

# **DPhil Studentship in MRI Physics**

**FMRIB Centre  
Department of Clinical Neurology  
University of Oxford**

The studentship, funded by the EPSRC, will be based within the Oxford University Centre for Functional Magnetic Resonance Imaging of the Brain (FMRIB) that is located on the John Radcliffe Hospital site in Oxford. The student will be a member of the Magnetic Resonance Physics research group that forms part of the FMRIB Centre. The FMRIB Centre Physics Group conducts research using magnetic resonance imaging that involves the development of new scanning methods, as well as the implementation and validation of those methods in healthy volunteer subjects as well as in patients.

The purpose of this project is to develop new integrated, semi-automated image analysis methodology for the newly developed oxygen-inhalation functional MRI technique (that uses elevated states of inhaled oxygen to measure brain metabolism). The ultimate aim of the project is to enable translation of our new functional imaging procedures from a purely research setting into a clinical environment. This will require the simplification and validation of the analysis methods currently employed so that they can be used in a clinical environment. The research will require the successful candidate to possess or develop a range of skills from physics and engineering, through statistics and programming to a basic understanding of neurophysiology and biochemistry. The tools produced in the course of the research will be applied in conjunction with a new generation of clinical imaging procedures for use with conditions such as stroke, brain tumours, neurological disorders and acquired brain injury.

The student will develop an expertise in MRI physics, including biophysical theory and the design and implementation of new methods on the University of Oxford's state-of-the-art high-field human MRI scanners. Previous experience in advanced programming languages such as C or C++, and familiarity with environments such as Matlab would be a definite advantage.

As well as the FMRIB Centre scanners the University also possesses other research-dedicated MRI scanners, including a 3 Tesla Siemens TIM Trio MRI system and 1.5 Tesla Siemens Avanto system that are located in the Oxford Centre for Clinical Magnetic Resonance Research (OCMR), and a 3 Tesla Siemens Verio system combined with a Siemens Artis Zee bi-planar angio suite that forms part of the recently completed Oxford Acute Vascular Imaging Centre. These resources will also be available to the student. This focus on MRI research has enabled the creation of a critical mass of imaging physicists, image analysis experts and clinician scientists who collaborate on basic and clinical neuroscience. In particular, we have a group of approximately 15 MR physicists engaged in neuro-vascular and cardio-vascular programming in the Siemens IDEA environment, and thus providing a valuable source of advice and collaboration.

The FMRIB Centre forms part of a broad and rapidly growing medical imaging strategy within the University, which includes extensive clinical and pre-clinical MRI research.

Further information about the MRI Physics research group can be found at the following web address: <http://www.fmrib.ox.ac.uk/physics>.

This 3 year DPhil position is funded by the EPSRC. The PhD studentship will be available to start 1st October 2010. Applications are invited from Home and EU (fees only unless residency requirements are fulfilled) postgraduate students. Applicants should hold or expect to gain a first or upper second-class honours undergraduate degree.

**Please contact Dr Daniel Bulte [bulte@fmrib.ox.ac.uk](mailto:bulte@fmrib.ox.ac.uk) or Anne Taylor [anne.taylor@clneuro.ox.ac.uk](mailto:anne.taylor@clneuro.ox.ac.uk) before submitting an application.**

Applications should be submitted via the University graduate admissions process by the deadline of **8 January 2010** [www.admin.ox.ac.uk/gsp](http://www.admin.ox.ac.uk/gsp).

Applications should cite Source Code: **10CLINNEUR03WEB**.