PhD Studentship in Electrochemical Safety of Neural Implants, - Ref:1816685

Click here to go back to search results

UCL Department / Division
Medical Physics and Biomedical Engineering

Location of position
London

Duration of Studentship
4 years

Stipend
£17,009 per annum

Vacancy Information
The Department of Medical Physics & Biomedical Engineering at UCL, in collaboration with the UCL Division of Surgery and Interventional Science at UCL, is inviting applications for a studentship on the electrochemical safety of neural implants to start in 2019/20.

Neural interfaces generate dramatic clinical benefits, from deep brain stimulation for Parkinson's patients, to enabling communication for patients with locked-in syndrome. To continue delivering long term improvements for patients, neural interfaces must be made increasingly smaller yet remain highly reliable.

You will investigate a non-biological failure mode of neural implants: the safety of charge injection for neural stimulation. This project involves electrochemical testing of neural implant materials under static and dynamic conditions in the presence of biological molecules and chemical species. By understanding the processes occurring at the electrode surface, and the role of different factors in the body environment, your work will allow better estimates of safe charge injection and improved long term safety for patients.

You will gain skills in implant development, thin-film processing, microelectronics, and discrete electronics manufacture. You will learn to test materials' electrochemical and mechanical properties, interpret the results with respect to changes in underlying materials chemistry, and apply statistical approaches to estimate device safety.

You will have the opportunity to engage in professional development and training beyond the laboratory: by attending conferences; publishing in academic journals; assisting with teaching; and attending courses through the UCL Doctoral Skills Development Programme.

About the Departments

The Department of Medical Physics & Biomedical Engineering is one of the largest of its kind in the UK. Internationally leading research in the department includes medical imaging, physiological monitoring, radiotherapy and biomedical engineering. The department has close links to several major teaching hospitals. This provides a highly stimulating multidisciplinary environment for learning and for scientific research. You will join the Implanted Devices Group with expertise in manufacturing and testing implantable electronics for neural interfaces.

The UCL Division of Surgery and Interventional Science has a long tradition in the development and evaluation of new therapies and materials in first-in-patient studies. You will join the Aspire CREATe team with expertise in implantable and wearable sensors for rehabilitation.

Both Departments hold a Athena Swan Bronze Awards which recognise and celebrate good practice and commitment to advancing diversity in science, technology, engineering, mathematics and
medicine (STEMM) in higher education and research. The awards reflect our commitment to the advancement and promotion of diversity and equality.

For further information, please visit:

https://www.ucl.ac.uk/medical-physics-biomedical-engineering/about/athena-swan

**Studentship Description**
Funding: The studentship is funded by the Department of Medical Physics and Biomedical Engineering for 4 years and will cover UK/EU university tuition fees and an annual stipend of £17,009.

**Person Specification**
Successful applicants will have achieved or be predicted a first class or upper second class UK Bachelor’s degree or Master’s degree, preferably in chemistry, materials science, or biomedical engineering. Applicants with degrees in engineering, physical sciences, and life sciences, are encouraged to apply if they can demonstrate practical research experience and strong mathematical skills. Equivalent non-UK qualifications and knowledge and expertise gained in the workplace may also be considered, where appropriate. Please explain how you meet this requirement in your application.

English language requirements: If your education has not been conducted in the English language, you will be expected to demonstrate evidence of an adequate level of English proficiency.

**Eligibility**
One studentship is available which will cover the cost of tuition fees for UK/EU students and a stipend of at least £17,009 per annum tax free for 4 years. UK/EU students must have been living in the UK for 3 years prior to the course commencing due to funding restrictions (for education purposes is fine). Outstanding students not meeting these conditions (including students from outside the EU) may apply if they have funding to support international fees.

For more information about this opportunity please contact the supervisors:

Primary Supervisor: Dr. Anne Vanhoestenberghe, Aspire Centre for Rehabilitation Engineering and Assistive Technology, Division of Surgery and Interventional Science, University College London. a.vanhoest@ucl.ac.uk

Secondary Supervisor: Dr. Henry Lancashire, Implanted Devices Group, Department of Medical Physics and Biomedical Engineering, University College London. h.lancashire@ucl.ac.uk

Applications (including a covering letter, CV and names of two referees) should be sent to Miss Mohini Nair, who will also be happy to handle any informal enquiries.

**Contact name**
Mohini Nair

**Contact details**
m.nair@ucl.ac.uk

UCL Taking Action for Equality

**Closing Date**
2 Sep 2019

**Latest time for the submission of applications**
5pm

**Studentship Start Date**
Flexible, 2019/2020 start.