

NIST/MML/MSED Research Associate Opportunity

TITLE: Surfactant mediated superconformal electrodeposition

Overview

The Materials Measurement Laboratory of the National Institute of Standards and Technology is seeking qualified persons (U.S. Citizens preferred) to advance understanding of surfactant mediated superconformal electrodeposition, to fabricate interconnect materials for state-of-the-art advanced and emerging microelectronics. This NIST CHIPS metrology project involves development and application of advanced operando measurements of immersed metal-electrolyte interfaces to understand the interplay between surfactants and associated dynamics during thin film electrodeposition.

Duties

- Electrochemical thin film deposition combined with in-situ and post deposition analysis of surfaces and structures relevant to filling recessed trench and via patterned surfaces.
- Surface science experiments ranging from X-ray photoelectron spectroscopy of emersed interfaces, to in situ scanning probe microscopy, STM/SECM/AFM, and vibrational spectroscopy, SEIRAS and Raman, studies of metal/surfactant/ electrolyte interfaces.
- Identify and develop surfactant additives for superconformal electrodeposition of late transition metal elements and alloys.
- Investigate surfactant and double layer atomistic and mesoscale structure in three dimensions to gain insights into the inhibition and acceleration of the electron and ion transfer reactions.

Required Skills, Expertise and Qualifications

- Ph.D. in Chemistry, Chemical Engineering or Materials Science with significant experience, 2+ years, in electrochemical and surface science measurements in Pt group metals.
- At least 2+ years experience with electroanalytical methods complimented by one or more of the following: scanning electron microscopy, atomic force microscopy, scanning tunneling microscopy, Raman spectroscopy, electrogravimetry, electrochemical mass spectrometry.
- Excellent written and oral communication skills are required for collaboration and should be evident in archival publications.

Employment Terms: This opportunity is to be an associate researcher in the NIST Materials Science and Engineering Division for a term of 1 year, with options to renew. Associate researchers are NOT Federal Employees, but they work along with NIST researchers and with NIST's often world class instrumentation. Relocation expenses will not be provided. U.S. Citizens hired into associate positions may have the opportunity to seek longer term Federal Employment.

Salary: Between \$65,000 and \$80,000, based on qualifications and experience.

How to express interest: Interested persons (U.S. Citizens preferred) who meet all of the required qualifications are invited to express their interest by sending an email that briefly describes their qualifications along with a CV to 642assoc@nist.gov. U.S. Citizens should note "US Citizen" and the opportunity title in the email subject line. All others should note "Non-US Citizen" and the opportunity title in the email subject line.