

## Postdoc position

Title of the position: **Postdoc neuroscience/ computational neuroscience**

Job position: **Postdoc**

Deadline of the application: **30th September 2023**

Starting date: **as soon as possible**

Contract length: **1 year renewable (up to 4)**

City: **Mannheim**

Country: **Germany**

Institute: **Central Institute of Mental Health**

Department: Department of Psychiatry and Psychotherapy

Contact details:

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Website of your institute/department: **www.zi-mannheim.de**

Description:

### 1. Project Summary:

Impaired sensory perception is both a characteristic and a risk factor for many pain disorders. Brain activity in the resting state was shown to be associated with the pain experience in pain-free states.

A whole-brain search for specific features of chronic pain-resting-state connectome will be performed, which are predictive for individual pain sensitivity (Spisak T et al., 2020). Defining a predictive strength map for individual pain sensitivity would substantially advance the field from a basic and translational perspective (Baliki MN et al., 2008).

In a second step, neural activity and connectivity in abnormal resting-state networks will be modulated with transcranial neurostimulations (Lefaucheur JP, 2008).

### 2. References (3-5):

Baliki MN, Geha PY, Apkarian AV, Chialvo DR (2008), Beyond feeling: chronic pain hurts the brain, disrupting the default-mode network dynamics. *J Neurosci* 28:1398-1403.

Lefaucheur JP (2008), Use of repetitive transcranial magnetic stimulation in pain relief. *Expert Rev Neurother* 8:799-808.

Spisak T, Kincses B, Schlitt F, Zunhammer M, Schmidt-Wilcke T, Kincses ZT, Bingel U (2020), Pain-free resting-state functional brain connectivity predicts individual pain sensitivity. *Nat Commun* 11:187.

### 3. Methods that will be used:

- Data from magnetic resonance imaging
- Behavioral and sensory data
- Analysis softwares for MR data (e.g., SPM/Matlab, FSL/Freesurfer, fMRIPrep,...)

### 4. Cooperation partners:

- All colleagues from SFB1158 Consortium

5. Eligible qualifications:

- Completed master's/diploma degree in a subject with a quantitative focus, e.g. (bio)statistics/bioinformatics/biotechnology.
- Additionally psychology with advance knowledge in computational neuroscience.

6. Desirable skills:

- Good knowledge of the use of statistical programming languages (e.g., matlab, python)
- Organizational skills, project management, coordination
- Enthusiasm for independent work,
- Team work

7. Key words:

machine learning, model, connectome, resting-state networks, pain sensitivity

8. Enclosures: The following documents must be enclosed with your application as a **single pdf file**: updated CV with publications, motivation letter, copies of degree certificates

Information for the applicant: For any updates and further information (for e.g: change of deadline of the application), please visit the consortium website career section: <https://sfb1158.de/index.php/career-eng>.