

Postdoctoral Research Associate in Beam Instrumentation

Research Accelerator Division Neutron Sciences Directorate Oak Ridge National Laboratory Oak Ridge, Tennessee

ORNL08-70-NSSD

Project Description:

Participate in SNS Beam Instrumentation design, modeling, prototyping, commissioning and operation provide computational beam dynamics support for the preparation and analysis of commissioning studies. Position is temporary for 12 months with possible renewal for one to two more years. This position reports to the SNS Beam Instrumentation group leader and will work closely with other members of the Beam Instrumentation Team within the Accelerator Physics Group. The position will interface with physicists, post-docs, engineers, students, technicians, and operators in the various technical groups within the Research Accelerator Division and the other SNS divisions.

The major duties and responsibilities include:

- Develops and implements commissioning algorithms the SNS low energy MEBT and H- Source with space charge.
- Participates in Beam Instrumentation design for the SNS accelerator systems.
- Performs calculations and simulations using particle in cell codes such as WARP to study the beam dynamics and space charge on measured profiles via image acquisitions.
- 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 publications, conference 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.
- Provides work direction to Beam Instrumentation graduate students within guidelines established by the Beam Instrumentation Group Leader.
- Contributes to the publication of research results of the team in journal publications, conference publications, laboratory reports, and project technical notes.
- Maintains communication with the partner laboratories

The measures of effectiveness include:

- Successfully develops and implements commissioning algorithms for the low energy LINAC beam emittance system.
- Successfully contributes to commissioning of the beam instrumentation.
- 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 individuals 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.

Qualifications:

A Ph.D. in Physics or Electrical Engineering with research experience in one of the following areas required: numerical simulation of charged particle beams, design of emittance system, or measurement and analysis of accelerator beam parameters. Degree must have been obtained within the last 5 years. Ability to collaborate in a team setting with a group of physicists 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 or two years.

How to Apply:

Qualified applicants may apply online at 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.