
Opening of one PhD position in mineralogy and geomicrobiology of modern lacustrine microbialites

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Context

The National Centre of Competence in Research NCCR Genesis is a research infrastructure project funded by SNSF focussing on exploring the emergence of life in the Universe. This interdisciplinary research infrastructure brings together physicists, earth and planetary scientists, chemists and biologists to understand the conditions and the mechanisms that enable life to emerge. Developing reliable methods to detect reliable traces of life (biosignatures) – whether through remote sensing or direct onsite measurements – requires significant innovation. These challenges demand close collaboration across physics, biology, chemistry and the earth sciences. NCCR Genesis does not aim to provide answers in all fields, but to drive innovative research and achieve decisive progress.

Details on NCCR Genesis are available on its website <https://nccr-genesis.ch>.

NCCR Genesis is deeply committed to equality, diversity and inclusion. Our aim is to cultivate a respectful and fair work culture with equal access to professional development and support for all. We strongly encourage applications from under-represented groups.

We invite applications for **one PhD position**. This PhD will be hosted in the Earth Sciences department of the University of Geneva and embedded into Project OASIS, *Origin-of-Life Analogues and Archives*. Project OASIS, led by Nina Zeyen (UNIGE), Allison Daley (UNIL) and Anneleen Foubert (UNIFR), aims at employing an integrated approach combining geochemistry, mineralogy, and microbiology, supported by observations, characterizations and experiments, to study how microbialites are being formed and preserved through diagenetic processes over time. The PhD student will work collaboratively with two other PhD students employed on Project OASIS, at UNIL and UNIFR, as well as postdocs and technicians associated with the project. The PhD position also involves the Ecology Society Evolution unit at CNRS – Université Paris-Saclay, France. The two teams of the co-supervisors are the Biogeochemistry (<https://www.unige.ch/sciences/terre/en/groups/biogeochemistry>) and the DEEM – Diversity, Ecology and Evolution of Microbes (<http://www.deemteam.fr/en/>) research groups.

This project will focus on modern microbialites from soda lakes with the objectives to better understand the mechanisms leading to their formation, transformation and preservation. We propose to characterize the microbialites by a combination of metabarcoding and/or

metagenomic analyses of microbial diversity with mineralogy analyses and imaging down to the nanoscale and to perform laboratory-based experiments with the objective to answer the following questions:

1. What are the compositions of the microbial communities and mineralogy associated with these microbialites?
2. What are the early biomineralization mechanisms linked to the formation of microbialites in these systems?
3. What signatures of microbial activity and/or environmental conditions are preserved within these microbialites?

Your Profile

- Master's degree in geosciences (e.g., geochemistry, geology, environmental science, geomicrobiology)
- Curious, motivated, creative, with a strong interest in natural science research
- Interdisciplinary experience and motivation to work in an international collaborative team
- Good organizational and communication skills
- Experience with Fourier transform infrared spectroscopy, x-ray diffraction, scanning electron microscopy, synchrotron techniques and/or interdisciplinary training with knowledge in microbiology and molecular approaches to characterize microbial diversity is an advantage

The University of Geneva offers a stimulating research environment. With 18'241 students, 40% of which come from abroad. Situated on the shores of Lake Léman, Geneva is a perfect place to undertake high-level research in an idyllic setting between lakes and mountains. The department of Earth Sciences is in the heart of Geneva in the Jonction neighbourhood, close to the departments of Environmental Sciences (Forel), Physics, Biology and Chemistry. Information about the department can be found at <https://www.unige.ch/sciences/terre/en/earth-sciences-department/>

Start date: October 2026 (or upon agreement)

Duration: 4 years

Application

To apply, please send the following documents as a single pdf file with the subject line **"PhD application_ [your lastname]"** before September 15th, 2026 (or until the position is filled) to nina.zeven@unige.ch

- (1) A concise statement (2 pages max.) describing your motivation and interest in the project
- (2) Detailed CV including contact information for 2 references
- (3) Copies of transcripts from BSc and MSc studies

Queries about this opportunity should be sent to the same email address.