

PhD Position (University Hospital Halle)

Functional ^{31}P -MR Spectroscopy on energy metabolism in muscles

The MR Physics Group within the Department of Radiology at University Hospital Halle is seeking a motivated PhD candidate (m/f/d) to join our expanding research team in Halle, Germany. Our lab specializes in the development and enhancement of methodologies for the acquisition, reconstruction, and analysis of MR imaging and spectroscopic data. In addition, our research encompasses multimodal investigations of human muscle energy metabolism using functional phosphorus MR spectroscopy (^{31}P -fMRS). Equipped with a state-of-the-art 3T MR research scanner, we have access to extensive data acquisition and computational infrastructure. Our strong collaboration with both clinical and scientific partners facilitates the execution of interdisciplinary, high-level research projects.

For our ongoing project funded by the DFG, we are seeking a highly motivated PhD candidate to develop an innovative approach that integrates multi-region ^{31}P -fMRS, high-resolution quantitative musculoskeletal (MSK) imaging, and myoelectrophysiological assessments to quantify energy turnover rates in exercised muscles. This method aims to generate metabolic parameters for the validation of specialized muscle models, which are anticipated to enable the prediction of energy turnover and may be utilized for quantifying physical activity. This quantification is crucial for the prevention and treatment of metabolic, cardiovascular, oncological, and neurodegenerative diseases. The PhD candidate's responsibilities will include the implementation of ^{31}P -fMRS sequences, the design of a specialized exercise ergometer and multimodal scan protocols, the post-processing and quantification of MR data, as well as the independent conduct of in vivo measurements.

The ideal candidate will demonstrate a strong enthusiasm for research and, preferably, possess prior experience in conducting magnetic resonance (MR) experiments. Advanced programming skills in MATLAB, Python, and C++ are required, along with familiarity with code-sharing platforms such as GitHub. Applicants should hold a master's degree in physics, medical physics, biomedical engineering, medical informatics, or a related discipline.

The position will be remunerated according to the collective agreement for the public sector at 75% of TVL-E13. The project also includes funding for professional travel to relevant conferences and project-related research activities. In addition to the opportunity to pursue a PhD, there is also the possibility to obtain qualification as a medical physics expert in accordance with Germany's radiation protection law. The position is available starting in January 2025 and will remain open until filled. We are committed to increasing the employment of individuals with disabilities and strongly encourage them to apply. Furthermore, we actively support the compatibility of work and family life and are dedicated to promoting gender equality and diversity.

You can find the official job posting (**7-167/24-D**) [here](#). To apply, please send us a personal cover letter (max. 2 pages) outlining your qualifications, research interests, and motivation, as well as a CV that includes your publications, academic transcripts, the names and contact details of at least two references, and your preferred start date. Please send these documents as a single PDF file with the subject '**Bewerbung 7-167/24-D**' to radiologie@uk-halle.de (CC to project leader, Dr. Alexander Gussew, alexander.gussew@uk-halle.de).