

# PHYSICAL SCIENCES DIRECTORATE POSITION DESCRIPTION

<b>POSITION TITLE: Postdoctoral Research Associate – Experimental Neutron Physics</b>
<b>LINE MANAGEMENT: Vince Cianciolo / Leah Broussard (PI)</b>
<b>POSTING DATES: 4/24/2020 – 6/26/2020</b>
<b>External URL: <a href="https://career4.successfactors.com/sfcareer/jobreqcareer?jobId=3081&amp;company=utbattelleP&amp;username=">https://career4.successfactors.com/sfcareer/jobreqcareer?jobId=3081&amp;company=utbattelleP&amp;username=</a></b>

Requisition Id 3081

## Overview:

We are seeking a Postdoctoral Research Associate who will focus on studies of fundamental physics with neutrons. This position resides in the Neutron Physics Experimental Program in the Physics Division, Physical Sciences Directorate (PSD) at Oak Ridge National Laboratory (ORNL).

As part of our research team, you will study the impact of detection system systematics on the precise measurement of correlations in neutron beta decay as part of the Nab experiment. You will have the opportunity to fully participate in all facets of the experiment, including design and implementation of the testing apparatus, detection system development and testing, simulation and data analysis, data interpretation, and presentation and publication of the results.

## Major Duties/Responsibilities:

- Contribute to the development, setup, commissioning, and operation of an ex situ testing apparatus for precision characterizations of a highly segmented silicon detector and perform simulations of its performance and sensitivity
- Perform, analyze, interpret, and publish detector characterizations and neutron beta decay studies performed at ORNL
- Participate in the broader experimental program of the neutron physics group at ORNL, including experiments related to neutron and nuclear beta decay and a search for the neutron's electric dipole moment
- Ensure compliance with environment, safety, health and quality program requirements
- Maintain strong dedication to the implementation and perpetuation of values and ethics

## Basic Qualifications:

- A PhD in experimental nuclear or high energy physics within the last five years
- Knowledge of C, C++, and/or python programming and Linux operating systems
- Experience with data analysis techniques

## Preferred Qualifications:

- Experience, including use of relevant software and hardware tools, in at least some of:
  - Semiconductor detectors, scintillators, and silicon photomultipliers, detector characterization techniques, digital signal processing techniques, and interpretation of the results
  - Experience with data analysis and simulation packages, such as ROOT and Geant4
  - Experienced implementing algorithms using high-performance parallel codes and/or accelerators (GPU)
  - Experience with vacuum hardware, cryogenic operation, motion control, and/or data acquisition
- Excellent written and oral communication skills
- Motivated self-starter with the ability to work independently and to participate creatively in collaborative teams across the laboratory and at other universities
- Ability to function well in a fast-paced research environment, set priorities to accomplish multiple tasks within deadlines, and adapt to ever changing needs

**Special Requirement:**

This position requires travel to accelerator laboratories to perform experiments in the US and other countries.

Applicants cannot have received their Ph.D. more than five years prior to the date of application and must complete all degree requirements before starting their appointment. The appointment length will be up to 24 months with the potential for extension. Initial appointments and extensions are subject to performance and availability of funding.

Please provide a list of publications when applying for this position. Three letters of reference are required and can be uploaded to your profile or emailed directly to PSDrecruit@ornl.gov. Please include the title of the position in the subject line.

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), Adobe (unsecured .pdf), Rich Text Format (.rtf), and HTML (.htm, .html) up to 5MB 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.

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.