

Opportunity Title: Validating Deposition Models for the Transportation of Radiological Waste Slurries

Opportunity Reference Code: DOE-MSIPP-16-36-PNNL

Organization U.S. Department of Energy (DOE)

Reference Code DOE-MSIPP-16-36-PNNL

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.

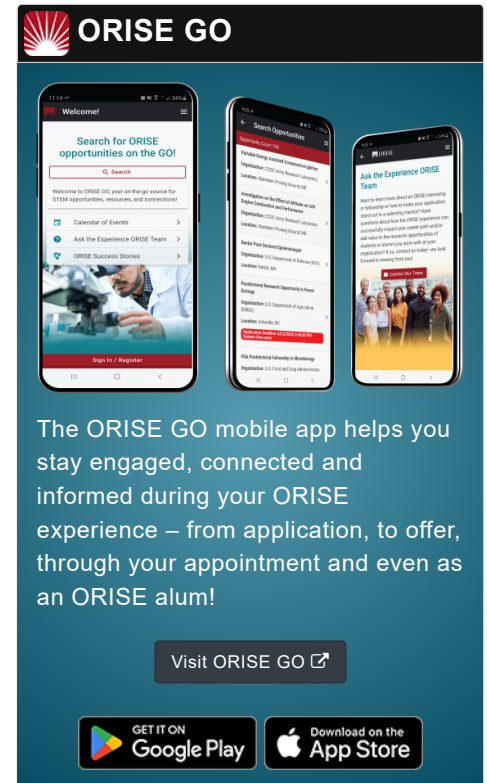
Application Deadline 3/16/2016 11:59:00 PM Eastern Time Zone

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.

The Oroskar-Turian (OT) correlation is widely-used in slurry handling industries for selecting transfer line design velocities that limit accumulation of solids and pipeline plugging. The OT correlation (Oroskar and Turian, 1980) is a semi-empirical power-law fit of available critical deposition velocity data measured for common industrial suspensions and slurries. Although widely used, application of the OT correlation is effectively limited to the systems from which it derives, that is Newtonian systems with well relatively monodisperse solids (with respect to both particle size and solid-phase speciation). As such, no formal design methodology or correlation is available to readily assessing deposition in pipelines handling non-Newtonian fluids. Recent work by Poloski et al. (2007) addresses the need for deposition velocity predictions for non-

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Newtonian fluids, and staff at Pacific Northwest National Laboratory (PNNL) have further refined this method to allow evaluations of poly-disperse solids. While the “Poloski” method performance has been evaluated against a small set of Newtonian and non-Newtonian engineering-scale deposition tests, it has not been validated against the larger body of historical and industrial deposition data. The objective of the current proposed study would be to validate the Poloski model against all available deposition data, including recent non-Newtonian slurry deposition assessments and the historic data used to derive the OT correlation. Planned activities include a literature survey to collect available deposition data for both Newtonian and non-Newtonian systems and then assessment of “Poloski” method performance in predicting critical deposition velocity in those systems.

Qualifications The successful candidate will be a senior undergraduate studying chemical or mechanical engineering, or a related scientific discipline. Interest in fluid flows. The selected candidate would be matched with national experts in pipeline particle deposition whom would mentor their work.

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	<ul style="list-style-type: none">• Citizenship: U.S. Citizen Only• Degree: Bachelor's Degree or Master's Degree.
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- **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.