**Postdoctoral Research Opportunity**

**in Thermal Metrology Development for Semiconductor Materials at NIST**

The Materials Measurement Science Division at the National Institute of Standards and Technology (NIST) is searching for a postdoctoral researcher to join a multi-disciplinary team of scientists that are working to advance our capabilities in nanocalorimetry and develop methods for applying the technique to in-situ monitoring of semiconductor processes. The major responsibilities of the candidate will include making improvements to the existing nanocalorimetry equipment and measurement capabilities. This includes, but is not limited to, modifying the existing instrumentation to provide better sensitivity and stability, developing corresponding data acquisition and analysis systems, and performing measurements to determine thermal properties of nanoscale materials commonly found in semiconductor devices. The candidate will be expected to publish findings in peer-reviewed scientific journals and present at relevant meetings and conferences, where appropriate.

**Project Details**: Nanocalorimetry is a microchip-based thermal measurement metrology capable of making thermal measurements on small samples at very fast heating and cooling rates, and its extraordinary sensitivity provides insights into thin film materials, interfaces, and reactions down to monolayer thicknesses that are ubiquitous in micro- and nanoelectronics. NIST is a world leader in the design, fabrication, calibration, and application of nanocalorimetry for advanced materials research. This project will develop nanocalorimetry methods for semiconductor specific materials, devices, and data as well as in-process and hybrid-metrologies.

**Qualifications:**

* Ph.D. or equivalent experience in materials science, physics, chemistry, or related field
* Expertise with building and maintaining custom lab instrumentation required, knowledge of electronics, PCB layout, and analog circuit design would be a plus
* LabVIEW experience required, experience with FPGA systems a plus
* Strong written and oral communication skills
* Ability to work as part of a team
* US citizenship preferred but not required.

**Anticipated annual salary**: $80,000-$90,000, based on experience.

This position is for two years and may be extended up to an additional two years. The work is primarily on site at the NIST campus in Gaithersburg, MD, USA. Limited travel should be expected, including to technical conferences.

If interested, please contact Dr. Feng Yi at [feng.yi@nist.gov](mailto:feng.yi@nist.gov) or Dr. Mark McLean at [mark.mclean@nist.gov](mailto:mark.mclean@nist.gov) .