Scanning Electrochemical Measurements for Hydrogen Generation Applications

DMREF/HydroGEN EMN Postdoctoral Position

National Renewable Energy Laboratory (NREL), Golden, CO

NREL Node Principal Investigators: Drs. Todd Deutsch and Andriy Zakutayev

A postdoctoral researcher position is available at NREL in the area of scanning measurements of electrochemical properties for hydrogen generation applications. This position would support HydroGEN Energy Materials Network (EMN) capability nodes related to accelerating the materials design and discovery, which is also one of the goals of the NSF Designing Materials to Revolutionize and Engineer our Future (DMREF) program.

The characterization techniques include scanning electrochemical microscopy (SECM) and scanning droplet cell (SDC) measurements. The relevant materials are both established (e.g., III-V, II-VI, I-III-VI2) and new (e.g., oxide, chalcogenide, nitride) photoelectrodes for photoelectrochemical (PEC) water splitting, as well as novel catalysts for low-temperature electrolysis. As such this would be a joint postdoc position between the Materials Science Center and the Chemistry and Nanoscience Center of the National Renewable Energy Laboratory. Preferred candidate qualifications include prior experience with (photo)electrochemical measurements and working knowledge of scanning techniques for materials characterization.

The relevant NREL HydroGEN EMN nodes are:

1. Electrolysis Catalyst Synthesis, Ex Situ Characterization, and Standardization
2. High-Throughput Experimental Thin Film Combinatorial Capabilities
3. III-V Semiconductor Epi-Structure and Device Design and Fabrication
4. Surface Modifications for Catalysis and Corrosion Mitigation
5. Corrosion Analysis of Materials.