

VDS MES 5TH CALL SPRING 2023

The Doctoral School in Microbiology and Environmental Science of the University of Vienna offers **4 PhD positions** in diverse research areas ranging from molecular microbiology, ecology, and computational biology to environmental geosciences. Our focus is to provide young scientists with a stimulating environment that promotes the development and advancement of essential skills for a prosperous academic career.

Would you like to:

- Join a dynamic and international research environment?
- Have access to unique high-level infrastructure and instrumentation?
- Receive interdisciplinary training at the interface of microbiology, ecology, and environmental geosciences from internationally well recognized scientists?
- Benefit from career coaching and early international networking?
- Live in Vienna, a city that is continuously ranked among the top cities in the world for quality of life?

Regardless of whether you are interested in studying molecular and biochemical mechanisms, single cells, microbial communities or ecosystems and biochemical processes, our faculty provides the ideal framework for your PhD project with the combined expertise of 20 researchers at the assistant, associate and full professor level.

APPLICATION GUIDELINES

Applications will be open from May 1 to 31, 2023.

We are looking forward to receiving convincing applications of dedicated and enthusiastic students! All students with a master's degree, or equivalent degree, in life sciences, environmental science, chemistry, geoscience, bioinformatics or any other area which is related to the research topics of our faculty members, are encouraged to apply. We offer internationally competitive salaries and full health benefits.

Please prepare the following documents in one single PDF file for your application:

- Personal motivation letter (in English, ca. 1 page A4)
- Scientific CV (including publications as well as presentations at international conferences)
- Bachelor and master diploma (if available) with certified German or English translation
- Study records with certified German or English translation
- At least two letters of recommendation following our guidelines (template available [here](#))

To apply via our recruiting website, you are required to create a personal university account (u:account) Refer to [this link](#) for a quick how-to.

Please note that C1 English skills are a requirement for all positions announced in our call.

Positions are available in the following fields:

- **Fate of tire-derived contaminants in agricultural environments**
Soil is one of the major receptors of tire wear particles (TWP), where they can release ecotoxicological relevant substances. Various processes including biotic and abiotic aging, aggregation, or fragmentation influence the properties of TWPs and affect the leaching behavior. The fate of TWP and tire-derived contaminants in agricultural environments remain poorly understood and closing this knowledge gap is a key aim of this project.
- **How to detect biodegradable plastics in compost and improve composability?**
Biodegradable plastics can be part of a solution to the global plastic pollution problem. One example are materials that are completely biodegraded during biowaste composting processes. Harmonized and widely accepted methods for plastic analyses as an essential part of biodegradation studies are needed. We are looking for a highly enthusiastic Ph.D. student (m/f/x) with an interest in developing such methods and in assessing the fate of microplastic particles during the (bio)degradation of plastics in compost.
- **Remediation of forever chemicals: PFAS in groundwater**
PFAS, known as "forever chemicals" due to their difficult degradation, have been associated with adverse health effects on humans and wildlife. PFAS are extremely stable because they are made up of a chain of carbon and fluorine atoms bonded together, and the carbon-fluorine bond is one of the strongest chemical bonds. PFAS remediation is extremely difficult and involves extreme heat, sorbents which need to be recycled, and other techniques, all of which can be costly, inefficient and create secondary pollutants. This project aims to work on innovative PFAS remediation in groundwater. We are looking for a highly enthusiastic Ph.D. student (m/f/x) with an interest in developing such techniques and a solid background in chemistry.
- **Survival and resuscitation mechanisms of desert soil bacteria**
Microorganisms in drylands have to endure long periods of drought, interrupted by unpredictable and very short periods of rain. Dormancy - an inactive state or a state of reduced metabolic activity - has long been regarded as a prerequisite for desert soil microorganisms to survive such drought periods. However, as dormancy cannot be sustained indefinitely, phases of resuscitation must also play an important role for long-term survival of desert soil microorganisms and thus for maintaining microbial diversity in one of the harshest environments on the planet. In this project, we are investigating the desiccation survival mechanisms of soil microorganisms and the molecular mechanisms of resuscitation. This will be achieved by applying genome-resolved metatranscriptomics of desert soil microbial communities, building upon knowledge gained by our recent metagenomic investigation of biological soil crusts from the Negev Desert, Israel. In situ community transcription patterns will be combined with single-cell activity assays, employing a

recently developed heavy water-NanoSIMS assay to detect anabolically active cells, and process measurements.

ADMISSION PROCEDURE

The admission procedure includes:

- evaluation of the written application by scholarly and scientific criteria by a panel of faculty members
- initial online interviews between selected applicants and faculty members (match-making step)
- invitation of selected applicants for online panel interviews, including two 15-minute (chalk-talk) presentations by applicants on their master's thesis and a scientific paper selected by the faculty panel, respectively.

We are aiming to complete the recruitment process until July 2023 at the latest.

For any further questions about the application procedure, please contact vds-mes.cmess@univie.ac.at.

FUNDING

Research projects of successful applicants are funded for a period of up to four years, according to the [Austrian Science Fund standard salary](#) for PhD students (€ 2,464.80 gross salary per month in 2023).