

26th January 2022

FTN Fellowship for a PhD Student

A position for a PhD-student funded by a fellowship of the Research Focus Translational Neurosciences (FTN) is available in the laboratory of Simon Rumpel at the University Medical Center of the Johannes Gutenberg University Mainz, Germany.

Dynamic representations of sounds in the auditory cortex

Sensory stimuli are represented in cortical circuits as specific patterns of activity. However, the neurons forming this representation are dropping in and out over the time course of days and weeks and cause the representation to drift, even under behaviorally and environmentally stable conditions. How is the brain nevertheless able to form stable percepts from such dynamic representations?

The aim of this project is to unravel how neuronal representations are able to adapt and to incorporate new information while simultaneously maintaining functional stability. To that goal, we will take advantage of several large-scale imaging datasets that have been recently acquired in the Rumpel lab. Chronic two-photon calcium imaging was used to monitor sound-evoked activity patterns in tens of thousands of neurons and in the mouse auditory cortex over several days. We will apply advanced data analysis methodology to elucidate the principles of representational drift and to shed light on this fundamental question.

Applicants should have obtained a master's degree or diploma in neuroscience, physics, or a related field, have excellent communication skills, and have an interest in working in a collaborative and international environment. Prior experience in the analysis of large-scale data and significant programming skills (Matlab) are essential. This project will be conducted in close collaboration with Matthias Kaschube's group at the FIAS in Frankfurt.

For further information on the project, please contact Simon Rumpel (sirumpel@uni-mainz.de).

To submit your application, please send a single PDF to Tom Kay (kay@uni-mainz.de).

Applications should include:

- A motivation letter
- Your CV
- A list of publications
- The contact information of two references.