



PhD Position Available
January 2012 Start (or Earlier)
Now Accepting Applications

Carbon Dioxide Capture via Pressure Swing and Vacuum Swing Adsorption (P/VSA)

Principal Investigator: Prof Don MacElroy

Location: UCD School of Chemical and Bioprocess Engineering, Belfield, Dublin

The project will focus on the development of adsorption technologies for the capture of CO₂ from both power plant post-combustion flue gases and gas emissions during cement production. Theoretical methods and experimental systems will be developed which will employ novel amine functionalised mesoporous silica materials. The Engineering technology to be employed is Pressure/Vacuum Swing Adsorption which has gained wide recognition as a robust approach in the separation of gas mixtures. Its application to CO₂ capture is still at a very early stage and requires significant development.

The ability to separate CO₂ from other gases (combustion exhausts, for example) is one of the great technological challenges of the 21st Century. The challenge centers around the broad range of concentration of CO₂ in the gas emissions from a variety of industrial sources and the requirement to produce high purity CO₂ for downstream sequestration. Two companies will be directly involved in the project: CRH, a world leader in the cement industries, and Glantree, a fine chemicals company with major interests in production of proprietary mesoporous silicas.

This project is aligned directly with the core principles of the Earth and Natural Sciences Doctoral Studies Programme, through the development of a close interaction between those working in carbon capture (UCD in collaboration with UL) and those in sequestration (TCD/UCD) and the exposure to, and appreciation of, the difficulties which need to be overcome to meet the full requirements for CCS.

The applicant should have a 1st Class degree in Chemical Engineering, Materials Engineering, the Chemical or Physical Sciences or equivalent. Some research/project experience in a similar field will be required.

Stipend: € 16,000 per annum for years 1-4
Fees: € 5,750 per annum will be provided to pay the fees

APPLICATION DETAILS:

Each application must include a **curriculum vitae**, a **letter of motivation**, and **academic transcripts**. Please visit www.seccluster.ie for this ad.

All of this information must be emailed to the Principal Investigator (Don.MacElroy@ucd.ie)

Applications received before 31st August 2011 will receive full consideration, and the position will remain open until filled.