

Opportunity Title: Applied Research on Mono-Methyl Mercury Reactions in Alkaline Solutions

Opportunity Reference Code: DOE-MSIPP-16-30-SRNL

Organization U.S. Department of Energy (DOE)

Reference Code DOE-MSIPP-16-30-SRNL

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

- Completion of all required fields in the application
- Undergraduate transcripts
- 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

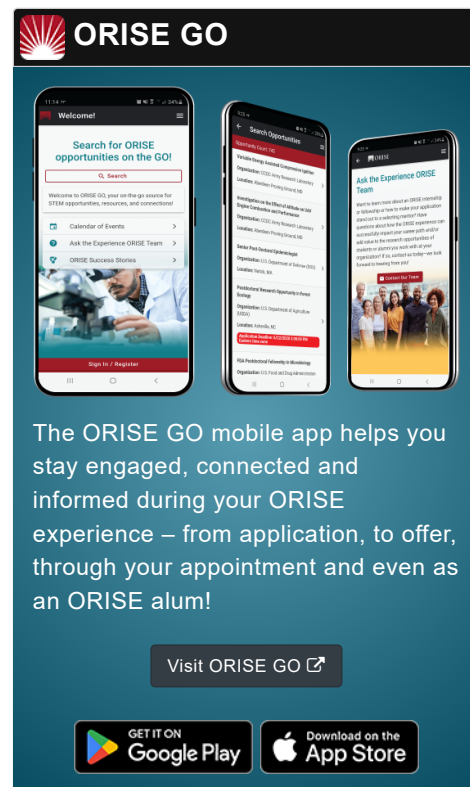
Description The Minority Serving Institutions Partnership Program (MSIPP) Internships is a new program to promote the education and development of the next generation workforce in critical science, engineering, technology, and math (STEM) related disciplines that complement current and future missions 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.

Mercury is a global contaminant associated with fossil fuels, gold mining, chlorine production, catalysis and a number of other industrial operations. Mercury is found at a number of US Department of Energy (DOE) sites as a contaminant in infrastructure and the surrounding environmental (e.g., Oak Ridge), and in radioactive waste solutions stored in tanks (e.g, Savannah River Site). This internship focuses on the chemistry of mercury in tank wastes.

The presence of organic mercury species (such as mono-methyl mercury) in alkaline high ionic strength radioactive waste solutions is a unique challenge facing the Department of Energy (DOE). DOE is currently developing technologies to control this mercury and assure that it is not released to the environment. A

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number of concepts have been proposed to destroy and/or remove organic mercury from such liquids, including, photoreactors, ozone reactors, specialized ion exchange resin columns, etc. In several cases, these concepts have not been tested for alkaline high ionic strength conditions. This project would examine one or more techniques in the laboratory using nonradioactive tank waste simulant solutions. The objective of the work is to determine the potential viability of the tested process(es) and to quantify kinetics to support scoping design of a possible treatment system. Depending on schedule and funding, an alternative research project on a related topic might be pursued if necessary (such as analysis techniques for mercury speciation and quantification in alkaline high ionic strength liquids).

Qualifications

The successful candidate will be an undergraduate junior or senior studying chemistry, environmental engineering, chemical engineering, environmental science or a related scientific field. The candidate should have basic laboratory skills and experience working carefully and safely with chemicals. Interest in understanding chemical reaction kinetics and applying research data toward development of treatment systems. Completed coursework in general chemistry (2 semesters) and two or more of the following courses: organic chemistry, physical chemistry, quantitative analysis, environmental engineering, water/wastewater treatment, chemical reactor analysis, environmental science, biochemistry. Two or more classes involving hands-on laboratory work or equivalent experience working as an intern/technician in a laboratory supporting research projects.

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

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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 👁)
 - **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.