Job advertisement

Vacancy ID:

Closing date: 15 April 2024

FRIEDRICH-SCHILLER-
UNIVERSITÄT
JENA

Friedrich Schiller University is a traditional university with a strong research profile located in the heart of Germany. Its research is focused on the areas Light—Life—Liberty. It is closely networked with non-research institutions, research companies and renowned cultural institutions. With around 18,000 students and more than 8,600 employees, the university plays a major role in shaping Jena's character as a cosmopolitan and future-oriented city.

The Theoretical Microbial Ecology group, led by Professor Rosalind Allen, is part of the Institute of Microbiology, Faculty of Biosciences, at the Friedrich Schiller University. The group was founded in 2021 as part of the Cluster of Excellence *Balance of the Microverse.* The group combines microbiological and biophysical experiments with mathematical modelling to investigate how microbes survive, grow and interact in complex and changing environments, with a special focus on antibiotic action. The group is now starting a new collaborative project "A Matter of life or death - an integrated understanding of MRSA", funded by the Wellcome Trust, together with researchers at the University of Sheffield and Harvard University.

The theoretical microbial ecology group invites applications for a

Postdoctoral Researcher Position (part-time) in Microscopic and microbiological analysis of *Staphylococcus aureus* growth, division and antibiotic response (m/f/d)

commencing on or after 1st May 2024.

Staphylococcus aureus is an important human pathogen. *S. aureus* is a Gram positive bacterium with a thick peptidoglycan (PG) cell wall. PG synthesis is the target of the most important antibiotics that are used to treat *S. aureus* infections, yet the molecular and biophysical mechanisms that underpin PG homeostasis, and the disruption of the PG balance by antibiotics, are not well understood. Funded by the Wellcome Trust, we are beginning a programme of research aimed at combining microbial physiology, biochemistry and genetics with biophysics, mathematical modelling and imaging, to understand S. aureus growth, division and resistance to the antibiotic methicillin (since Methicillin Resistant S. aureus (MRSA) is responsible for 100,000 deaths annually). This programme is in collaboration with researchers at Sheffield University (UK; Prof. Simon Foster, Prof. Jamie Hobbs, Prof. Jeff Green, Dr. Rebecca Corrigan) and Harvard University (USA; Prof. Ethan Garner).

Within the TME group, we have developed mathematical models that predict how mechanical stresses change within the PG cell wall during the cell cycle of *S. aureus*, and how the molecular mesh of PG responds to stress. To compliment our modelling efforts, we seek a postdoctoral researcher to perform microscopy and microbiological experiments, tracking the growth and cell cycle dynamics of *S. aureus* cells under different conditions (e.g. growth media, antibiotics). The project will involve experimental microbiological methods such as culturing of bacteria (shake flasks, colony counting, plate reader growth curves) as well as bright-field and epifluorescence microscopy, and possibly cell culture. Data analysis, especially of microscopy images, will also play an important role. This is a new project within our group and you will be expected to take a leading role in project direction, and in developing collaborations both with modellers within our group and with other researchers in the Wellcome Trust team and more broadly. The project is planned as a part-time (50%) position, over 4 years. However the details are flexible and we are open to other suggestions.

Your responsibilities:

- Perform microbiological and microscopy experiments and data analysis to a high standard.
- Contribute to the development of the project direction, as the project evolves.
- Produce high-quality written reports and draft papers. Present your results at local meetings and national and international conferences.
- Assist with training other researchers, including PhD candidates, Masters' and undergraduate project students, where required.
- Assist with the teaching activities of the group where required.

- Contribute to maintaining the friendly, welcoming and collaborative environment within the group.

Your profile

- A PhD in Biophysics, Statistical or Computational Physics, Bioinformatics, Theoretical Chemistry, Computer Science, Biology (with theoretical component), Microbial ecology (with theoretical component) or related discipline. Candidates in the final stages of obtaining their doctorate are also eligible to apply.
- Specialist knowledge and practical expertise in one or more relevant methods, such as metabolic modelling, molecular simulation, statistical analysis, stochastic / deterministic differential equations, modelling microbial physiology, biophysical modelling.
- Track record of developing, managing, performing, presenting and publishing high-level scientific research.
- Enthusiasm and talent for interdisciplinary and collaborative research, and for interaction with experimental microbiologists and biophysicists.
- The ability to work creatively and independently towards developing your own research project
- An integrative and cooperative personality with enthusiasm for actively participating in the dynamic community in Jena and in the Wellcome Trust project team
- English communication skills, both written and spoken

We offer:

- A highly communicative atmosphere within an energetic scientific network
- The opportunity to join an internationally renowned group of researchers from different countries working on a fundamental science problem that is also clinically important
- A comprehensive mentoring program and soft skill courses for early career researchers as part of the early career program of the *Jena School for Microbial Communication* (JSMC)
- Jena – City of Science: a young and lively town with a vibrant local cultural agenda
- A family-friendly working environment with a variety of offers for families: University Family Office 'JUniFamilie' and flexible childcare ('JUniKinder')
- University health promotion and a wide range of university sports activities
- Attractive fringe benefits, e.g. capital formation benefits (VL), Job Ticket (benefits for public transport), and an occupational pension (VBL)
- Remuneration based on the provisions of the Collective Agreement for the Public Sector of the Federal States (TV-L) up to salary scale E 13 (depending on the candidate's personal qualifications) including a special annual payment in accordance with the collective agreement

This four-year half-time position will be funded by the Wellcome Trust. Other contract arrangements (part-time or full-time) can be discussed. To promote gender equality in science, applications by women are especially welcome. Candidates with severe disabilities will be given preference in the case of equal qualifications and suitability.

Are you eager to work with us? Then apply by 15.04.2024 using our online form.

Online application

For further information on your application and the collection of personal data, please refer to our Privacy Statement for Applicants