X-ray Tomography for Multi-valent Batteries and Geochemistry

The Stanford Synchrotron Radiation Lightsource (SSRL), a Directorate of the SLAC National Accelerator Laboratory, Stanford University, and a national research facility, seeks a Ph.D. Postdoctoral Scholar with interest and experience in X-ray tomography. The postdoc will work within a rich scientific environment at SLAC and Stanford University and will have opportunities to cross-train in electrochemistry, fluid flow characterization, and geochemistry. They will have the opportunity to publish lead-author manuscripts and to build a career in energy storage technologies or to build toward a future teaching career. This position is split between leveraging existing X-ray microscopes for studying energy storage systems and upgrading the microtomography capabilities at SSRL.

The position will involve operando and in situ X-ray tomography of energy storage systems with a focus on understanding the evolution of solid-solid and solid-liquid interfaces in multivalent systems. The work will be part of the Joint Center for Energy Storage Research (JCESR). JCESR is a public/private partnership to develop clean energy storage technologies for transportation and the electricity grid. The Center was established by the Department of Energy as an Energy Innovation Hub in 2012.

A portion of this project is funded by the Stanford-lead Energy Frontier Research Center (CMC-Uf). We envision that the SSRL-based micro-tomography at SSRL will support a rich scientific program to understand chemical-mechanical-transport processes in shales and other important source rock types. CMC-Uf is a large and vibrant program whose mission is to gain fundamental mechanistic understanding of the non-equilibrium chemical and physical processes occurring in shales to increase hydrocarbon production while decreasing the resulting water, contaminants, and number of wells drilled.

For more information on current energy research performed by the Weker group see https://www.ssr1.slac.stanford.edu/wekergroup/. For information on JCESR see http://www.jcesr.org/. For information on CMC-Uf see https://efrc-shale.stanford.edu/.

Qualifications:

- Ph.D. in physics, materials sciences, chemistry, geochemistry/geomechanics, or related fields.
- Experience in X-ray or neutron tomography preferred. Excellent candidates with other X-ray or neutron or microscopy experience may be considered.
- Willingness to learn any knowledge/experience gaps
- Demonstrated effective written and verbal communications skills
- Demonstrated ability to work/communicate effectively with a diverse population
- Demonstrated ability to work independently and in a team environment

This is a two-year appointment available to begin immediately. Interested candidates should submit a current CV to Johanna Nelson Weker via email at jlnelson@slac.stanford.edu.