

Solar research group on quest for affordable solar fuels (w/ video)

April 22 2014, by Miles O'brien

Solar panels are becoming a familiar site in communities across the United States, but what about solar fuels? A solar fuel is produced from sunlight through artificial photosynthesis, mimicking what Mother Nature has been doing for billions of years. Many chemists and chemical engineers are working to make solar fuels a viable option in the future. In fact, there's even a worldwide "Solar Army" on the job, and California Institute of Technology chemistry professor Harry Gray is known as their commanding general!

Gray is director of the National Science Foundation's (NSF) Center for Chemical Innovation in Solar Fuels (CCI Solar). His troops are hundreds of senior researchers and eager students who are on a mission to find a metal oxide catalyst that can activate sunlight's energy by deconstructing and transforming water molecules into hydrogen fuel—on a large scale and affordably.

Up until now, the most effective catalysts have required pricy, precious metals, such as platinum. But, these chemists hope to identify new, much less expensive catalysts, which would make [solar fuels](#) a more affordable renewable energy option.

"Understanding the science behind the conversion of sunlight to a chemical fuel is a grand challenge for chemists. This team of chemists and [chemical engineers](#) is enhancing our understanding of fundamental chemical processes and inspiring the next generation of scientists," says Jacquelyn Gervay-Hague, director of the Division of Chemistry within

NSF's Directorate for Mathematical and Physical Sciences.

CCI Solar has played a leading role in fundamental research in this area, addressing basic science challenges in solar fuel production since the center's inception in 2005 and fostering the rapidly growing national and international solar fuels research community. CCI Solar is one of the NSF-funded Centers for Chemical Innovation —research centers focused on major, long-term fundamental [chemical](#) research challenges. CCIs that address these challenges will produce transformative research, lead to innovation, and attract broad scientific and public interest.

Provided by National Science Foundation

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