

# **Postdoctoral Research Associate in Beam Instrumentation**

## **Neutron Scattering Science Division Oak Ridge National Laboratory Oak Ridge, Tennessee**

ORNL08-73-NSSD

### **Project Description:**

Participation in SNS Beam Instrumentation design, modeling, prototyping, commissioning and operation. Operate laser based instruments, provide optical design modeling for the preparation laser based H- double electron stripping.

### **Duties/Responsibilities:**

- Develops and implements optical design models for various laser transport lines.
- Participates in Beam Instrumentation non-intrusive diagnostics based on YAAG laser, mode-lock laser and high power lasers.
- Performs calculations and simulation of H- beam and laser beam interactions.
- Performs calculations and simulations to analyze various emittance systems being designed for SNS.
- Checks design and hardware implementation of beam imaging for the target view-screen, data acquisition and software in beam imaging experiment using Optical Transition Radiation (OTR).
- Collects, maintains and verifies documentation of the above instruments and layout.
- Summarizes work in publication, conferences proceedings and laboratory reports.
- Ensures individual compliance with environment, safety, health and quality program requirements including ISMS.
- Maintains a strong commitment to the implementation and perpetuation of values and ethics.

### **Qualifications:**

A Ph.D. in Physics or Electrical Engineering with research experience in one of the following areas requires: numerical simulations of charged particle beams, design of emittance systems, or measurement and analysis of accelerator beam parameters. Ability of collaborate in a team setting with a group of physicist and engineers in the commissioning of an accelerator highly desirable. Some travel to partner laboratories required. Excellent written and oral communications skills are also necessary. The initial appointment would be for up to one year, with possible renewal for one too two years. 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.

### **Work Directions and Interfaces:**

Reports to the SNS Beam Instrumentation group leader. Will work closely with other members of the Beam Instrumentation Team within the Accelerator Physics Group. Will interface with physicist, postdocs, engineers, students, technicians, and operators in the

various technical groups with the Research Accelerator Division and the other SNS divisions. Maintains communication with the partner laboratories.

**Authority/Approval Levels:**

Provides work direction to Beam Instrumentation graduate students within guidelines established by the Beam Instrument Group Leader.

**Measures of Effectiveness:**

- Successfully develops and implements commissioning optical transport line at the medium energy transport line.
- Successfully contributes to commissioning of the beam instrumentations such as mode lock laser.
- Successfully develops and performs beam dynamics simulations of the ring for the next generation 2-D profile monitor.
- Successfully interfaces with, Beam Instrumentation, Physics group members, other technical groups and SNS divisions.
- Successfully contributes to an environment in which individual within the team can meet SNS/ORNL environmental, safety, health, and quality requirements, and successful enforcement of these requirements.
- Successfully reports and represents the Beam Instrumentation group during technical presentations as required.
- Contributes to the publication of research results of the team in journal publications, conference publications, laboratory reports, and project technical notes.

**How to Apply:**

Qualified applicants may apply online at [https://www2.orau.gov/ORNL\\_POST/](https://www2.orau.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.orau.gov/orise/edu/ornl/ornl-pdpm/application.htm>. When corresponding to ORNL regarding this position, please reference the position title and number.

This appointment is offered through the ORNL Postdoctoral Research Associates Program and is administered by Oak Ridge Associated Universities (ORAU). This appointment 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.