

Post-doctoral research position in critical mineral characterization and extraction from oil/gas waste streams

The Stanford Synchrotron Radiation Lightsource (SSRL), a Directorate of the SLAC National Accelerator Laboratory, Stanford University, and national user facility, seeks a Ph.D. Postdoctoral Scholar with research interest and experience in geology and geochemistry.

This position will involve identification and characterization of critical materials (CMs) in hydraulic fracturing waste streams. The project will also determine the reactivity of the CMs in order to develop new extraction strategies for create a new supply chain for CMs and mitigate waste materials. This work will also include collaborating with researchers from other national laboratories to identify and develop secondary CM sources to supplement primary ore deposits. The candidate will join the SSRL Earth Sciences team under the direction of Adam Jew.

SLAC Critical Minerals program is funded by the U.S. Department of Energy, Office of Basic Energy Sciences and Office of Fossil Energy and Carbon Management. The candidate will: (i) characterization of a wide range of sedimentological samples focused on critical materials using laboratory- and synchrotron-based analysis techniques, (ii) determine chemical reactivity of identified CM's, (iii) develop extraction protocols to maximize yield and minimize environmental impacts, and (iv) correlate CMs with various sedimentological facies common to unconventional shale basins to develop a broader strategy for CM development. The postdoctoral scholar will join a vibrant and highly interactive multidisciplinary research team that is integrating observations of geology, geochemistry, extraction/separations technology, and synchrotron spectroscopy/imaging within sedimentological samples that can be used to improve unconventional stimulation practices. We encourage postdoctoral associates to develop strong skills and networks for successful scientific careers by publishing papers, presenting papers at scientific meetings, organizing symposia, writing proposals, and cross-training. Primary research will be conducted at SLAC campus with portions of the work being completed in facilities at Stanford University main campus.

Qualifications:

- Ph.D. in geology, geochemistry, or a related discipline.
- Experience in mineral identification using X-ray diffraction and/or petrographic thin section analysis is required, experience in advanced spectroscopic techniques is preferred.
- Experience in wet chemistry is necessary.
- Willingness to learn synchrotron-based techniques and requisite laboratory-based characterization techniques is necessary.
- Ability to work independently and in a team environment.
- Have strong organizational skills.
- Be able to effectively write and verbally communicate across multiple scientific disciplines.

How to apply. Interested applicants should send a Curriculum Vitae, a one-page narrative summary of research experience, and the names and contact information of two references to Dr. Adam Jew (adamjew@slac.stanford.edu). Review of applications will begin immediately and will continue until the positions are filled. SLAC is an equal opportunity employer.