

ORNL Publications

External Publication

Job Posting Title

Low-Level Radio Frequency Engineer / NB50472245

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Purpose

The Neutron Sciences Directorate (NScD) at Oak Ridge National Laboratory (ORNL) operates the High Flux Isotope Reactor (HFIR), the United States' highest flux reactor based neutron source, and the Spallation Neutron Source (SNS), the world's most intense pulsed accelerator based neutron source. Together these facilities operate 27 instruments for neutron scattering research, each year carrying out in excess of 1,000 experiments in the physical, chemical, materials, biological and medical sciences for more than 3,000 visiting scientists. HFIR also provides unique facilities for isotope production and neutron irradiation. To learn more about Neutron Sciences at ORNL go to: <http://neutrons.ornl.gov>.

Purpose:

The LLRF Engineer will be responsible for design, verification, implementation, installation, testing, commissioning, maintenance, upgrade, and operation of the LLRF systems that are utilized for the acceleration and manipulation of charged-particle beams in the SNS accelerator complex.

Major Duties/Responsibilities

- Evaluate and improve the design of the LLRF systems to support the Research Accelerator Division's mission to provide high availability (>90%) neutrons for Neutron Science investigations.
- Perform failure analysis and study mean time to repair and mean time to failure data on LLRF systems to propose reliability upgrades.
- Develop new architectures and algorithms for upgrades of the LLRF systems used throughout the accelerator complex.
- Serve as a subject matter expert on the LLRF systems for the RF team and operations group.
- Provide LLRF support for the accelerator including occasional call-in and off-normal work hours.
- Perform simulations of RF control systems in support of low-level RF control system development.
- Evaluate and improve the designs of digital feedback control systems.
- Develop and improve hardware description language (HDL) for systems utilizing field programmable gate arrays (FPGA).
- Develop control interfaces for custom hardware platforms utilizing LabView, C++, and EPICS software.
- Develop documentation and procedures for LLRF equipment and ancillary systems.
- Develop training materials for LLRF systems and participate in training of SNS staff.
- Ensure compliance with environmental, safety, health and quality program requirements.
- Maintain a strong commitment to the implementation and perpetuation of values, ethics, and diversity.

Qualifications Required

- MS in Electrical Engineering and 10 or more years of relevant experience.
- Experience with analog and RF simulation and modeling tools such as MATLAB, SPICE, and Microwave Office.

- Expertise in control systems theory and techniques.
- Expertise in the design of digital feedback control systems.
- Expertise in FPGA code development using VHDL or Verilog.
- Demonstrated hands-on laboratory experience, especially with RF and microwave test equipment.
- Expertise in computer programming using languages such as C++ and Labview.
- Must be highly motivated, self-directed and able to work in a team environment.
- Excellent written and verbal communications skills.

Work Directions and Interfaces

- Reports to the RF Systems Manager.
- Takes direction from the Electrical and RF Systems Group Leader, the RF Systems Manager, and the LLRF Systems Lead Engineer.
- Interfaces with Electrical and RF Systems Group members, SNS staff, professional peers from non-ORNL institutions, ORNL business services, vendors and visitors.
- Represents group activities and interests within ORNL and at professional conferences, workshops, and collaboration meetings.

Authority/Approval Levels:

Provides work direction to engineers, technicians, research mechanics, subcontractors, and vendors within guidelines established by the Electrical and RF Systems Group Leader. Initiates procurement of materials and services.

Measures of Effectiveness

- Success in the fulfillment of all major duties and responsibilities.
- Success as measured by the ORNL Employee Performance Management process.
- Safe execution of all responsibilities in accordance with ORNL ES&H requirements.

This position will remain open for a minimum of 5 days after which it will close when a qualified candidate is identified and/or hired.

We accept Word(.doc, .docx), Excel(.xls, .xlsx), PowerPoint(.ppt, .pptx), Adobe(.pdf), Rich Text Format(.rtf), HTML(.htm, .html) and text files(.txt) up to 2MB in size. Resumes from third party vendors will not be accepted; these resumes will be deleted and the candidates submitted will not be considered for employment.

If you have trouble applying for a position, please email ORNLRecruiting@ornl.gov.

Notice: If the position requires a Security Clearance, reviews and tests for the absence of any illegal drug as defined in 10 CFR 707.4 will be conducted by the employer and a background investigation by the Federal government may be required to obtain an access authorization prior to employment and subsequent reinvestigations may be required.

If the position is covered by the Counterintelligence Evaluation Program regulations at 10 CFR 709, a counterintelligence evaluation may include a counterintelligence-scope polygraph examination.

ORNL is an equal opportunity employer. All qualified applicants, including individuals with disabilities and protected veterans, are encouraged to apply. UT-Battelle is an E-Verify Employer.