



## Postdoctoral Position in in MRI Microscopy and Brain Metallomics

Department of Neurophysics, MPI for Human Cognitive and Brain Sciences, Leipzig, Germany

The Dept. of Neurophysics at the Max Planck Institute for Human Cognitive and Brain Sciences (MPI CBS) in Leipzig (Germany) invites applications for a Postdoctoral Position in quantitative MRI Microscopy.

Our vision is to develop and apply microstructure imaging and in-vivo histology using MRI ([Weiskopf et al., Nature Rev. Phys. 2022](#)). We pursue an interdisciplinary approach, developing novel quantitative MRI acquisition methods, image processing methods and integrated biophysical models.

We are seeking a postdoctoral researcher to develop novel methods for in-cell magnetometry of paramagnetic metals in the brain, within a multidisciplinary project combining MRI microscopy, diamond-based quantum sensing, and advanced histology. The goal is to establish a new generation of tools for quantitative brain metallomics, enabling early detection and mechanistic understanding of neurodegenerative diseases such as Parkinson's and Alzheimer's disease.

The project offers access to a unique imaging environment spanning 3T, 7T, and 9.4T MRI systems, and close collaboration with experts in MRI physics, signal modeling, and neuropathology.

### Responsibilities

- Develop and implement MRI microscopy protocols on a 9.4T preclinical (Bruker) scanner
- Design quantitative MRI methods sensitive to paramagnetic metals (e.g., iron)
- Acquire, process, and analyze high-resolution MRI data
- Integrate MRI measurements with quantum sensing (NV magnetometry) and histological data
- Contribute to method development, validation, and scientific publications

### Methods & Tools

- MRI microscopy and ultra-high-field imaging
- Neuroimaging software (SPM, FreeSurfer, hMRI toolbox)
- Programming in Python and/or MATLAB
- Multimodal data integration
- Complementary elemental analysis (e.g., PIXE, XRF)

### Requirements

- PhD in physics, biomedical engineering, neuroscience, or related field
- Strong experience in MRI acquisition and neuroimaging methods
- Solid programming skills (Python, MATLAB, or similar)
- Experience with neuroimaging analysis tools
- Excellent written and spoken English

### Desirable Qualifications

- Experience with preclinical MRI systems (e.g., Bruker 9.4T)
- MRI sequence development experience
- Background in quantitative MRI or ultra-high-resolution imaging
- Interest in neurodegeneration or brain metal homeostasis



**We offer:**

- the possibility to conduct truly fundamental research to change the field of neuroimaging,
- the opportunity to work on highly relevant (clinical) applications in cooperation with leading clinical partners,
- an international, friendly and highly supportive interdisciplinary environment within the Neurophysics Department and network of leading international cooperation partners (working language English),
- the chance to work with top researchers from diverse backgrounds in an internationally leading neuroimaging center within the renowned Max Planck Society,
- access to world-leading facilities, including a Siemens 7T Terra.X MRI scanner with 64-ch Rx 16-ch Tx RF coil, Skope field camera and optical prospective motion correction setup.

**The preferred starting date is September 1, 2026.** The position is coupled to a third party funded project (Photonic quantum sensing for the diagnosis of metal-induced neurodegeneration, NEUROMAQ); the appointment is subject to the allocation of funds. The duration of the post is 3 years in the first instance. Remuneration is based on the pay scale of the Max Planck Society. Female and international applicants are particularly encouraged to apply; we actively support the compatibility of work and family life. We strive for gender equality and diversity. The Max-Planck Society is committed to increasing the number of individuals with disabilities in its workforce and therefore encourages applications from such qualified individuals.

**To apply,** please submit a single PDF file containing a personal statement (describing your personal qualifications, research interests and motivation for applying), full CV (inc. publication list), evidence for software development experience (active GitHub/GitLab profile or similar), two of your key publications, contact information of three referees and academic certificates (PhD, Diploma/Master, Bachelor certificates). Please submit your application via our online system (subject heading: "PostDoc 02/26") by **June 20, 2026**.

**Further information on our work can be found at** <https://www.cbs.mpg.de/departments/neurophysics>

Leipzig is a vibrant city that has been called "Germany's new cultural hot spot" by the Guardian and listed as one of the 52 places to go in 2020 by the New York Times. It has a long-standing history of classical music, academic education, and —recently— modern arts. With its many parks, forests, canals and lakes, Leipzig is a perfect place for recreation, sports, and leisure time. It is located a one-hour train ride south of Berlin.

If you have any questions, please contact Dr. Evgeniya Kirilina at [kirilina@cbs.mpg.de](mailto:kirilina@cbs.mpg.de)