TITLE: Postdoctoral Researcher for Process Modeling Using Physically-Informed Machine Learning (U.S. Citizens preferred)

Overview

The Material Measurement Laboratory of the National Institute of Standards and Technology is seeking qualified persons (U.S. Citizens preferred) to join a multi-disciplinary team of scientists working on advanced modeling of atomic layer deposition (ALD) processes. The project will develop a suite of in situ metrology tools to quantify mass transport processes occurring during thermal ALD. This position requires expertise in the use of machine learning to model chemical processes. The candidate should be knowledgeable in chemical process modeling and in parameter estimation in complex models using regression and machine learning. Direct experience with deep learning would also be advantageous.

Duties

- Designing and training physics-informed machine learning (PIML) models for the prediction of physical and chemical properties using data from experiments and computation constrained by physics requirements.
- Implementing algorithms to assess the performance of PIML models and assess uncertainty in the predictions of PIML models.
- Developing systems and software for multiscale modeling of atomic layer deposition processes.

Required Skills, Expertise and Qualifications

- A Ph.D degree in engineering, physics, materials science, or a related field.
- Significant course work in chemistry, physics, mathematics, statistics and/or computer science.
- Familiarity with one or more chemical process modeling packages (e.g. Cantera, CHEMKIN) and one or more AI/ML software packages (e.g. Tensorflow or Pytorch).
- Ability to program in a modern computational language (e.g. Python).
- Strong oral and written communication skills.

Employment Terms: This opportunity is to be an associate researcher in the NIST Chemical Sciences 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: $84,000-$92,000, based on experience.

How to express interest: Persons (U.S. Citizens preferred) who meet all of the required qualifications and who would be interested in taking this position are invited to express their interest by sending an email that briefly describes their qualifications along with a CV to 646assoc@nist.gov. U.S. Citizens should note "U.S. Citizen" and the opportunity title in the email subject line. All others should note "Non-U.S. Citizen" and the opportunity title in the email subject line.