

# ORNL Publications

## External Publication

### Job Posting Title

Postdoctoral Research Associate in Radiation Transport Applications / NB50687364

### Posted Date

09/10/2018

### End Posting Date

10/31/2018

### Purpose

The Nuclear Security Modeling (NSM) Group within the Nuclear Security and Isotope Technology Division (NSITD), Nuclear Science and Engineering Directorate (NSED), Oak Ridge National Laboratory (ORNL), seeks highly-motivated applicants for a postdoctoral research associate in radiation transport applications.

The primary mission of the NSM group is to use computational nuclear analysis expertise and practical applications experience to provide problem-solving tools, technical solutions, and advice to customers in nuclear security, nonproliferation, safeguards, nuclear threat reduction, and post-detonation forensics and consequence management. The NSM staff conducts R&D in modeling, analysis, and simulation of radiation transport, nuclear reactor physics, reactor chemistry, fuel cycle assessments, radionuclide inventories and transport behavior, radiological source term characterizations, fallout transport, and active and passive radiation detection architectures.

### Major Duties/Responsibilities

The primary function of this position is to perform research and development that seeks to understand and quantify the effects of radiation in addressing challenging problems facing the nuclear nonproliferation and detonation detection missions. The prediction of prompt radiation effects is a primary focus. Work in nuclear emergency response; determining protection factors from fallout; nuclear materials security, control verification, interdiction, search, and render safe; and burnup and actinide content of spent nuclear fuel are also within the scope of this position. Research projects typically require the application of nuclear analysis codes, such as radiation transport and activation/depletion codes. In addition to using modeling and simulation (M&S) for prediction, design, and evaluation, M&S can also be used in projects as part of the process of analyzing measurement data. Some projects may also require adding new capabilities to existing modeling and simulation software maintained by ORNL. The candidate will be expected to work in a team environment and fully document research in journal articles, conference papers, and technical reports.

### Qualifications Required

The successful candidate must have a Ph.D. in physics, nuclear engineering, or related field and demonstrated expertise in use of M&S methods for nuclear engineering applications. Prior experience with the SCALE code system, as well as MCNP, is highly desirable. It is highly desirable for the candidate to have knowledge and experience with numerical analysis and applied mathematics, including optimization, statistics, and solution of inverse problems. The candidate should also have considerable programming experience using Fortran and other high-level languages on a Linux-based operating system. Additional capabilities, such as programming on parallel processors using the message-passing interface (MPI) are a plus. The ideal candidate would have diverse experience in many application areas such as neutron and gamma ray detection,

and radiation transport technologies. The ability to perform research and development in a collaborative environment is required, including excellent oral and written communication skills.

This position requires the ability to obtain and maintain a clearance from the Department of Energy. As such, this position is a Workplace Substance Abuse (WSAP) testing designated position. WSAP positions require passing a pre-placement drug test and participation in an ongoing random drug testing program.

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. Applicants must complete all degree requirements before starting their appointment.

Appointments will initially be for 24 months with a possibility of an extension of up to 12 months. Initial appointments and extensions are subject to performance and availability of funding.

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](mailto: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.