Job Advertisements within the CRC/TRR 225

The Collaborative Research Centre/Transregio **CRC/TRR 225 "From the Fundamentals of Biofabrication towards Functional Tissue Models"** is an interdisciplinary research consortium of the Universities of **Würzburg, Bayreuth, and Erlangen-Nürnberg**.

The TRR225 aims to develop innovative biofabrication strategies - particularly automated 3D printing technologies - for processing living cells and biomaterials into complex tissue constructs. These advanced in vitro models provide new opportunities for pharmaceutical, cancer, and infection research, support the reduction of animal testing and offer long-term perspectives for regenerative medicine.

Since its establishment in 2018, the consortium has achieved substantial scientific progress and international visibility and will enter its third funding period in 2026.

The advertised position is part of the subproject **B10**: Bio-printed fiber-reinforced spinal cord tissue models for studying neurodegenerative diseases.

Building on fiber technologies developed in the former subproject A07, Project B10 aims to create advanced 3D spinal cord tissue models to improve research on neurodegenerative diseases. The previously developed micro and nanofibers will be integrated into synthetic bioinks to recreate the soft, structured and anisotropic environment that neurons experience in real spinal cord tissue. Unlike 2D cultures, these 3D models allow neurons to grow in all directions, form complex networks and display activity patterns that more closely reflect in-vivo behavior. Selected fibers will also be functionalized to release biological cues and drug-like factors that support neuronal maturation and survival within the printed tissue. Together, these developments aim to reveal disease mechanisms that remain hidden in conventional 2D systems and to strengthen future therapeutic research.

2x PhD candidate (f/m/d)

Your responsibilities

1) The PhD candidate **AG Lang** will focus on the development and optimization of new fiber systems based on defined design criteria, while gaining expertise in process parameterization. In addition, they will work with advanced 3D printing technologies and conduct rheological characterization of fiber-reinforced bioinks. A key aspect of their role will be the biochemical functionalization of fibers and the integration of diverse technologies such as FDM, bioprinting, and MEW to achieve the technological convergence required for the project. The candidate will actively collaborate with other projects to implement the developed systems for a variety of applications, contributing significantly to the characterization and analysis of new material systems. This includes tasks in rheology, modeling, mechanical properties, and biological testing (assistance PhD candidate AG Schäfer with immunocytochemical experiments and analysis). The position demands a multidisciplinary approach and close collaboration to drive innovation in biofabrication technologies.

2) The PhD candidate **AG Schaefer** will focus on the creation, development, and optimization of neuronal 3D spinal cord samples, including cell culture work and neuronal preparations. A key aspect will be the biofunctional assessment of 3D neuronal cultures (biochemical, immunocytochemical and functional readouts like Ca^{2+}-imaging and electrophysiological measurement) including the development of improvements needed for our current protocols to the new developed model. The candidate will assist in 3D printing (PhD candidate AG Lang). The candidate will actively collaborate with other projects to implement the developed systems for a variety of applications, contributing significantly to the characterization and analysis of new neuronal systems. The position demands a multidisciplinary approach and close collaboration to drive innovation in biofabrication technologies.

Requirements

Required qualifications:

- Completed university degree (Master or equivalent)
- Experience in cell culture, biomaterials, additive manufacturing, …

What We Offer

- Interdisciplinary, collaborative research environment
- Access to state-of-the-art equipment and facilities
- Structured PhD training programs GSLS University Würzburg
- Opportunities for conference attendance and research stays
- Support for career und personal development

Equal Opportunity & Diversity Statement

We are committed to equal opportunity and diversity and explicitly encourage women to apply. Candidates with disabilities will be given preference if their qualifications are equivalent. We offer an inclusive, supportive, and collaborative working environment.

Contact

For inquiries or to submit your application, please contact the person below. Please submit your documents by **10.1.2026**

Position 1: Gregor Lang University Hospital Würzburg Gregor.Lang@uni-wuerzburg.de	Position 2: Natascha Schäfer University Hospital Würzburg Schaefer_N1@ukw.de

Attachments:

Please include:

- CV
- Motivation letter
- Letter of recommendation