PhD position in : Design and Development of Advanced and Miniaturized Electromagnetic Systems for Neuronal Stimulation

Department Chemie und Pharmazie, Erlangen, TV-L E 13, Teilzeit, Befristete Anstellung, Bewerbungsschluss: 01.11.2024

Ihre Aufgaben

Join Us in Pioneering the Future of Neuromodulation based on Magnetic Nanomaterials!

About Us:

Imagine a completely new technology that can wirelessly stimulate and monitor specific areas of the brain□transforming the possibilities for treatment of neurodegenerative conditions. At the Biointerfaces Lab at Friedrich-Alexander Universität Erlangen-Nürnberg (FAU), our mission is to develop innovative, minimally invasive neuromodulation technologies that bring precision to therapeutic solutions for applications in the human brain.FAU is one of Germany□s leading research universities, offering an inspiring, interdisciplinary environment that fosters creativity, scientific collaboration, and entrepreneurial thinking. Our lab, within the Department of Chemistry and Pharmacy, focuses on designing and applying magnetic nanomaterials for groundbreaking biomedical applications.

Your Role:

We are offering an exciting 3-year PhD position as part of the prestigious ERC-funded BRAINMASTER project. The goal? To develop next-generation devices that control deep brain activity remotely using magnetic nanomaterials.

As a researcher and PhD candidate, you will:

- Design advanced miniaturized electromagnetic circuits and use them to remotely control magnetic nanotransducers alongside MRI techniques.
- Take charge of your own research project, including experiment design, data management, and publication of results.
- Actively take part in project and group meetings and disseminate your research through conference proceedings and presentations, as well as the participation in public events.
- Supervise BSc/MSc students and contribute to the collective success of the lab.
- Collaborate closely with world-class experts at FAU and our partner institutions, like the Microelectronics Lab at the University of Glasgow, UK.

This is your opportunity to work at the forefront of neuromodulation, collaborating with experts in material sciences, neurobiology, and electronic engineering to reshape medical technology.

Ihr Profil

Notwendige Qualifikationen:

What You'll Bring:

We're seeking a passionate, highly motivated, self-driven scientist with:

- A Master's degree in Electronic Engineering, Neuronal Engineering or similar fields.
- Strong theoretical and practical knowledge in the fields of electromagnetism, hands-on experience in electronic circuit development, and simulation skills (COMSOL Multiphysics or similar).
- Enthusiasm for applying magnetic nanomaterials to neurotechnology, neuromodulation, and electrophysiology.
- The ambition to optimize magnetic field parameters and develop MRI pulse sequences for in vitro and in vivo applications, using high field gradients with AC-field based neuromodulation volumes.
- Fluency in English, excellent communication skills and the willingness to fully commit yourself to drive innovation as part of a multidisciplinary and international team

Wünschenswerte Qualifikationen:

- Experience in data acquisition, MRI analysis, or image processing is a plus

Stellenzusatz

Befristetes Forschungsvorhaben

What We Offer:

- Direct mentorship from Prof. Danijela Gregurec, head of Biointerfaces Lab and ERC and EIC grant awardee, giving you access to a strong European research network.
- Access to world-class FAU facilities with state-of-the-art technical equipment.
- Clean room training and cutting-edge technology transfer at the University of Glasgow, including hands-on experience in device fabrication and characterization.
- Be part of a diverse, inclusive, and collaborative environment that values equality and innovation.
- A 3-year position funded at 67% of TVL E13, in accordance with the German public sector salary scale.

Desired Start Date: January 1st, 2025

Interessiert?

Die vollständige Stellenausschreibung sowie alle Infos zum Bewerbungsverfahren finden Sie hier: