

AGEP-T Project Descriptions

Brookhaven National Laboratory Center for Functional Nanomaterials

Project Title: Electrochemical Assembly of Nanomaterials

This document describes the work on the electrochemical assembly of nanoparticle heterostructures in requesting applications from science or engineering post docs for the Stony Brook University – Brookhaven National Laboratory AGEP-T Program.

Project Description

The scientific focus will be on the fabrication and characterization of monolayers and multilayers of colloidal transition metal oxide nanomaterials to comprise energy conversion architectures (such as photovoltaic devices). The research will utilize existing colloidal nanoparticle synthesis facilities and state-of-the-art electrophoretic deposition equipment, combined with a broad assortment of world-class nanomaterials characterization facilities within the CFN. This project is laboratory intensive—much of the work involves colloidal chemistry, nanoparticle film fabrication, materials characterization, and measurement.

Qualifications of Ideal Candidate

Post Doc: Ph.D. in an appropriate discipline (Chemistry, Materials Science, Chemical Engineering, or Physics) and significant experience with nanoparticle synthesis and materials characterization. Expertise with nanomaterials, such as titanium dioxide nanoparticles, and with electrophoretic deposition is a plus. Expertise in electronic device characterization, such as cyclic voltammetry, is essential. Expertise in nanoscale materials characterization and analysis, such as electron microscopy, dynamic light scattering, and others, is very important. The successful applicant will demonstrate an ability to work independently within broadly defined research directions, and an ability to supervise and to perform research and technical duties of the laboratory.

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