



Open postdoc position in Geomicrobiology

‘Magnetite biogeobatteries as (eco-)engineering systems for wastewater treatment, recovery of phosphate and energy production’

We are seeking a postdoc researcher with experience and interest in geochemistry and geomicrobiology to investigate the potential of a novel approach for biological wastewater treatment by applying magnetite biogeobatteries for ammonium removal, phosphorous recovery and simultaneously producing methane. Specifically, this project will develop a biological treatment unit enriched by anaerobic Fe(III)-reducing ammonium-oxidizing (Feammox) and methanogenic microorganisms, both of which perform autotrophic metabolisms. Magnetite will be used by Feammox microbes as electron acceptor (battery charging), while methanogens will use magnetite as electron donor (battery discharging) and produce methane. Additionally, magnetite will function as an adsorbent for phosphorous.

We will carry out laboratory experiments with geochemical and molecular analyses (qPCR) to follow microbial growth, NH_4^+ removal and CH_4 production efficiency. In addition, redox transformations will be evaluated (wet-chemistry, ICP-MS, XRD, Mössbauer spectroscopy).

The candidate will be given many opportunities to be creative and innovative, to apply state-of-the-art geochemical and geomicrobiological analyses, molecular techniques, microbial physiological studies, and spectroscopy. This postdoc will work closely together with a second postdoc from this joint project with Prof. Sara Kleindienst’s group at the University of Stuttgart (see open position in Stuttgart here: <https://careers.uni-stuttgart.de/job/Stuttgart-Postdoc-Position-in-Environmental-Microbiology/964393455/>). The postdocs will have access to the teaching and research sewage treatment plant (LFKW).

Start date for successful applicant is early 2024 (as soon as the candidate is available). Employment (TVL E13, initially for 1 year – potentially extended by up to 3 years) will be arranged by the University of Tübingen.

Requirements:

- Strong background in Geomicrobiology, Microbial Ecology and Geochemistry.
- Ability to work independently and in a team.
- Excellent management and communication skills.
- Highly motivated for interdisciplinary research.
- Good computer and language (English) skills.

For more information and to apply, please send a CV, motivation letter and overview of techniques and methods previously used by email before January 20th, 2024 to:

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