

Post-doctoral research position in critical mineral extraction from aging oil/gas wells

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 developing extraction methods for re-stimulating wells for the extraction of vanadium and other identified critical materials (CMs) in Permian Basin wells. The project will determine the effects of initial well stimulations on CM extractability due to mineral scale formation in the stimulated rock volume. Wells that have been identified for having significant vanadium concentrations has the potential to create a new supply chain for V and CMs prior to oil/gas well retirement. This work will also include collaborating with researchers from Idaho National Laboratory that are developing separations technologies of high salinity produced waters. The candidate will join the SSRL Earth Sciences team under the direction of Dr. Adam Jew.

SLAC Critical Minerals program is funded by the U.S. Department of Energy, Office of Basic Energy Sciences and Office of Critical Materials and Energy Innovation. The candidate will: (i) react samples provided by an industrial collaborator to recreate formation damage, (ii) optimize a low cost/low toxicity leaching fluids focused on V extraction, (iii) determine the leaching depth into the stimulated rock volume and leaching efficiency for V and other CMs, and (iv) identify secondary geochemical/mineralogical changes to the rocks due to the leaching process. 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 total elemental analysis using XRF, EMPA, or ICP-MS/OES is required, experience in advanced spectroscopic techniques is preferred.
- Experience with 2D and 3D imaging (SEM and CT) 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.