**Opportunity Title:** Data Analysis and Computational Modeling for Waste Vitrification
**Opportunity Reference Code:** DOE-MSIPP-17-1-INL

**Organization** U.S. Department of Energy (DOE)

**Reference Code** DOE-MSIPP-17-1-INL

**How to Apply** A complete application must include the following to be considered:

- Completion of all required fields in the application and successful application submission
- Undergraduate or graduate transcripts as appropriate
- Two recommendations

If you have questions, send an email to Kerri Fomby at kerri.fomby@orau.org . Please include the reference code for this opportunity in your email.

For technical questions, please contact Myken Johnson at myken.johnson@inl.gov.

**Application Deadline** 3/27/2017 12:00:00 AM 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.

**Project:** This research project will engage an outstanding 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. Dissemination of research results in a technical report, conference paper or journal article is required.

**Location:** This internship will be located at Idaho National Lab.

**Salary:** Selected candidate will be compensated by either a stipend or salary, and may include one round trip domestic travel to and from the host laboratory. Stipends and salaries will be commensurate with cost of living at the location of the host laboratory. Housing information will be provided to interns prior to arrival at the host laboratory, and will vary from lab to lab.

**Application Deadline:** March 27, 2017

**Expected Start Date:** June 5, 2017

**Qualifications** Eligible applicants must:

- Be a citizen of the United States,
- Be at least 18 years of age**,**
- Currently enrolled as a full-time undergraduate or graduate student at an accredited Minority Serving Institution, http://orise.orau.gov/sepreview/msipp/Approved%20MSI%20School%20List%202017.pdf,
- Working toward a science, technology, engineering, or mathematics (STEM) degree,
- Have an undergraduate or graduate cumulative minimum Grade Point Average (GPA) of 3.0 on a 4.0 scale, and
- 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.

**Required Knowledge, Skills, Work Experience, and Education**

**Successful candidates will:**

- Be a current undergraduate or graduate student in a science, technology, engineering, and mathematics (STEM) discipline.
- Educational background in Mathematics, Physics, Computer Science or Engineering (preferably Mechanical or Chemical Engineering).

**Desired Knowledge, Skills, Work Experience, and Education**

**It is desirable for the candidate to have:**

- Strong communications skills, such as communications, science writing and web design.

**Eligibility**

- **Citizenship:** U.S. Citizen Only

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**Requirements**

- **Degree:** Currently pursuing a Bachelor's Degree or Master's Degree.
- **Overall GPA:** 3.00
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (2 👁)
  - **Communications and Graphics Design** (6 👁)
  - **Computer, Information, and Data Sciences** (4 👁)
  - **Engineering** (27 👁)
  - **Mathematics and Statistics** (10 👁)
  - **Physics** (4 👁)
  - **Science & Engineering-related** (1 👁)

**Affirmation** I certify that I am at least 18 years of age and a US citizen, and am currently enrolled as a student in a degree seeking undergraduate or graduate program in a STEM field at an accredited Minority Serving Institution (MSI).