

Post-doctoral researcher in U-Pb LA-ICPMS carbonate dating at Trinity College Dublin, Ireland



The Department of Geology at Trinity College Dublin, Ireland, seeks applicants for a 5 year post-doctoral fellowship in U-Pb LA-ICPMS carbonate dating. The approach involves image mapping by laser-ablation quadrupole-ICPMS, which can circumvent the problems of low U contents and/or high initial Pb in calcite/dolomite by identifying zones of high U/Pb ratio. U-Pb ages are generated from these LA-ICPMS image maps and where there is a sufficient spread in U/Pb age ratio, age uncertainties as low as $\pm 1\%$ can be obtained.

The successful candidate will:

- *Develop a series of primary reference age materials for LA-ICPMS U-Pb dating of calcite and dolomite.* These will include gem-quality mineral specimens, along with platform carbonate sequences with U-Pb zircon geochronological constraints on interbedded ash layers.
- *Develop further a rapid ICPMS solution-based approach to U-Pb whole rock carbonate dating.* Samples that yield promising LA-Q-ICPMS U-Pb age data will undergo solution-based U-Pb measurements by progressive acid leaching on rock chips which will then be dated by Q-ICPMS (routine analysis of unknowns) or ID-TIMS (to characterize potential standards and key unknowns).
- *Apply these U-Pb dating techniques to carbonate unknowns.* These applications include direct dating of carbonates for key time intervals in Earth history, particularly those associated with ancient climatic changes; dating carbonate veins and cements in carbonate-hosted ore bodies; and constraining the timing of reservoir-degrading cementation events in hydrocarbon basins (removal of porosity by diagenetic calcite).

This appointment is for 5 years and has a salary of €42,394 (year 1) rising to €46,255 (year 5). The anticipated start date is **December 1st 2016**. A strong peer-reviewed publication record and experience of LA-ICP-MS (both quadrupole and multi-collector instruments) are essential. At least three years postdoctoral experience and experience of ID-TIMS are advantageous. The successful candidate will also co-supervise a PhD student working on this project starting in September 2017. The department has 2 LA-ICPMS instruments, a dedicated solution-ICPMS facility with a clean laboratory along with full mineral separation and sample preparation facilities. (<http://www.tcd.ie/Geology/research/facilities/analyticalabs/>).

Please contact Dr. David Chew at chewd@tcd.ie (+353 1 896 3481) for further information. Your application should be emailed to the above address and should include a curriculum vitae, list of publications, statement of research interests, and contact details of three academic referees. The closing date for applications is **October 1st, 2016** – applications received after this deadline can only be evaluated if the position is not filled.

