Universität Stuttgart

mathematik fakultät8

PHD RESEARCHER POSITION (f/m/d, 75%, 13 TV-L, fixed-term contract for up to 4 years)

MODEL-BASED DESIGN AND ANALYSIS OF ARTIFICIAL BACTERIAL MEMORY SYSTEMS

The University of Stuttgart stands for outstanding, world-renowned research and first-class teaching in one of Europe's most dynamic industrial regions. As a reliable employer, the university supports and promotes the academic careers of its researchers. It is proud of its employees, who currently come from over 100 different countries. The university is a partner in knowledge and technology transfer and focuses on multidisciplinarity.

About us

The Research Group "Mathematical Modeling and Simulation of Cellular Systems" focuses on modeling concepts and simulation of intracellular processes and cellular interactions. Our goal is to use models and mathematical concepts of understanding processes that cannot be directly observed. We work in close collaboration with experimental and clinical partners on projects in the life sciences and are part of several research consortia such as the Cluster of Excellence EXC 2075 "Data-Integrated Simulation Science", the Research Unit "QuaLiPerF – Quantifying Liver Perfusion-Function Relationship in Complex Resection – A Systems Medicine Approach" and the RTG "EpiSignal – Crosstalk of intracellular signaling pathways and chromatin modification networks".

The project / The position

This project is a DFG-funded research project "Development of synthetic, methylation based epigenetic circuits" in collaboration with Prof. Albert Jeltsch (Univ. Stuttgart). The Jeltsch group has developed artificial bacterial memory circuits that can store biological input information. These circuits will be extended to process and store different input signals simultaneously, e. g. as logical AND or OR gates. You will be a member of Prof. Radde's team. In our part of the project, we aim to use quantitative dynamic modeling at both the bulk and single cell level as a powerful tool to facilitate the mechanistic understanding of regulatory principles, information processing and storage by epigenetic circuits, thus supporting the entire design and implementation cycle.

Your tasks

- Mathematical modelling of epigenetic circuits
- Data Analysis and Interpretation
- Development and application of advanced methods for multimodal data integration Implementation of models and methods according to the FAIR principles
- Communication with project partners
- Presentation and publication of scientific results at conferences and in scientific journals
- Support of student research and teaching activities of the group

Your profile

- A talented individual with an excellent Master's degree in mathematics, science, engineering or a related field and a genuine interest in cell biology / biochemistry
- Profound knowledge in at least one of the following areas: dynamic modeling, inverse problems / model calibration, handling of experimental data, stochastic processes
- Genuine interest in interdisciplinary science / life sciences
- Motivation to foster collaborations and excellent communication skills
- Fluent English (written and spoken); German skills are an advantage
- Experience in at least one programming language (e.g., MATLAB, R, Python, Julia, or C++)

Your benefits

- Excellent research and working environment. This includes travel funds for conferences, workshops and schools.
- A nationally and internationally well-connected research group with a very good team spirit.
- Respectful supervision and guidance with many opportunities for direct interaction and prompt feedback
- A family-friendly and welcoming atmosphere with flexible working hours and openness to home office models
- Training programs to support your first steps as an early career scientist

If you are interested in the position, please send your complete application, including one-page motivation letter, academic CV, one letter of reference, as well as academic certificates and transcript of records, preferably as a single PDF file, **until April 11, 2025** via the JoinUS portal, - PhD-Position - ID-1681 -, (https://careers.uni-stuttgart.de). If you have any questions regarding this application, please contact Prof. Dr. Nicole Radde (phone +49 711 685-66684, e-mail nicole.radde@simtech.uni-stuttgart.de). We reserve the right to review application documents that are received after the deadline.

At the University of Stuttgart and the Cluster of Excellence EXC 2075, we actively promote diversity among our employees. We have set ourselves the goal of recruiting more female scientists and employing more people with an international background and more people with disabilities. We are particularly interested in receiving applications from these groups. However, we welcome any good application.

Female applicants will be given preferential consideration in areas where they are underrepresented, provided they have equal aptitude, qualifications and professional performance. Severely disabled applicants with equivalent qualifications will be given priority.

As a certified family-friendly university, we support the compatibility of work and family, as well as work and private life in general, through various flexible modules. We have an award-winning employee health management system and offer our employees a wide range of continuing education programs. We are constantly improving our accessibility. Our Welcome Center helps international scientists to get started in Stuttgart.

Information according to Article 13 DS-GVO on the processing of applicant data can be found at https://careers.uni-stuttgart.de/content/privacy-policy/?locale=en_US