

The Department of Neuroanatomy at the Institute of Anatomy and Cell Biology offers a

PhD Student Position

Starting Date: at the earliest possible date

Applications are invited for a 3-year PhD position to work with Prof. Andreas Vlachos (Institute of Anatomy and Cell Biology, Department of Neuroanatomy, Albert-Ludwigs-University Freiburg, Germany) and Prof. Stefan Rotter (Bernstein Center Freiburg, Albert-Ludwigs-University Freiburg) in a project aimed at creating biophysically realistic multi-scale computer models of non-invasive brain stimulation (NIBS)-induced neural plasticity.

Your task:

- the student will combine electrophysiology and optical stimulation/imaging experiments in hippocampal tissue cultures with computational modelling approaches to assess the effects of electromagnetic fields on neural plasticity (i.e., TMS- and tDCS-induced plasticity)

Your profile:

- the successful candidate should have a background in neurobiology/neuroscience, engineering, physics or closely related field. Experience in electrophysiology, optogenetics, tissue culturing techniques and programming is highly desirable

We offer:

- visits to our collaborators in Germany, France and in the US for short-term and long-term periods of time to learn additional modeling techniques and exchange information are part of the activities in this project

The project is related to the following publications:

Lenz et al. (2016) Repetitive magnetic stimulation induces plasticity of inhibitory synapses. *Nature Communications* 7:10020.

Lenz et al. (2015) Repetitive magnetic stimulation induces plasticity of excitatory postsynapses on proximal dendrites of cultured mouse CA1 pyramidal neurons. *Brain Structure & Function* 220:3323–3337.

Gallinaro et al. (2018) Associative properties of structural plasticity based on firing rate homeostasis in recurrent neuronal networks. *Scientific Reports* 8:3754.

Lu et al. (2019) Network remodeling induced by transcranial brain stimulation: A computational model of tDCS-triggered cell assembly formation. *bioRxiv* doi.org/10.1101/466136.

Please submit a single pdf file including CV, list of publications, statement of research interests and names and email addresses of three references to:

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General information: Salary is assigned according to a pay scale. Unless prevented by operational or legal reasons, full-time positions are generally open to those wishing to job share. Where two candidates are equally suitable for a post, severely disabled candidates are given priority. Employment decisions are made by the Personnel Department.