

TITLE: Postdoctoral Researcher for Nanocalorimetry of Atomic Layer Deposition Processes (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 nanocalorimetry measurements, including developing methods for applying the technique to *in situ* monitoring of semiconductor processes. The candidate will implement chip-based nanocalorimeters on atomic layer deposition (ALD) processes to obtain in situ thermal process data and quantify the thermochemistry of surface reactions.

Duties

- Operating and maintaining multiple ALD system and custom nanocalorimetry setups
- Setting up and operating in situ calorimetric and optical instrumentation
- Modeling time-resolved calorimeter data to extract thermophysical quantities
- Characterizing deposited films using analytical techniques
- Publishing findings in peer-reviewed scientific journals and presenting at conferences

Required Skills, Expertise and Qualifications

- Expertise in building and maintaining custom lab instrumentation and vacuum hardware
- Expertise in safe operation, use, and maintenance of ALD equipment
- Knowledgeable in thermal metrology such as calorimetry and thermogravimetric analysis
- Operation of in situ process diagnostics, including custom optical absorption setups
- Knowledgeable in vapor transport mechanisms, precursor chemistry, and process development/optimization applicable to ALD
- Ph.D. or equivalent experience in chemistry, physics, materials science, or related field
- Strong written and oral communication skills
- Ability to work as part of a team and independently

Other Desirable Qualifications

- Experience in the semiconductor industry, particularly in ALD precursors and process tools
- Thermal modeling of surfaces and interfaces

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: \$80,000 to \$105,000 per year, 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.