

TITLE: Nanoscale Thermal Metrology Using Nanocalorimetry (U.S. Citizens Preferred)

Overview

The Materials 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 to advance the current state-of-the-art in nanocalorimetry-based measurements for monitoring of semiconductor manufacturing processes. This individual will work closely with the leaders of this multi-effort project but will personally be responsible for improving our measurement capabilities by making upgrades to existing hardware, software, and strategies for integrating the technique with plasma- and ALD-based tools used in semiconductor manufacturing.

Duties

- Design and assemble new instrumentation to improve the accuracy, sensitivity, speed, and stability of nanocalorimetry measurements. Includes developing LabVIEW-based data acquisition systems, integrating new and existing hardware, and data analysis workflows
- Perform measurements to characterize the thermal properties of thin film materials
- Support parallel research efforts to utilize nanocalorimetry for in-situ monitoring of semiconductor manufacturing processes.
- Publish results in peer reviewed scientific journals and present results at scientific conferences.

Required Skills, Expertise and Qualifications

- Ph.D. in materials science, physics, chemistry, chemical engineering or related field.
- Hands-on experience with building and maintaining custom lab instrumentation, including extensive experience with LabVIEW. Experience with FPGA modules preferred.
- Expertise in designing custom electronics, including PCB layout and analog circuit design.
- Knowledge of common nanofabrication processes. Experience working in cleanrooms a plus.
- Knowledge of thermal property measurements. Hands-on experience, or specialized knowledge of calorimetry preferred.
- Strong written & oral communication skills; ability to work independently and in a team.

Employment Terms: This opportunity is to be an associate researcher in the Materials Measurement Science Division for a term of 1 year, with options to renew. Associate researchers are NOT Federal Employees, but they work aside 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: \$90,000 to \$100,000

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 643assoc@nist.gov. US 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.