

Postdoctoral Fellow at Johns Hopkins University: High-Pressure and High-Strain-Rate  
Mechanics of Geomaterials and Concrete

We are seeking a highly motivated postdoctoral fellow with an interest in the high-pressure and high-strain-rate behavior of geomaterials (e.g., sandstones) and concrete. The successful candidate will be appointed as a Postdoctoral Fellow in the Hopkins Extreme Materials Institute (HEMI) at Johns Hopkins University. A portion of the successful candidate's work will be associated with the Materials Science in Extreme Environments University Research Alliance (MSEE URA). HEMI is an interdisciplinary institute which seeks to develop the science and technology to protect people, structures, and the planet. The MSEE URA is an alliance of research institutions led by JHU working in close collaboration with the Defense Threat Reduction Agency to understand, predict, and control the behavior of materials in extreme environments caused by weapons of mass destruction. The postdoctoral fellow will have the opportunity to work on synergistic projects related to high-pressure and high-strain-rate mechanics of geomaterials and concrete.

The postdoctoral fellow recruited for this position will lead an experimental effort to understand deformation mechanisms of sandstone, cement, and concrete at high pressures, high strain-rates, and during impacts. A suite of tools will be available for this effort, including state-of-the-art static and dynamic testing facilities containing high-pressure triaxial compression equipment, gas guns, Kolsky bars, and the Hypervelocity Facility for Impact Research Experiments (HyFIRE). Diagnostics including static and dynamic X-ray imaging, high-speed optical imaging, emission and Raman spectroscopy, scanning electron microscopy, and particle size analyzers will also be available. Some experiments may be performed at synchrotron facilities such as the Advanced Photon Source (APS). The postdoctoral fellow may be involved in computational modeling related to experiments or may mentor Ph.D. students who are focused on this task, depending on their interest, background, and the timing of their appointment.

The postdoctoral fellow will work closely with an engaging group of Ph.D. students in Mechanical Engineering, Civil and Systems Engineering, and Materials Science and Engineering at JHU. The fellow will receive mentorship from Prof. Ryan Hurley and will have the opportunity to engage with other JHU PIs of the MSEE URA.

Candidates should have a Ph.D. in mechanics, engineering, physics, materials science, or a related field. The fellow should have a strong track-record of using advanced material testing and characterization tools to study the dynamic behavior of materials.

If you are interested in this position, please email Ryan Hurley at [rhurley6@jhu.edu](mailto:rhurley6@jhu.edu) with a single PDF containing your curriculum vitae, the names of at least three references, and a 1-page research statement. Please use the subject line "HEMI Postdoctoral Fellow on the Mechanics of Geomaterials and Concrete". Review of applications will begin December 1, 2025, but will continue until the position is filled. The earliest start date will likely be February 1, 2026, but a later date is possible depending on duration of the hiring process and availability of the candidate.

Johns Hopkins University is an Equal Employment Opportunity and Affirmative Action employer and is committed to building a diverse environment. We are deeply committed to the dignity and equality of all persons—inclusive of sex, gender, marital status, pregnancy, race, color, ethnicity,

national origin, age, disability, religion, sexual orientation, gender identity or expression, and veteran status.

Johns Hopkins and HEMI provide a highly supportive environment for postdoctoral fellows, including carefully curated workforce development events, short courses, seminars, workshops, teaching and mentoring opportunities, and networking opportunities. Your success is our success, and we hope you will join us!