coupling solar-based water splitting to a nitrogen fixing bioorganism, which is powered by the hydrogen produced from water splitting. These science discoveries set the stage for a storage mechanism for the large scale, distributed, deployment of solar energy and distributed food production and thus are particularly useful to the poor of the world, where large infrastructures for fuel and food production are not tenable.

Nocera's research contributions in renewable energy have been recognized by several awards, some of which include the Leigh Ann Conn Prize for Renewable Energy, Eni Prize, IAPS Award, Burghausen Prize, and the United Nation's Science and Technology Award and from the American Chemical Society the Inorganic Chemistry, Harrison Howe, Kosolapoff 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. He was named as 100 Most Influential People in the World by Time Magazine and was 11th on the New Statesman's list on the same topic, and he is a frequent guest on TV and radio and is regularly featured in print.

Before joining Harvard, Nocera began his career at Michigan State University, where he was a University Distinguished Professor and then in 1997 joined the faculty of MIT where he was the Henry Dreyfus Professor of Energy. Nocera has mentored 160 Ph.D. graduate and postdoctoral students, published over 450 papers, given over 950 invited talks and 125 named lectureships. In 2008, Nocera founded Sun Catalytix, a company committed to developing energy storage for the wide-spread implementation of renewable energy. In August 2014, Lockheed Martin purchased the assets of Sun Catalytix, and now Sun Catalytix technology is being fast-tracked to commercialization under the new venture, Lockheed Martin GridStar™ Flow.