

## **Postdoctoral Fellow in reactive transport modeling of shale-fluid interactions SLAC/Stanford University**

The SLAC National Accelerator Laboratory and Stanford University are seeking a post-doctoral research scholar to study changes in transport processes induced by the reactions between shale rocks and hydraulic fracturing fluids. The researcher will work under the supervision of Professor Kate Maher (Stanford, Department of Geological Sciences), Dr. John Bargar (SLAC), and Professor Anthony Kavscek (Stanford, Department of Energy Resources Engineering). We seek an exceptional individual with a Ph.D. in Reactive or Contaminant Transport, Hydrology, Geochemistry or a related discipline who has experience in single- or multi-phase reactive transport and in the application of numerical models to experimental data sets involving coupled transport and reaction. Familiarity with pore-scale modeling approaches is desirable, but not required. Experience with either advanced mineralogical/petrological or flow imaging approaches (*e.g.*, x-ray computed tomography) or other advanced analytical or characterization tools is required (*e.g.*, FIB-SEM, TEM, XPS, synchrotron techniques). The scholar will join a multidisciplinary team and must have enthusiasm and motivation for self-guided, high quality, team-oriented scientific research.

The project involves reactive transport modeling of a variety of fluid-rock experiments being performed by the team in order to study reactions between shales and introduced fluids. Detailed characterization of the solid phases has been performed before and after reaction using a variety of imaging methods. Key aspects of the project will involve reactive transport modeling of synchrotron-based 2D and 3D image data of coupled diffusive-reactive exchange, changes in iron redox state, and the implications for multi-phase flow of water, oil and gas at shale fracture-matrix interfaces. The researcher will collaborate with scientists who have extensive experience in synchrotron analytical techniques to prepare samples and analyze data.

We are seeking to fill the position by June 1, 2016. Interested applicants should send a Curriculum Vitae, a one page statement describing their specific experience with reactive transport modeling and imaging approaches and the names and contact information for two references to Prof. Kate Maher (kmaher@stanford.edu). Review of applications will begin immediately and will continue until the position is filled. SLAC is an equal opportunity employer.