



External Job Announcement Reg.-Nr. 5-11449/21-D

Martin Luther University Halle-Wittenberg (MLU) invites applications for the following position:

Doctoral Researcher (m-f-d)

on the project "Heat transport in groundwater"

starting date: January 2022 or later, limited to 3 years, 75 percent of a full-time employment, salary will be up to Entgeltgruppe 13 TV-L if the personal requirements and tasks are fulfilled, work place will be located at MLU Halle.

Research topic: Investigation of thermal and geological factors controlling heat transport in shallow aquifers

The collaborative project is fully funded by the German Research Foundation. The work is supported by experienced, international experts from the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Brisbane (Australia), Utrecht University (Netherlands) and the Forschungszentrum Jülich (Germany). It will be carried out in close cooperation with the Karlsruhe Institute of Technology (KIT), which have a complementary focus on laboratory scale processes. The Doctoral Researcher of our subproject is dedicated to field scale analysis of transient heat flow mechanisms in porous media. This is addressed by well-controlled field experiments in shallow sedimentary aquifers. The insight gained through these experiments will be complemented by numerical analysis of field and aquifer analog data in order to validate the concerted role of advection, conduction and dispersion in heterogeneous systems. Tight cooperation with the KIT will give the opportunity to develop a consistent view of micro- and macro-scale heat heterogeneity effects. We will validate and refine existing mathematical description in computer-based models.

Tasks:

- Task 1: to design, plan and carry out repeated groundwater heat transport and tracer experiments at selected field sites.
- Task 2: to reproduce the field conditions in detailed numerical models
- Task 3: to review existing field data of experiments conducted by partners and colleagues
- Task 4: to assess the individual role of advection, conduction and mechanical dispersion by field and aquifer analog data
- Task 5: to develop a consistent mathematical formulation over multiple scales.

The doctoral researcher will elaborate the research tasks under joint supervision of hydrogeologists and engineers. The work will be carried out mainly in Halle, with research stays at KIT as well as visits at the Utrecht University, The Netherlands. It will be based on a well-planned set of complementary activities combining field work, computer-based analysis and interpretation. The participating research groups offer ideal working conditions with modern equipment and continuous support by technicians and student assistants. The new findings will be published together in international journals, and shared with the community by presentations on international conferences.



Requirements:

- Master or equivalent degree in a project-related field (e.g. hydrogeology, geosciences, physics, environmental engineering, mathematics)
- Very good knowledge in experimental design, monitoring and field data interpretation
- Great interest in theoretical aspects of heat transport processes
- Very good quantitative and computer-based numerical skills
- Fluent in English communication in writing and speaking. Knowledge of German is an advantage
- A clear drive to do science
- Flexible and well organized, hands-on mentality
- Driver's license

Applicants with a degree that was not obtained at a German university must submit a certificate assessment for foreign university qualifications (Statement of Comparability for Foreign Higher Education Qualifications) from the Central Office for Foreign Education (<https://www.kmk.org/zab/central-office-for-foreign-education>). This can be submitted later when invited for the interview.

The Martin Luther University Halle-Wittenberg gives priority to applications from severely disabled candidates with equivalent qualifications. Women are particularly encouraged to apply.

Queries concerning the application process and project-related questions should be directed to Prof. Peter Bayer <https://applied.geo.uni-halle.de>

All applications should include:

- Cover letter in English (or German) describing motivation for the project, research interests and relevant experience
- complete curriculum vitae including names and contact details of at least two scientific references
- digital copy of MA/BA/Diploma certificates
- all document should be submitted as one single pdf file.

Kindly send your application, quoting the reference number **5-11449/21-D** to Prof. Peter Bayer (peter.bayer@geo.uni-halle.de).

Submission deadline is **15 October 2021**. Selected candidates will be invited to an interview together after this deadline.

The position is offered with reservation of possible budgetary restrictions. Application portfolios will not be returned, application costs will not be reimbursed.