

**UCL Institute of Neurology, University College London  
Wellcome Trust Centre for Neuroimaging**

**PhD Studentship: Developing Robust and Fast Quantitative MRI for Clinical Deployment**

Applications are invited for a PhD studentship at the Wellcome Trust Centre for Neuroimaging (WTCN) under the supervision of Dr. Nikolaus Weiskopf (Head of Physics at WTCN) and in collaboration with Siemens Healthcare. The anticipated start date is 23rd September 2013.

**Project:** The main goal of the PhD project is to develop and optimize quantitative anatomical magnetic resonance imaging (MRI) of the human brain for clinical or clinically related applications in collaboration with Siemens Healthcare. Quantitative MRI addresses the shortcomings of standard clinical MRI, which suffers from limited specificity and comparability, but it is not used in clinical neuroimaging. This makes standard clinical images difficult to compare across sites and time points, complicating patient follow up and defining reference values for healthy and pathological brain tissue.

The PhD project is founded on previous work on quantitative multi-parameter mapping at the WTCN, which has been successfully used for in-vivo parcellation of cortical microstructure and investigation of healthy aging and disease (see for examples: <http://www.fil.ion.ucl.ac.uk/Research/physics.html> and key publications below).

This PhD project aims to significantly improve the quantitative multi-parameter mapping approach and deploy these improvements on MRI scanners world-wide in collaboration with our industrial partner Siemens. Primary improvements will include acceleration of image acquisition, desensitizing against physiological/motion artifacts. The PhD will work in close collaboration with the Siemens MR development team.

**Environment:** The student will be tightly integrated in our world-leading lab with access to the latest 3T MRI facilities (Siemens 3T TIM Trio, 32-channel) including a system for optical prospective motion correction (Kineticor) that is unique in the UK. The intensive collaboration with Siemens Healthcare is an excellent opportunity for the student to work in a leading academic and industrial environment.

**Funding:** The studentship is funded for 3 years. The studentship will cover UK/EU university tuition fees and an enhanced annual stipend of £18,500 (tax free). Note that overseas candidates (i.e., non EU/UK) can only be considered if they provide formal proof, at the time of application, of a scholarship which funds the additional overseas tuition fees.

**Entry requirements:** A good degree in physics, medical physics, engineering, biomedical sciences or related disciplines, with a high final average. Candidates short-listed for interview will be required to give a short research presentation.

**Informal enquiries:** Please email Dr. Nikolaus Weiskopf for further information about the project ([n.weiskopf@ucl.ac.uk](mailto:n.weiskopf@ucl.ac.uk)).

**Application procedures:** Application is by CV and covering letter (including motivation for applying) emailed to: [ion.educationunit@ucl.ac.uk](mailto:ion.educationunit@ucl.ac.uk)

Please put "WTCN Physics Studentship" in the subject line.

**Closing Date:** 9am, Monday 5<sup>th</sup> August 2013

**Key publications:**

1. Dick, F. et al. In vivo functional and myeloarchitectonic mapping of human primary auditory areas. *J. Neurosci.* 32, 16095–105 (2012).
2. Weiskopf, N. et al. Unified segmentation based correction of R1 brain maps for RF transmit field inhomogeneities (UNICORT). *Neuroimage* 54, 2116–2124 (2011).