

Faculty Name:

Daniel Esposito

Faculty Email:

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Lab:

Solar Fuels Engineering

Project Title:

Scanning probe investigations of photocatalyst analogs

Description:

This project is based on using scanning probe techniques to investigate the properties and performance of planar patterned samples which simulate photocatalytic particles for hydrogen production from water splitting. Photocatalytic water splitting with suspension reactors is an attractive way to produce clean energy because they can be used to directly use sunlight to convert low energy reactants such as water into energy dense and storable chemical fuels such as hydrogen. This project will be primarily experimental in nature, focusing on the development of in situ scanning probe microscopy techniques including scanning electrochemical microscopy and scanning photocurrent microscopy to interrogate the properties and performance of model systems, with a focus on understanding the role of thin oxide-coatings on the performance of both reaction and charge selectivity of oxide-encapsulated photoelectrocatalysts. The project requires a student with previous coursework in solar and electrochemical technologies.

Location of Research:

On-Site

of hrs/week:

35

Department/Program:

Chemical Engineering

Eligibility:

MS

To apply, please contact:

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