Ph.D. opportunity in "*Magnetic Nanoparticles for Biomedical Applications* at University College Dublin

The Brougham Group in the School of Chemistry at University College Dublin is seeking a Ph.D. student for a project on novel composite nanomaterials for biomedical application. The position is for four years and will be supported by the School of Chemistry.

Suspensions of surface-functionalised magnetic iron-oxide nanoparticles (MNPs) are a key component in next-generation responsive nanomaterials. Key aspects in developing such materials include controlling; (i) MNP morphology and crystallinity (which determine the magnetic properties), and; (ii) surface chemistry (which is critical for MNP stabilisation and bio-recognition). In this project approaches to these two issues developed in the Brougham Group[1-3] will be combined to develop improved magnetic nanomaterials.

The research will involve:

- Synthesis of MNPs with control over particle size and shape.
- Surface chemistry to stabilise the MNPs and control interparticle interactions.
- Detailed physicochemical characterisation, to assess the novel materials potential for use in magnetic resonance imaging.
- Incorporation of MNPs into magnetically-responsive polymer-stabilised composites and their evaluation (with collaborators in UCD and RCSI) for tissue engineering applications.

[1. Stable aqueous dispersions of glycopeptide grafted magnetic nanoparticles of selectable functionality. Heise, Brougham et al. ***Angew. Chem. Int. Ed.*** 2013, 52, 3164–3167.
2. Cooperative organization in iron oxide multi-core nanoparticles potentiates their efficiency as heating mediators and MRI contrast agents. L. Lartigue, Bazzi, Brougham, Gazeau et al. ***ACS Nano***, 2012, 6, 1093-10949.
3. Nanoparticle clusters: assembly and control over internal order, current capabilities and future potential. J, K. Stolarczyk, A. Deak, D. F. Brougham. ***Advanced Materials***, 2016, DOI:10.1002/adma.201505350.]

Applications are invited for this funded PhD vacancy in UCD School of Chemistry.

Applications are welcome from students with, or expecting to gain, a first class Honours degree (or equivalent) in Chemistry or a cognate discipline. The successful candidate can start in September 2016. The position will be filled once a suitable candidate has been identified so early application is advised. Interviews will be held by Skype or in person as appropriate.

A Scholarship for up to 4 years of stipend (€15,000) and fees (EU Level) is available for successful the applicant thanks to generous funding from University College Dublin. There will be a requirement to teach in undergraduate laboratories and tutorials as part of the scholarship.

CANDIDATES should apply directly to Dr Dermot Brougham
(Dermot.brougham@ucd.ie)
Applicants should send a cover letter and a CV including the names of at least two people willing to provide a reference. UCD supports equal opportunities and does not discriminate against individuals on the basis of gender, age, race, colour, nationality, ethnic or national

origin, religion, marital status, family status, sexual orientation, disability or membership of the traveller community.