

# Research Associate - Geomechanics of Carbonate Rocks

## Vacancy details

- **Ref no:** 327/15/14
- **School/Section:** School of Energy, Geoscience, Infrastructure and Society
- **Grade/Salary:** £30,434 - £37,394
- **Closing date:** 31 Jan 2015
- **Duration:** Fixed Term for three years
- **Location:** Edinburgh Campus of Heriot-Watt University

## Job description

The International Centre for Carbonate Reservoirs (ICCR) is the largest dedicated academic research group in Europe on carbonate hydrocarbon reservoirs, comprising over 30 researchers working across the full range of geological, geophysical, and reservoir engineering challenges related to exploring, characterising, and modelling carbonate reservoirs. ICCR was formed in 2010 as a strategic research partnership between Heriot-Watt University and the University of Edinburgh. Today, University of Oxford is also a member institution of ICCR.

At ICCR we undertake strategic fundamental and applied research to enhance recovery from complex carbonate reservoirs. Carbonates are highly heterogeneous across all length scales, and so essential to this endeavour is to understand the fundamental controls on carbonate porosity and permeability evolution, the prediction of reservoir quality using geophysical data, and the appropriate upscaling of porosity, permeability, and the physics of multiphase flow.

An opportunity has arisen at ICCR to conduct research in the area of pore-scale reactive transport modelling. This particular ICCR position will be based at the Institute of Petroleum Engineering (IPE) within the School of Energy, Geoscience, Infrastructure and Society at Heriot-Watt University. IPE is recognised internationally as a leading centre of excellence in petroleum engineering and petroleum geosciences teaching, training and research with strong links to industry worldwide.

IPE is inviting applications for an outstanding and motivated Postdoctoral Research Associate for a three-year period to carry out and support research at ICCR in the area of geomechanics of carbonate rocks. The role will involve the following duties:

- **Perform Rock Mechanics tests** on carbonate rocks of increasing solid framework complexity. Derive predictive relationships for carbonate rock type and for deformation type.
- General **geomechanical simulations** (using existing software) that replicate experiments and extend them to subsurface reservoir scenarios

- **Develop link between experimentally-generated data and geomechanical simulation** and derive potential rock damage (e.g. distribute into fracture patterns, shear bands, compaction bands) from the simulation outputs. Code is available for modification.
- **Derive relationships between initial pore networks and deformed pore networks** and use these to generate pore network models (using existing software).
- **Use derived acoustic properties** to generate forward seismic model.
- Collaborate with and support other ICCR projects.
- Report research findings at bi-annual project meetings and through conference presentations and peer-reviewed journal publications.

Informal enquiries may be made to Dr Helen Lewis on +44 (0)131-451-3691 and [helen.lewis@pet.hw.ac.uk](mailto:helen.lewis@pet.hw.ac.uk). Please see <http://www.iccr.org.uk/> for further information.

Applications are particularly welcome from women and black and minority ethnic candidates, who are under-represented in academic posts at Heriot-Watt

### How to apply

Completed application forms may be returned by e-mail to [hr@hw.ac.uk](mailto:hr@hw.ac.uk) or by post to Heriot-Watt University, Human Resources, Edinburgh EH14 4AS. Tel. +44 (0) 131 451 3022 (24 hours), Minicom +44 (0) 131 451 8212.

Please quote the vacancy reference no. (327/15/14) in any correspondence.