



Joint MD/PhD Fellowships Groningen-Oldenburg

Outline PhD Project

Working title of project	Neuronavigated brain stimulation as an innovative treatment for depression
Promoter/Supervisor UMCG (name, department, e-mail)	Prof. Andre Aleman
Promoter/Supervisor UMO (name, department, e-mail)	Prof. René Hurlemann
First contact for inquiries	m.kiebs@uol.de

Short Summary of PhD project (mx. 500 words), incl. research question(s), methods, approx. schedule (incl. times in Groningen/Oldenburg)

The position can be upgraded with a 35% clinical position (65% research + 35% clinical work [physician salary])

Introduction: The aim of this proposed Ph.D. project is to delve into the realm of non-invasive brain stimulation, specifically repetitive Transcranial Magnetic Stimulation (rTMS), and explore the potential benefits of personalized neuroimaging-guided targeting. While rTMS has shown promise in treating various neuropsychiatric disorders, its efficacy can be further optimized by tailoring stimulation targets to individual neuroanatomy. This research will investigate the impact of personalized targeting on the therapeutic outcomes of rTMS, with a focus on enhancing precision and efficacy.

Methodology: The research will involve recruiting a diverse cohort of participants diagnosed with neuropsychiatric disorders amenable to rTMS intervention. Participants will undergo detailed neuroimaging assessments to inform the development of personalized stimulation protocols. A randomized controlled trial design will be employed to compare the therapeutic efficacy of personalized and non-personalized rTMS targeting. Clinical assessments, neuroimaging, and follow-up evaluations will be conducted at multiple time points to capture both short-term and long-term effects.



Significance: This project holds significance in advancing our understanding of how personalized neuroimaging-guided targeting can enhance the therapeutic impact of rTMS. The outcomes of this research can inform the development of more effective and individualized treatment strategies for neuropsychiatric disorders, paving the way for personalized medicine in the field of non-invasive brain stimulation.

Conclusion: This Ph.D. project seeks to bridge the gap between neuroscience and clinical application by investigating the role of personalized neuroimaging-guided targeting in optimizing the therapeutic efficacy of rTMS. Through a comprehensive exploration of individual neuroanatomy and its influence on treatment outcomes, this research has the potential to significantly contribute to the advancement of personalized interventions in neuropsychiatry.

PhD Candidate Profile/desired qualifications

Tasks and responsibilities:

- Active participation in research projects in the field of clinical brain research in the Department of Psychiatry and Psychotherapy
- Conducting experimental clinical studies in the field of innovative depression treatments
- Analysis and interpretation of research results
- Preparation of scientific publications and presentations
- Clinical tasks as a junior doctor
- Participation in training events and conferences in the specialist area

Requirements:

- Completed medical studies at the University of Oldenburg, maximum +- 1 year before or after graduation
- Interest in scientific research in the field of psychiatry and psychotherapy
- Motivation to pursue a career as a clinical scientist
- Willingness to actively participate in interdisciplinary research projects
- Ability to work in a team and good communication skills
- Good written and spoken German and English skills