

We are searching for PhD students within the new DFG funded research center on neuromodulation for the treatment of motor network disorders 'RETUNE'.

Title: Neuroprosthetic Systems in Parkinson's Disease

Deep brain stimulation is an effective intervention to reduce the symptom severity of patient's suffering from Parkinson's disease (PD). Yet, it's underlying mechanisms remain poorly understood. In the project, we want to investigate the pathological network oscillations that lead to motor deficits in animal models of PD. For this, we will combine neural recordings during free behavior with targeted neuromodulation interventions (i.e. deep brain stimulation, electrical spinal cord stimulation and optogenetics). Building on these results, we will work on the design of next generation neuroprosthetic systems, incorporating real-time feedback from brain signals and movement to overcome the motor deficits.

Questions of interest for this research area:

- 1) What are the neural correlates (i.e. local field potentials, multi unit activity) underlying motor deficits in PD?
- 2) Will changes in neuromodulation parameters retune these pathological oscillations in systematic ways?
- 3) Can we use this information, to develop novel therapeutic strategies (i.e. adaptive brain- and movement controlled stimulation)?

Requirements and general Information:

We are searching for talented scientific minds, motivated to perform behavioral experiments, neural recordings and signal processing in animal models of PD. The PhD positions will be affiliated within the Berlin neuroscience schools (MedNeuro or BCCN). The salary is according to DFG standards. Project Duration 3-4 years.

If you are interested in the project please send your CV to:
nikolaus.wenger@charite.de

Department of Neurology with experimental Neurology
Charité, University Medicine Berlin
Lab website: <https://cutt.ly/Ey3rGrf>

Relevant publications:

Fonoff et al., 2019. Front Neurol. PMID: 31507514
Capogrosso et al., 2018 Nat Protoc. PMID: 30190556
Wenger et al., 2016. Nat Med. PMID: 26779815
Fuentes et al., 2009. Science. PMID: 19299613