Opportunity Title: Data Analysis and Computational Modeling for Waste Vitrification
Opportunity Reference Code: DOE-MSIPP16-20-INL

Organization	U.S. Department of Energy (DOE)
Reference Code	DOE-MSIPP16-20-INL
How to Apply	A complete application must include the following to be considered: • Completion of all required fields in the application • Undergraduate transcripts • One Recommendation (minimum) If you have questions, send an email to Elizabeth Nelson at Elizabeth.Nelson@orau.org . Please include the reference code for this opportunity in your email.
Application Deadline	3/16/2016 11:59:00 PM Eastern Time Zone
Description	The Minority Serving Institutions Partnership Program (MSIPP) Internships is a new program to promote the education and development of the next generation workforce in critical science, engineering, technology, and math (STEM) related disciplines that complement current and future missions of DOE national laboratories. The MSIPP Internship program is designed to provide an enhanced training environment for next generation scientists and engineers by exposing them to research challenges unique to our industry. MSIPP Interns will be given the opportunity to complete Summer Internships aligned with ongoing U.S. Department of Energy Office of Environmental Management (DOE-EM) research under the direction of a host national laboratory. The internship will be performed at the host national laboratory, utilizing their facilities and equipment under the guidance of a research staff member. Minority Serving Institutions are institutions of higher education enrolling populations with significant percentages of undergraduate minority students. This research project will engage an engineering student with strong computational skills to work with an international team of recognized experts on the development of a multiphysics model of a waste glass melter. This work addresses a problem of national importance to remediate legacy tank waste at the Hanford site. A three-dimensional model of the complex, coupled thermohydrodynamic and electromagnetic phenomena in the molten glass, as well as flow and heat transfer in the plenum region, that couples to a high-fidelity mathematical model of the cold cap is being developed. The cold cap covers approximately 90% of the surface of the molten glass and consists of the tank waste and glass-forming additives that undergo multiple chemical and physical interactions. The integrated model will compute the coupled temperature, velocity and electric fields in

the molten glass; temperature and velocity fields in the plenum region; and temperature and conversion degrees within the cold cap.

Qualifications

The successful candidate should be an undergraduate or graduate student majoring in a science, technology, engineering, and mathematics (STEM) discipline. Applicants are sought with an educational background in mathematics, physics, computer science or engineering (preferably Mechanical or Chemical Engineering). Experience with computer software and numerical modeling techniques, along with excellent written and oral communication skills, are highly desirable. Proficiency with MATLAB, Photoshop, DREAM.3D, CFD and heat transfer packages, CAD modeling, and numerical analysis are favored. The candidate should exemplify professional conduct, have the ability to work on a team, display maturity, and possess an ability to work independently without excessive oversight.

Eligibility Requirements:

1. Be currently enrolled as a full-time undergraduate or graduate student at an accredited Minority Serving Institution *see criteria for Minority Serving Institutions here http://srnl.doe.gov/msipp/internships.htm
2. Be working towards a science, technology, engineering, or mathematics (STEM) degree
3. Have an undergraduate cumulative minimum Grade Point Average (GPA) of 3.0 on a 4.0 scale
4. Be a United States citizen
5. Pass a drug test upon selection to participate in the MSIPP *The process and timing for drug testing varies from lab to lab. Use of Marijuana/Cannabis or its derivatives if prescribed is legal in some states. However, having these drugs in your system is NOT legal at United States Federal Contractor sites and National Laboratories.
6. Reference must be received by March 6, 2016 at 11:59 PM ET

For more information about The Minority Serving Institutions Partnership Program (MSIPP) Internships, please visit http://srnl.doe.gov/msipp/internships.htm

To see all MSIPP position postings visit: www.orise.orau.gov/MSIPP

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree or Master's Degree.
- **Overall GPA:** 3.00
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)

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- **Computer, Information, and Data Sciences** (16 👁)
- **Earth and Geosciences** (21 👁)
- **Engineering** (27 👁)
- **Environmental and Marine Sciences** (14 👁)
- **Life Health and Medical Sciences** (45 👁)
- **Mathematics and Statistics** (10 👁)
- **Physics** (16 👁)
- **Science & Engineering-related** (1 👁)

Affirmation I certify that I am pursuing or have completed coursework towards a degree in science, technology, engineering, mathematics, or a related field.