

# **Postdoctoral Research Associate Experimentalist in Neutron Sources Mechanical Engineering**

## **Neutron Facilities Development Division Oak Ridge National Laboratory Oak Ridge, Tennessee**

ORNL08-81-NFDD

### **Project Description:**

The SNS mercury target cavitation damage mitigation R&D program requires additional engineering support to plan, design & conduct experiments that investigate damage mitigation concepts. These typically involve large scale mercury flow systems with gas injection, acoustics, pressure/shock loading; they require data acquisition for pressure, fluid and gas flow, acoustics, video analysis, etc. Reports to the Neutron Source Development Group Leader as part of the Mercury Target Development Team. Interacts with personnel at all levels within NFDD and other divisions in SNS.

- The selected applicant will contribute to the planning, design, preparation and performance experiments conducted as part of SNS mercury target cavitation damage mitigation research. Experiments with either small gas bubble injection in mercury or, gas wall creation in mercury flow systems are being investigated.
- Develop and operate data acquisition systems in mercury flow systems (flow, pressure, temperature, etc.). Assist with the development of diagnostics to measure small gas bubble populations in mercury and gas wall coverage.
- Develop and operate pressure pulse devices in mercury systems that simulate cavitation phenomena in mercury spallation targets. Measure pressures from pulse devices and the effectiveness of mitigation concepts.
- Provide mechanical, fluid and heat transfer engineering analysis support to experiment design.
- Display ES&H understanding and discipline that leads to outstanding safety performance. Maintain the highest ethical and professional standards of performance and operates in accordance with these standards. Embody ORNL values to be the best in everything we do, guided by shared values that exemplify concern for people and working together to meet challenging goals.
- Successfully contributes to the advancement of cavitation damage mitigation technology via gas-mercury flows within SNS design constraints.
- Effective use of data acquisition tools for capturing relevant parameters of gas-mercury system experiments. Effective data analysis and processing for meaningful data interpretation.
- Contributes to the design, planning and operation of experiments that advance program R&D goals.
- Clear and effective communication and documentation of experiment activities, both oral and written.

**Qualifications:**

PhD. in mechanical engineering or related field with degree focus on fluids, acoustics and experimentation. Desired experience with: acoustics of bubbly mixtures, ultrasonics, fluid - gas systems, liquid metals, data acquisition and analysis; MatLab, LabView. 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.

**How to Apply:**

Qualified applicants must apply online at [https://www2.ornl.gov/ORNL\\_POST/](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.

This appointment is offered through the ORNL Postgraduate Research Participation Program and is administered by the Oak Ridge Institute for Science and Education (ORISE). The program is open to all qualified U.S. and non-U.S. citizens without regard to race, color, age, religion, sex, national origin, physical or mental disability, or status as a Vietnam-era veteran or disabled veteran.