UNIVERSITY OF SOUTHAMPTON

Faculty of Physical Sciences and Engineering, Electronics and Computer Science
Nano Group, Southampton Nanofabrication Centre

PhD Studentship in *Bio-inspired Nanosensors*

Applications are invited for a PhD scholarship to be filled by January 2014. This scholarship will fund students for their tuition fees, a bursary to cover living expenses (£13,726 per year) and a Research Training Support Grant for research consumables and conference attendance. This role will be based at the Nano Group within the Electronics and Computer Science Department and will use state-of-the-art facilities at the Southampton Nanofabrication Centre. SNC is one of the premiere cleanrooms in Europe, facilitating a uniquely broad range of technologies by combining traditional and novel top down fabrication with state-of-the-art bottom up fabrication.

The outline of the project is presented below:

Over the past, chemical sensors have allowed us to affiliate biology with engineering, enabling the development of bio-inspired systems. In theory, physical dimensions and selectivity of a sensor determines the minimal biological activities that can be sensed. However, conventional sensors, typically suffer from a relatively low sensing resolution while their scaling works against the reliability of the device. Nature on the other hand, is known to be extremely efficient in performing signal transduction, with transmembrane ion-channels being exceptionally effective chemical sensors. To date, research efforts have been mainly focused in replicating the mechanical properties of ion-channels, while the possibility of employing electrically equivalent devices has been neglected.

The aim is to create novel nanoscale sensors inspired by biological ion-channels that can demonstrate an ultra-high detection sensitivity, accuracy and wide dynamic range. These attributes could significantly enhance the current state-of-the-art spatio-temporal sensing resolution, to enable emerging applications in life sciences and healthcare.

The ideal candidate should have an MEng/MSc (or equivalent, or near completion) with first class honours or distinction in Electronics, Materials Science, Physics, or a closely related subject with experience in micro/nano fabrication techniques and an interest in thin-films. This studentship is available to **UK/EU** applicants for a period of 3 years. The Nano Group will provide research experience in one of its programs, training, laboratory facilities and access to its seminar and lectures. Students would also be encouraged to attend three major conferences during their period of study and would have access to all university facilities for wider study, including the libraries, and recreation.

Prospective candidates are encouraged to contact Dr Themis Prodromakis (**t.prodromakis@soton.ac.uk**) directly for further details.

To apply please send a CV, relevant publications, the names of two referees and a covering letter explaining your current interests and relevant background to Mrs Glenys Howe (**gch@ecs.soton.ac.uk**). Please note that the successful candidate will be asked to submit a PhD research application to Registry to ensure they have met all necessary admissions criteria. More information on the Nano Group and the Southampton Nanofabrication Centre can be accessed at:
http://www.nano.ecs.soton.ac.uk
http://www.southampton-nanofab.com
http://www.nanomemristors.com