3 Year PhD Studentship available for September 2019

**Department:** Neuroscience, Psychology and Behaviour

**Supervisors:**

First supervisor: Dr. Michael Okun  m.okun@leicester.ac.uk
Second supervisor: Prof. Rodrigo Quian Quiroga  rqqg1@leicester.ac.uk

**Eligibility:** This studentship is open to UK and EU applicants only.

**Project Title:** Serotonergic modulation of functional connectivity in cortical microcircuits

**Project Description:**

Psychoactive drugs result in profound alterations of our state of consciousness. Well known examples of such drugs are general anaesthetics, in use since mid-19th century, and hallucinogens, which are consumed from times immemorial. The way these drugs operate is far from understood, although last decades witnessed a significant progress on this question. Most of the research has focused on the cellular mechanisms of action of such drugs in the central nervous system, elucidating the receptors and intracellular molecular pathways that are involved. However, knowing how a neuron is affected when considered in isolation (typically in an in vitro preparation), does not explain how the drug affects the intact brain, where neurons are highly interconnected.

The aim of the present project is to further the systems level understanding of the changes in cortical activity under the effect of classical hallucinogens, exerted primarily by activation of serotonergic 5HT-2A receptors. Our specific objective is to determine the changes in spontaneous and sensory evoked activity produced by 5-HT2A agonists at the level of single neurons and neuronal populations in sensory and frontal cortex. Towards this end, we will use 2-photon imaging and advanced computational methods to record and analyse spontaneous and sensory-evoked activity of large populations of cortical neurons in mice.

The PhD student will gain expertise in cutting-edge methods in systems and computational neuroscience and will help advancing our understanding of a fundamental question at the intersection of neuropharmacology and systems neuroscience.
References: None

Funding details:

This project is in competition for a College of Life Sciences (CLS) PhD Studentship. The Studentship is for three years, starting September 2019, and offers tuition fees at UK/EU rates and a Stipend at UK Research Council rates.

Entry requirements:

Applicants are required to hold/or expect to obtain a UK Bachelor Degree 2:1 or better in a relevant subject. The University of Leicester English language requirements apply where applicable.

How to apply:

You should submit your application using our online application system. We are unable to consider applications submitted by email.

Guidance for completing the online application form: Under ‘Select your area of study,’ choose ‘Neuroscience Psychology and Behaviour Research’; under ‘Select your intake date,’ choose ‘September 2019’.

In the Funding section of the application, select please state you wish to be considered for a NPB College of Life Sciences Funded Studentship.

In the Research Proposal section of the application, please provide the name of the supervisor and project you want to be considered for. You do not need a research proposal but you should submit a personal statement explaining why you are interested in this project.

Project / Funding Enquiries: Applicants are encouraged to contact prospective supervisors by email or phone to discuss the project and their interests prior to submitting a formal application.

Application enquiries to pgradmissions@le.ac.uk

Closing date for applications: Monday 21 January 2019