

ORNL Publications

External Publication

Job Posting Title

Postdoctoral Research Associate in Concrete Performance for Nuclear Reactor Structures / NB50509469

Posted Date

08/13/2015

End Posting Date

08/31/2015

Purpose

The Oak Ridge National Laboratory (ORNL) is seeking qualified applicants for a postdoctoral researcher in the Fusion and Materials for Nuclear Systems Division (FMNSD). The successful candidate will engage multiple research programs and perform world-class research in the area of concrete and civil structures for nuclear systems. The successful candidate will also play a key role in expanding research projects, which are a key part of the commercial nuclear reactor research portfolio at ORNL.

Irradiation effects on concrete used for biological shielding or in light water reactor supporting structures are the subjects of increasing attention in the perspective of extended operation of nuclear power plant. Among the different possible damage mechanisms, neutron induced volumetric expansion appears to have a significant impact on the residual mechanical properties of concrete. The objective of this research is to conduct experiments on irradiated concrete specimens. This data will be coupled with modeling activities to study aggregate swelling and damage creation under neutron flux.

Major Duties/Responsibilities

The experimental work includes working with the irradiation engineering team to select and design irradiation capsules and the appropriate instrumentation for the irradiation test, conducting the experiment in cooperation with the reactor operations team and conducting the post-irradiation examination, including SEM, optical microscopy, dimensional and mass change, XRD, porosimetry, nanoindentation, dynamic vapor sorption and other techniques as appropriate. The experiments must be designed to provide adequate inputs for a micromechanical model of aggregate containing silicate minerals. The computational work will use and eventually couple neutronics codes developed at Oak Ridge National Laboratory and a micromechanical model for irradiated concrete currently under development.

Qualifications Required

The position requires a PhD in Nuclear or Chemical Engineering, Materials Science, Chemistry, or closely related field. Extensive work experience in hands-on technical support roles in the handling, examination, testing, and design and fabrication of test materials is also required. Candidates must have excellent communication skills, both written and verbal, and enjoy working in a team environment. The successful candidate must also foster and maintain high standards in Environment, Safety, and Health (ES&H) and Quality Assurance for all of the group's activities.

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. This position is a temporary, full-time assignment for 24 months.

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.