

PhD studentship available in: 'Investigation of multiphase fluid flow within heterogeneous sandstones using high resolution X-Ray CT scanning'

Centre for Ground Engineering and Energy Geosciences, Department of Civil and Environmental Engineering, University of Strathclyde

In collaboration with: The Benson Laboratory, Stanford University, USA

Applications are invited for a PhD studentship to investigate the fundamental controls on multiphase fluid migration within heterogeneous sandstone reservoirs. A large body of research has been conducted over the past decade to determine the controls on CO₂ migration in rocks, for the design of geological carbon storage projects. The vast majority of this research has been conducted in high porosity, homogeneous sandstones. Relatively few researchers have explored the detailed behavior of multiphase fluids in rocks that contain structural heterogeneities (e.g. fractures and compaction bands). This project will involve micro-CT image analysis of multi-phase fluid flow in sandstone rock cores that contain structural heterogeneities. Experiments will be conducted both within the high resolution XRay CT scanning facilities at the University of Strathclyde and at the Benson Laboratory, Stanford University. Fieldwork, to identify appropriate samples for rock core analyses, will be conducted within Utah.

The proposed project will be in collaboration with researchers at Stanford University, and the successful applicant will spend a significant period at Stanford University, during the course of their PhD. The proposed project will be supervised by Prof. Becky Lunn and Prof. Zoe Shipton, and the successful applicant will be a member of their faults and fluid flow (FAFF) research group at Strathclyde. FAFF is a multidisciplinary group combining structural geology, hydrogeology, geophysics and civil engineering (<http://www.ges.gla.ac.uk/faff>). It provides a dynamic forum for young researchers and currently comprises around 10 PhD students and postdoctoral researchers.

Applications are welcome from students with first or upper second class undergraduate degrees, or masters qualifications, in the areas of: petroleum engineering; mechanical engineering; civil engineering; materials science; geology; hydrogeology; geosciences or an equivalent field of study.

The scholarship covers home tuition fees, a standard stipend of £14,296 per year for 36 months and research expenses.

Applications should be submitted by **May 16th**. Please email your CV and cover letter to Rebecca.lunn@strath.ac.uk and lisa.lyons@strath.ac.uk.

Award eligibility: Applicants should be a home or EU fee-paying student. Eligibility for home/EU fees can be found at <http://www.strath.ac.uk/pgrfunding/eligibility/>