

Job advertisement

Vacancy ID: GWP 01/2024

Closing date: 15 April 2024



FRIEDRICH-SCHILLER-
UNIVERSITÄT
JENA

Friedrich Schiller University is a traditional University with a strong research profile based in the heart of Germany. As a University covering all disciplines, we offer a wide range of subjects. Our research is focused on the areas Light–Life–Liberty. We are closely networked with non-research institutions, research companies and renowned cultural institutions. With around 18,000 students and more than 8,600 employees, our University plays a major role in shaping Jena's character as a cosmopolitan and future-oriented city.

The core mission of the [Cluster of Excellence "Balance of the Microverse"](#) of the Friedrich Schiller University Jena is to elucidate fundamental principles of the interactions and functions in microbial communities in diverse habitats, ranging from oceans and groundwater to plant and human hosts. We aim to identify the shared characteristics of disturbed or polluted ecosystems as well as infectious diseases on the microbiome level, and develop strategies for their remediation by targeted interventions. As part of the **International Scientist Exchange Program** of our Cluster of Excellence, we collaborate with the group of Ashley Shade at CNRS, [Laboratoire Ecologie Microbienne, Lyon](#) France.



The Cluster of Excellence *Balance of the Microverse* invites applications for a

Postdoctoral Researcher Position: Modelling Stochastic Switching in Microbial Populations (m/f/d)

commencing on 1st July 2024 or the next possible date thereafter. We offer a full-time position (40 hours per week) that is initially limited until 31.12.2025.

The successful candidate will be based in the Theoretical Microbial Ecology group led by Prof. Rosalind Allen at the University of Jena, Germany, and will collaborate closely with the [Shade lab](#) at CNRS, Lyon, France. We are looking for an individual with excellent theoretical and numerical skills and strong motivation to collaborate with microbial ecologists and engage with microbial ecology data.

Environmental microbiomes provide key functions that feedback on climate and support soil and plant health. It is now becoming widely recognised that many microbes within these microbiomes can switch into and out of dormant metabolic states, and that the dormant subpopulation can strongly influence the microbiome's ability to recover from environmental disturbances. The postdoctoral project will develop stochastic mathematical models for microbial communities that account for switching into and out of dormant states (Allen group), in order to explain empirical microbiome activity data (Shade group). The models will be used to quantify and predict the factors that drive the potential for microbiome restoration via activation of dormant cells after environmental disturbance. Ultimately, this project aims to improve understanding of how microbial dormancy traits and activity transitions contribute to resilience to inform microbiome management. The project will benefit from the collaborative environment provided by the DFG funded Cluster of Excellence "Balance of the Microverse" in Jena, as well as engaging and benefitting from the research of an active European Research Council project, "[MicroRescue](#)", within the Shade group. The project will be hosted in the Allen group in Jena, and will involve regular visits to the Shade group in France to interact with the MicroRescue project team.

Your responsibilities:



- Develop stochastic switching models to understand trade-offs in microbial dormancy traits, transitions, and community resilience outcomes, informed by existing data.
- Work in an interdisciplinary and international team of microbial ecologists, biological physicists, microbiologist and bioinformaticians and integrate into both the Cluster of Excellence consortium and the MicroRescue team.
- Produce high-quality written reports and draft papers. Present your results at international and national conferences and at local meetings and outreach events
- Assist with training other researchers, including PhD candidates, Masters' and undergraduate project students
- Contribute to maintaining the friendly, welcoming and collaborative environment within the host groups

Your profile

- A PhD (or equivalent) in Mathematical, Physical, or Life or Natural Sciences (e.g., physics, mathematics, biophysics, microbial ecology etc). Candidates in the final stages of obtaining their doctorate are also eligible to apply.
- Excellent skills in numerical analysis and simulation, ideally with expertise in stochastic simulation, population dynamics, statistical physics and/or Markov chain modelling.
- Ability to write and execute code in a suitable language (e.g., Python, C++) and practise FAIR standards for data science. Optionally able to use or willing to learn GitHub for version control and co-working for code.
- Ability to work creatively and independently towards developing your own research project
- An integrative and cooperative personality with enthusiasm for and interdisciplinary collaboration and for active participation in the dynamic Microverse community and the MicroRescue project.
- Ability to communicate effectively both orally and in writing.
- English language skills, both written and spoken.
- Desired skills: interest and/or experience in working with real data.
- Optional: interest in collaborating to perform lab work to experimentally validate models.

We offer:

- A unique position with a highly interdisciplinary and collaborative research project.
- A highly communicative atmosphere within an energetic scientific network.
- A comprehensive mentoring program and soft skill courses for early career researchers.
- Your primary appointment will be at [Jena – City of Science](#): a young and lively town with a vibrant local cultural agenda
- Your collaborative visits will be to Lyon, France, a green city that is a UNESCO world heritage site and offers unique culinary and cultural experiences
- 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
- 30 days of vacation per calendar year plus two days off on December 24 and 31

The full-time position is initially limited until 31.12.2025. Your primary appointment will be at the University of Jena. The position will be funded through the Excellence Strategy of the German federal and state governments. 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 for 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](#)