Kristin Persson

ETA Staff Scientist, Joint Center for Artificial Photosynthesis (JCAP)

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Research Centers:

http://solarfuelshub.org/

The Joint Center for Artificial Photosynthesis (JCAP) is one of the Department of Energy Innovation Hubs. Its mission is to generate carbon-neutral fuels efficiently using only sunlight and water or carbon dioxide and sustainable materials. A number of CSD scientists participate in JCAP, working on catalysts, transformations using materials assemblies, and interfacial chemistry.

Research Interests:

Dr. Persson studies the physics and chemistry of materials using atomistic computational methods and high-performance computing technology, particularly for clean-energy production and storage applications.

In JCAP, Dr. Persson’s research centers around photocathodes which carry out the carbon dioxide reduction reaction that are a central to the establishment of efficient, sustainable CO2 reduction. Photoelectrode architectures that include a semiconductor-liquid junction and exclude multiple buried p-n junctions are desirable for maximal efficiency and scalability of solar-fuel generation. To realize this design paradigm, new light absorbers which meet a host of design criteria must be discovered. Dr. Persson’s team will identify the most promising light absorbers for solar-fuels applications through a multi-faceted materials-discovery platform that combines high-throughput computation and experiments.

Relevant Publications