

TITLE: Senior Research Associate, Materials Property Databases (U.S. Citizens Preferred)

### Overview

The Materials Measurement Laboratory of the National Institute of Standards and Technology is seeking qualified candidates (U.S. Citizens preferred) to develop high-precision materials property databases for metal alloy and ceramic materials to accelerate product development in advanced semiconductor manufacturing. The outcomes of this project will support a high-fidelity materials data infrastructure required for semiconductor substrate development. This work is part of NIST's CHIPS mission and offers a unique opportunity to conduct fundamental, publishable research with direct national impact, while collaborating with leading experts and industry partners to strengthen the U.S. semiconductor supply chain.

### Duties

- Lead the development and maintenance of CALPHAD thermodynamic and kinetic databases, emphasizing thermal properties for materials used in semiconductor manufacturing.
- Develop CALPHAD workflow to quantify and predict temperature-dependent materials behavior
- Design and optimize new material systems using computational modeling tools, collaborating with experimental teams for validation.

### Required Skills, Expertise and Qualifications

- Ph.D. in Materials Science and Engineering with significant postdoctoral or industry experience in materials design and computational modeling.
- Expertise in thermodynamic database assessment and mechanistic materials property modeling, with peer-reviewed publications and advanced CALPHAD model development.
- Strong publication record and leadership of major materials modeling projects relevant to advanced manufacturing.
- Proficiency in Python, MATLAB, and C++ for materials science applications.
- Leadership experience within materials design teams
- Familiarity with experimental validation techniques, including X-ray diffraction and thermal analysis.

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: from \$110,00 to \$135,000 annually, commensurate with the candidate's qualifications and 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 [643assoc@nist.gov](mailto: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.