

Fully funded PhD Opportunity

Marine and Earth Surface Processes Research Group
UCD School of Earth Sciences, University College Dublin

Mixed carbonate-clastic systems of the deep-water Dublin Basin

Supervisor: Prof Peter Haughton

Applications are invited from suitably qualified candidates for a full-time PhD (Structured PhD programme) on “Mixed carbonate-clastic systems of the deep-water Dublin Basin”. The project is funded by iCRAG, the SFI Research Centre in Applied Geosciences.

Project background and description

Gravity current processes operating in deep water mixed-carbonate-clastic settings are less well known compared to their clastic counterparts. The study will focus on fault-controlled deep-water successions in the Mississippian Dublin basin using a novel integration of field and core-based description, optical petrography, hyperspectral imaging and Itrax elemental scanning. Key aims are to: (1) characterise bed-scale compositional trends to reconstruct flow processes and assess the impact of clay-induced flow transformations; (2) develop improved facies models for mixed carbonate-clastic deep-water successions that help constrain basin evolution; and (3) address controls on the distribution of pyrite and the efficacy of carbon burial at bed scale in these systems. The project will link to parallel projects addressing the wider tectono-stratigraphic evolution of the Irish Mississippian basins which are important for mineral exploration, geothermal prospectivity, the integrity of construction materials, access to groundwater and geotechnical characterisation for urban infrastructure.

The successful candidate will:

- Receive training in a range of current rock and core characterisation techniques and deep-water sedimentology.
- Undertake a combination of petrographical, laboratory and field work.
- Contribute to a wider team addressing sediment transport processes, tectonic controls on sedimentation and the applied significance of the Irish Mississippian basins.
- Have an opportunity to interact with industry partners.
- Undertake demonstrating to undergraduate classes, as appropriate, and participate in iCRAG education and public engagement (EPE) activities.

Requirements

Applicants should have a 2.1 or higher first degree in geology, geoscience, Earth science or a related discipline, and a strong interest in sedimentology, basin analysis, petrography and

fieldwork. They will be highly motivated, well organised and able to work both independently and as part of a team. They will also have excellent written and oral communication skills.

Award

The successful candidate will be enrolled for a 48-month (Structured) PhD programme in the UCD School of Earth Sciences. The Award covers University fees and a stipend of €18,500 per annum for four years. Additional funds to cover project costs (analyses, field work, conference attendance) will also be provided.

Start date: Q4 2022

Further Information

Prof Peter Haughton, UCD School of Earth Sciences, University College Dublin, Ireland.

Email: peter.haughton@ucd.ie

Application Procedure

To apply, you will need to supply a full CV, including the names of two academic referees, as well as a cover letter outlining your experience, aptitude, and motivation to undertake the project. Please submit your application by email to peter.haughton@ucd.ie and include "iCrag Mixed carbonate-clastic PhD" in the subject line.

Closing date: August 31st 2022 at 5pm (local) Irish time