NIST/MML/MSED Research Associate Opportunity

TITLE: Atomistic Modeling of Defects in Semiconductor Devices

Overview

The Materials Measurement Laboratory of the National Institute of Standards and Technology is seeking qualified persons (U.S. Citizens preferred) to develop a multi-scale modeling infrastructure for the predicting the properties and performance of advanced semiconductor materials and devices. This position will focus on integrating first principles methods with device level models, such as Technology Computer Aided Design (TCAD) simulations. Of particular interest is developing models to better predict the interface properties for semiconductor heterostructures. Some of the materials of interest for interface design include Si, GaN, AlN, Al_2O_3, HfO_2, Al, and Cu.

Duties

- Perform example TCAD/COMSOL simulations for benchmarking.
- Compare TCAD/COMSOL and non-equilibrium Green's function (NEGF) for predicting transport properties of semiconductor interfaces.
- Evaluate various tight-binding models which are necessary for NEGF models.
- Develop machine learning models for multi-physics data
- Presenting results at internal meetings, and occasional meetings with external stakeholders.

Required Skills, Expertise and Qualifications

- Ph.D. in Materials Science and Engineering or a related field.
- Experience with using VASP, TCAD and COMSOL to perform multi-scale simulations.
- Python programming experience.
- Excellent written and oral communication skills are required.

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 $82,000 and $87,000, 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.