Postdoctoral Fellow: In-situ X-ray and Acoustic Characterization of Sandstones

A postdoctoral fellow position is available beginning August 1, 2023 in Professor Ryan Hurley’s laboratory (http://hurley.me.jhu.edu) in the Department of Mechanical Engineering and the Hopkins Extreme Materials Institute (HEMI) at the Johns Hopkins University. The associated project is currently funded by the U.S. Department of Energy’s Basic Energy Sciences program.

The postdoctoral fellow will be expected to work on microstructure characterization and small-scale mechanical testing of rocks (primarily sandstones) using in-situ x-ray tomography, high energy diffraction microscopy, and acoustic emissions measurements. The scientific goal of this research will be to develop an in-depth understanding of the microscopic deformation mechanisms and associated grain-scale stresses and acoustic emissions events associated with the inelastic deformation and flow of rocks. The postdoc will be expected to learn existing, and develop new, image and data analysis techniques for quantifying the microstructural and stress evolution occurring during mechanical deformation of rocks using x-ray tomography and diffraction data. The postdoc will have access to state-of-the-art facilities, including a suite of commercial and custom-built mechanical testing devices, and the Materials Characterization and Processing facility (MCP) which houses electron microscopes, MicroCTs, and other characterization equipment. The postdoc will also have the potential to develop new mechanical testing devices and to use these devices to engage in experiments at synchrotron x-ray facilities and neutron imaging facilities.

Individuals who have the following credentials are strongly encouraged to apply:

1. A Ph.D. in Mechanical Engineering, Materials Science, Applied Physics, or a closely related field, with a strong publication record,
2. Significant research expertise in experimental mechanics and strong fundamentals in continuum mechanics.
3. Prior experience using or developing x-ray tomography, near-field or far-field high energy diffraction microscopy, or other synchrotron or neutron imaging modalities.

Interested and qualified applicants should send a copy of their CV with a list of at least three references and a brief statement of interest (less than one page) to rhurley6@jhu.edu. Please use the subject line “Postdoc Fellow X-ray Characterization of Sandstones”. Review of applications will begin July 7, 2023 and continue until the position is filled.