Master’s Thesis: Coil Design for Wireless Neural Stimulation

Naturwissenschaftliche Fakultät, Erlangen, Full time, Temporary employment, Bewerbungsschluss: 30.05.2026

Your Workplace

The Biointerfaces Lab is developing technologies for wireless, non-invasive stimulation of neural tissue, with potential applications in neuroscience research and future neurotechnologies. One approach uses magnetoelectric nanoparticles, which convert alternating magnetic fields into local electrical or mechanical stimuli.

We are looking for a motivated Master’s student with a background in engineering, physics, or a related field. The project focuses on designing coil systems that generate the required AC magnetic field while minimizing heating, a key challenge in temperature-sensitive experiments.

This Master´s Thesis opportunity offers hands-on experience in an interdisciplinary research environment at the interface of engineering, materials science, and neuroscience.

Job Benefits

- Employment in an academic setting with interesting insights into research processes
- Valuable work experience
- Flexible hours

Description

You will model and evaluate coil geometries using COMSOL or similar tools, combining electromagnetic and thermal analysis to study the relationship between field strength and temperature rise, and will prototype and experimentally validate selected coil designs.

Qualifications

Master’s student with a background in engineering, physics, or a related field.

Supplementary description

To apply, please send your CV (1–2 pages) and a short letter of motivation to hamed.shabani@fau.de

Interessiert?

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