NIST/MML/MSED Research Associate Opportunity

TITLE: Atomistic Modeling of Defects in GaN 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 using classical atomistic methods to explore the crystalline defects present in semiconductor devices and what impact they may have on device properties. A key aspect of the work will be to explore how the predicted defects and properties depend on the choice of interatomic potential. The calculations will largely focus on interface-driven phenomena in GaN-based semiconductor devices.

Duties

- Testing classical interatomic potentials for how well they predict defect properties.
- Developing a new interatomic potential for GaN-based semiconductor devices.
- Generating atomic configurations of grain and phase boundary interfaces to explore predicted defects for stable and metastable conditions across multiple potentials.
- Working with other researchers in the project to communicate needs and results across the different length scales.
- Implementing calculation methods into existing open-source codes and ensuring that all generated data is made accessible.

Required Skills, Expertise and Qualifications

- Ph.D. in Materials Science and Engineering or a related field.
- Experience with using LAMMPS to perform atomistic simulations.
- Experience with crystalline defects, interface-driven phenomena and microstructure evolution.
- Experience looking at trends in computed atomistic predictions across different materials and interatomic potentials.
- Python expertise.
- Excellent written and oral communication skills.

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.