

Postdoctoral Research Associate in Preparation of Pedigreed Uranium Compounds

**Nuclear Science and Technology Division
Energy and Engineering Sciences Directorate
Oak Ridge National Laboratory
Oak Ridge, Tennessee**

ORNLO9-47-NSTD

Project Description:

The Process Engineering Research Group of the Nuclear Science and Technology Division at Oak Ridge National Laboratory (ORNL) is seeking a post-doctoral associate to participate in a Department of Homeland Security Domestic Nuclear Detection Office National Technical Nuclear Forensics Center project focusing on the preparation of pedigreed uranium compounds. Industry specific processes and laboratory systems will be designed and set-up to produce kilogram quantities of uranium metals and oxides under carefully controlled conditions. These materials will be analyzed to determine potential chemical and/or physical signatures that could be used in forensic investigations.

The candidate will assemble experimental systems based on industry flowsheets and will operate these systems to produce various uranium compounds under highly controlled conditions. Fundamental analysis of the chemical and physical properties of these materials will be made and the results correlated with operating conditions and parameters. Material samples will be provided to various research institutions for additional analysis and study.

The candidate will conduct and/or request analytical chemistry measurements of experimental samples such as microcalorimetry, product/intermediate identification by microprobe Energy Dispersive X-ray (EDX), Mass Spectrometry, and X-ray Diffraction (XRD). This work will be complemented by collaborations and interactions with others in the Group, the Laboratory, and the nation who are working in the Signatures and Observables area.

In addition to this core research, the candidate will also collaborate with others in the conduct of other incidental duties associated with the Process Engineering Research Group. This Group conducts chemical and nuclear engineering research, development, and analysis on processes, systems, and equipment for use in radioactive and hazardous environments. The objective of this group is to apply the fundamentals of chemistry and chemical and nuclear engineering to the processing and handling of nuclear and other hazardous materials. A key characteristic of the Group is the unique combination of engineering design and analysis with hands-on chemical and radiochemical processing research, separations chemistry on a laboratory scale, and pilot-scale demonstrations.

Qualifications:

Knowledge of thermodynamics of chemical reactions is necessary. This position requires a strong experimentalist with demonstrated laboratory experience with radioactive materials.

The candidate should be a highly motivated self-starter, able to work independently, and able to participate creatively in refining program directions. Presentations at national meetings and publication of scientific results in either peer-reviewed journals or internal reports are expected. The candidate must have good oral and written communication skills, and be able to obtain a security clearance.

Applicants cannot have received the most recent degree more than five years prior to the date of application and must complete all degree requirements before starting their appointment.

Technical Questions:

Contact Jennifer Ladd-Lively at (laddjl@ornl.gov). Please reference the position title and number when corresponding about this position.

How to Apply:

Qualified applicants must apply online at https://www2.ornl.gov/ORNL_POST/. All applicants will need to register before they can begin the online application. For complete instructions, on how to apply, please see the instructions at <http://www.ornl.gov/orise/edu/ornl/ornl-pdpm/application.htm>. When applying for this position, please reference the position title and number.

The postdoctoral position will be offered through the Oak Ridge Institute for Science and Education (ORISE) Oak Ridge National Laboratory Postdoctoral Research Associates program <http://www.ornl.gov/orise.edu/ornl.ornl-pd/ornlpdoc.htm>. These positions is open to all qualified candidates without regard to race, color, age, religion, sex, national origin, physical or mental disability, or status as a Vietnam-era veteran or disabled veteran.