



The **Max Planck Institute for Human Cognitive and Brain Sciences** in Leipzig, Germany (MPI CBS) is an internationally recognized research institute of the Max Planck Society and is dedicated to the study of human cognitive abilities and brain processes as well as the development of neuroimaging methods. The **Nuclear Magnetic Resonance Research and Development Group** lead by Prof. Harald Möller offers

## Two PhD positions (m/f/d) for 3 years

The scientific focus of one project is on **"Biophysical mechanisms of MRI contrast"**. Many physical properties that can be used for MR-based tissue characterization show an apparent dependence on the orientation of the object in the main magnetic field. An analysis of the underlying physics allows to model these effects for obtaining more specific information on tissue microstructure and composition or achieves a better understanding of image contrast.

The scientific focus of the other project is on **"Metabolism and neurovascular coupling in activation and deactivation"**. While blood oxygenation-related contrast is ubiquitously used to map neuronal activation, it does not offer much insight into the underlying physiology. More detailed information is obtained from measures of cerebral blood flow and volume or of metabolic changes. We use combinations of such techniques to study similarities and differences in the neuroenergetics and neurovascular coupling in activated and deactivated brain areas.

Candidates should hold a master (or equivalent) degree and a background in physics, physical chemistry, biomedical engineering or similar and good computer programming skills (e.g., C++, Matlab, Python). Initial experience in NMR or MRI would be highly beneficial but not strictly required.

The Institute offers a world-leading research environment with outstanding facilities and research infrastructure (five MR scanners, including a 3T Connectom with 300 mT/m gradients and a 7T Terra.X with 16 Tx and 64 Rx channels).

The position is limited to **three years** with the possibility of an extension to four years. **Starting date is flexible**. The salary is fixed in accordance with the collective agreement for the public sector: 65% TVÖD E13.

We look forward to receiving your complete online application (reference number **"PhD 15/24"**) at <https://www.cbs.mpg.de/vacancies/open-positions>. To apply, please submit (1) a statement describing your research interest and motivation to apply for one of these positions as well as your qualifications for the positions (max. 2 pages), (2) a full CV, (3) transcript of records for the master and bachelor degrees, and (4) names and contact details of up to two potential referees. There is no formal closing date for applications, however, we will start screening applications in November 2024. Please feel free to contact Prof. Dr. Harald Möller ([moeller@cbs.mpg.de](mailto:moeller@cbs.mpg.de)) for informal enquires about the positions.