



Technische Universität Berlin



Research Assistant - 0.75 working time - salary grade 13 TV-L Berliner Hochschulen -
under the reserve that funds are granted

Faculty III - Process Sciences, Institute of Environmental Technology / Environmental Microbiomics

Reference number: III-458/25 (starting at 01/03/26 / limited until 28/02/2029 / closing date for applications 21/11/25)

About us:

We are seeking a highly motivated Research Associate (f/m/d) with strong interests in biogeochemistry and microbial ecology to join the international, interdisciplinary project FATE-MAOM. The project is a collaboration between the TU Berlin (Departments of Environmental Microbiomics, Soil Science, and Applied Geochemistry) and the Hebrew University of Jerusalem (Soil and Water Sciences).

The research focuses on the fate of mineral-associated organic matter (MAOM) as it transitions from terrestrial to aquatic systems — a critical yet poorly understood process with major implications for global carbon budgets. MAOM represents one of the largest carbon reservoirs on Earth, typically shielded from microbial degradation in soils. However, once transferred into aquatic environments, changing chemical and physical conditions may make this carbon bioavailable, leading to its transformation and potential release into the atmosphere.

There is the opportunity to pursue a doctorate during the project period, offering excellent opportunities for academic qualification, international networking and professional development.

Your responsibility:

- **Sample Collection & Preparation:** Participate in the selection, collection, and preparation of soil and sediment samples from terrestrial and aquatic environments in Israel for mineral, organic matter, and microbial characterization.
- **Multi-technique Characterization & Experimental Work:** Apply mineralogical, geochemical, and microbiological laboratory techniques (XRD, XRF, SEM, TEM, FTIR, TGA, DSC, CHN analysis, NanoSIMS) to characterize MAOM and associated minerals before and after aquatic transition and incubation experiments.
 - **Design and Conduct Microcosm Experiments:** Set up and manage microcosm experiments with synthetic MAOM to study degradation, detachment, and biogeochemical transformations under different controlled aquatic conditions (freshwater and marine) including isotopic tracing using mass spectrometry.
 - **Microbial Community Analysis:** Perform molecular biology experiments including DNA extraction, 16S rRNA sequencing using nanopore technologies, and FISH microscopy for microbial colonization analysis of MAOM.
 - **Data Analysis, Communication & Collaboration:** Analyze and interpret results, participate in group meetings and project workshops, contribute to scientific publications and presentations, and coordinate with interdisciplinary and international researchers.

For further information, please contact Dr. Danny Ionescu at ionescu@tu-berlin.de.

Your profile:

- Successfully completed academic university degree (Master's, Diploma or equivalent) in Biogeochemistry, Environmental Microbiology, Soil Science, Microbial Ecology, or related disciplines that included courses in basic microbiology.
- **Lab and Analytical Skills:** Experience in one or more laboratory characterization and analysis methods such as XRD, XRF, SEM/TEM, FTIR, thermal analysis, or in the application of molecular biology techniques (e.g., DNA extraction, PCR, sequencing) to environmental sciences, preferably in both.
- **Field work experience**
- **Experimental Design:** Strong motivation and ability to independently design, implement, and document laboratory and/or field experiments involving complex sample handling (is desirable).
- **Collaboration & Communication:** Willingness to actively collaborate in an interdisciplinary German Israeli team—and to participate in meetings, workshops, and international conferences (is desirable).
- **Language skills:** Very good written and spoken English skills; good German skills are desirable.
- **Isotope & Advanced Imaging Methods:** Familiarity with stable isotope analyses, mass spectrometry (e.g., Picarro, MIMS), or high-resolution imaging techniques such as NanoSIMS, FISH, or advanced microscopy (is desirable).
- **Multi-environment Sampling:** Field experience in collecting and processing soil, sediment, or aquatic samples across diverse environments (e.g., riverbanks, lakes, marine systems) (is desirable).
- **Interdisciplinary Orientation:** Experience working at the interface of geochemistry and microbiology (e.g., through previous thesis work, internships, or collaborative research projects) (is desirable).
- **Bioinformatics & Data Analysis:** Prior experience with microbial community profiling, high-throughput sequencing, bioinformatics or environmental sample data analysis (is desirable).
- **Driving license:** A B-category driving license is desired.
- **Scientific Dissemination:** Early experience in oral/poster presentations, scientific writing, or publication in peer-reviewed journals (is desirable).

- **Organizational & Soft Skills:** Interest in mentoring undergraduate assistants, participating in workshops or courses on scientific communication and soft skills (is desirable).

Expected Skill Development:

Upon completion of the FATE-MAOM project, participants will have developed strong interdisciplinary competencies and specialized expertise in the following areas:

- Comprehensive mineralogical and geochemical characterization of soils and sediments using advanced techniques.
 - Quantitative elemental and isotopic analysis of organic and inorganic fractions in environmental samples.
 - Experimental biogeochemistry, specifically the use of microcosm to simulate varying environmental conditions.
 - Microbial ecology and functional profiling, including the application of nanopore-based full-length 16S rRNA sequencing, FISH microscopy, and isotope tracing (NanoSIMS).
 - Development of conceptual models
 - Project management, scientific communication, and interdisciplinary teamwork with opportunities for collaboration across geochemistry, soil science, and microbiology.
- These competencies will provide a strong foundation for advanced research or professional careers in environmental sciences, biogeochemistry, and earth system science

How to apply:

Applications should be submitted in English exclusively by e-mail to Prof. Dr. Mina Bizic (mina.bizic@tu-berlin.de), **quoting the reference number**. Please attach the usual application documents in a single consolidated PDF file (maximum 5 MB). Applications sent in multiple files or formats other than a single PDF cannot be accepted.

By submitting your application via email you consent to having your data electronically processed and saved. Please note that we do not provide a guarantee for the protection of your personal data when submitted as unprotected file. Please find our data protection notice acc. DSGVO (General Data Protection Regulation) at the TU staff department homepage: https://www.abt2-t.tu-berlin.de/menue/themen_a_z/datenschutzerklaerung/.

To ensure equal opportunities between women and men, applications by women with the required qualifications are explicitly desired. Qualified individuals with disabilities will be favored. The TU Berlin values the diversity of its members and is committed to the goals of equal opportunities. Applications from people of all nationalities and with a migration background are very welcome.

The vacancy is also available on the internet at:
<https://www.jobs.tu-berlin.de>

