University College London
Department of Earth Sciences

Job Description

Job Title: Research Associate in Experimental Rock Deformation
Department: Earth Sciences
Reports to: Principal Investigator and Co-Investigator of Project (Tom Mitchell, Nicolas Brantut)
Grade: 7
Salary: £33,686-£40,716 pa (inclusive of London Allowance)
Start Date: 1st October, 2016 or as soon as possible thereafter

Main Purpose

This post is part of a NERC funded multidisciplinary project aiming to study fracture damage in rock related to the occurrence of earthquakes, combining field observations of fault rocks, laboratory experiments, and micromechanical modelling. This post will be based in the UCL Seismolab and Rock and Ice Physics Laboratory in the Department of Earth Sciences, University College London, where we are currently working on the development and manufacture of a new and complex novel scientific apparatus. This cutting-edge apparatus will include a high pressure deformation triaxial cell with a fast moving high-speed hydraulic actuator to apply load, reproducing conditions surrounding faults during earthquakes at confined pressure conditions. The post is based at UCL, but forms part of a joint field project with Prof. Tom Rockwell at San Diego University. The postholder will be required to advance this research program by designing and carrying out high pressure laboratory rock deformation and transport property experiments, and summarizing results and writing up findings for publication in peer-reviewed journals.

Duties and Responsibilities

- To contribute to the development and commissioning of the high strain rate apparatus, liaising with the dedicated technical officer and PI.
- To contribute to the design and implementation of experiments related to the experimental programme.
- To carry out and analyse the results of the experiments related to the project.
- To prepare and present findings of research activities to colleagues.
- To draft and submit papers of original findings to peer-reviewed journals in collaboration with the investigators.
- To maintain and develop the laboratory equipment as needed.
- To prepare progress reports on research for funding bodies as required.
- To contribute to the overall activities of the research team and department as required.
- Responsible for ensuring safe and proper functioning of laboratory equipment.
- As duties and responsibilities change, the job description will be reviewed and amended in consultation with the postholder.
- The postholder will carry out any other duties as are within the scope, spirit, and purpose of the job as requested by the investigators.
- The postholder will actively follow UCL policies including Equal Opportunities and Race Equality policies.
- The postholder will maintain an awareness and observation of Fire and Health & Safety Regulations.

University College London
Department of Earth Sciences

Person Specification for the Post of Research Associate in Experimental Rock Deformation

Qualifications

Essential

- PhD (or equivalent), or thesis submitted subject to examination, in a relevant branch of the physical sciences (preferably Earth Sciences)

Experience

Essential

- The successful candidate will have experience in operating and maintaining rock physics and/or rock deformation apparatus: preferably at high pressure and /or high temperature
- The successful candidate will have an independent research reputation and will have published the results of original research in peer-reviewed scientific literature in a relevant branch of the physical sciences

Desirable

- Experience in developing new experimental rock physics measurements and techniques
- Experience in numerical modeling of rock physical processes
- Experience with quantitative optical or electron microscopy or other micro-imaging techniques

Knowledge and Skills

Essential

- Familiarity with rock physics technology and methods
- Ability to communicate effectively, both orally and in writing, with a wide range of people

Desirable

- Breadth of knowledge in the physics, deformation and transport properties of rocks
- Familiarity with data processing and signal analysis using Matlab/Python (or equivalent high-level languages)

Personal Qualities

Essential

- Commitment to high quality scientific research.
- Motivation and ability to carry out and publish scientific research and to develop a scientific career.
- Self-reliant, able to work independently under occasional supervision.
- Ability to work collaboratively as part of a team.
- Commitment to UCL's policy of equal opportunity and the ability to work harmoniously with colleagues and students of all cultures and backgrounds.