

Postdoctoral Research Associate in Nuclear Material Detection and Characterization

**Global Nuclear Security Technology Division
Energy & Engineering Sciences Directorate
Oak Ridge National Laboratory
Oak Ridge, Tennessee**

ORNL09-49-GNSTD

Project Description:

The successful candidate should expect to conceive, plan, and perform nuclear measurements at government facilities (both domestic and foreign) and in the field. These measurements require the development of methodology and equipment for detection and characterization of nuclear materials and explosives using imaging fast time correlated measurements with neutrons and gamma rays to determine spatial distribution of fission density and of isotopics. Analysis and interpretation of the data from measurements will require the ability to perform Monte Carlo simulations of experimental systems using existing or specially developed codes. The measurements will generally be performed using novel techniques and instrumentation developed by the NMDC group. These measurements generally require the use of associated particle neutron generators.

Qualifications:

The successful candidate must have a Ph.D. in Physics with a strong background in experimental research involving the detection and characterization of ionizing radiation. Required is familiarity with, as well as a theoretical understanding of, gamma-ray, neutron, and charged particle detectors, including detector materials, associated particle neutron generators, analog and digital signal processing, and data analysis, and with measurements in low signal to background environments. Imaging experience includes radiography and tomography and image reconstruction algorithms. Experience in the design of new detectors and detector systems is required. Strong programming skills and familiarity with computer/instrument interfaces are important. The candidate must have experience in radiation transport calculations such as MCNP. Good human relations and communications skills are requisite to interact with a broad range of national and international collaborators. The ability to perform research and development in a collaborative environment is required, including excellent oral and written communication skills. The ability to obtain a DOE Q clearance is required for this position.

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.

Technical Questions:

Contact John T. Mihalczko at 6jt@ornl.gov or 865-574-5577. Please reference the position title and number when corresponding about this position.

How to Apply:

Qualified applicants may apply online at https://www2.ornl.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.ornl.gov/orise/edu/ornl/ornl-pdpm/application.htm>. When applying for 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.