



The  
University  
Of  
Sheffield.

Faculty  
Of  
Engineering.

## **Sheffield Engineering Scholarships**

### **PhD full-fees scholarship for China Scholarships Council scholars from Zhejiang University**

**Project:** *Analytical chromatography for metabolic profiling to understand cancer metastasis*

Cancer development and progression is mediated by complex molecular events at the cellular level. An understanding of the metabolic processes that distinguish benign from aggressive tumours that metastasise will lead to development of remedies for cancer treatment and prevention. Currently, this knowledge is limited by the availability of tools to investigate at the molecular level. In the post genome era, it is increasingly being realised that metabolic markers at the proteomic and metabolomic levels could hold the key to understanding cancer metastasis. Several analytical tools and strategies are being investigated in this regard. The challenge is in being able to capture changes in the diverse chemistries at different time points, reliably and reproducibly. Chromatographic separations combined with mass spectrometry offers a means to achieve this end. Although these tools are being widely applied there are several challenges that require to be addressed before they can be reliably employed on a routine basis. For example, it is still challenging to obtain reliable and reproducible information on quantitative changes in metabolite levels. This project will investigate the application of capillary LC separations combined with high resolution mass spectrometry to profile the metabolomic component of prostate cancer cells and tissues. The investigation will involve addressing the challenges in profiling the metabolome, including strategies to maximise analyte throughputs and bioinformatics to derive information that will be of biological significance in identifying changes leading to cancer progression.

**Supervisor:** Dr. Seetharaman Vaidyanathan (Chemical and Process Engineering)

**Scholarship:** Sheffield Engineering scholarships cover the full cost of PhD registration fees for 3 years

**Eligibility:** Sheffield Engineering scholarships are available to students who secure a CSC scholarship. Applicants must meet the University of Sheffield English Language requirements, full details of which are available at:

[http://www.shef.ac.uk/postgraduate/info/notlive\\_dfiohmihsm.html](http://www.shef.ac.uk/postgraduate/info/notlive_dfiohmihsm.html)

**Applications:** Please send a CV together with a brief covering letter to Professor Geraint Jewell, Faculty of Engineering Director of Research and Innovation at [g.jewell@sheffield.ac.uk](mailto:g.jewell@sheffield.ac.uk) by **15<sup>th</sup> March 2009**. Include the title of the project in your covering letter and any English language test results.