

The 21st Century Solar Army

Harry B. Gray

Arnold O. Beckman Professor of Chemistry; Founding Director, Beckman Institute
California Institute of Technology

July 18, 2018, 1:00 - 2:00 p.m.

ARC Ballroom, UC Davis

The sun is a boundless source of clean energy, but it goes down every night. We and many others are trying to design solar-driven molecular machines that could be used on a global scale to store solar energy by splitting water into its elemental components, hydrogen and oxygen. Hydrogen is a clean fuel that could be used directly or combined with carbon dioxide to produce methanol, a liquid fuel.

We are investigating the structures and mechanisms of hydrogen evolving catalysts made from Earth abundant elements such as cobalt, iron, nickel, and molybdenum. We also are employing pulsed laser ablation for synthesis of metal-oxide nanoparticles that will be deployed as catalysts on photoanodes such as tungsten oxide.

To aid our research, we have recruited hundreds of students to join a Solar Army whose mission is the discovery of mixed-metal oxides for testing on the photoanodes of our solar water splitters.

