

2 PhD Positions: Electrical Modelling and Laboratory Investigations of Frozen Rocks and Soils in the Context of Permafrost Research

Applications are invited for two Doctoral Researcher positions in the project „Electrical properties of frozen rocks and soils“ funded by the German Research Foundation (DFG), one located at Technische Universität Braunschweig, one located at University of Bonn. The project aims at the advancement of petrophysical models to describe the broadband, low-frequency electrical conduction and polarization properties of frozen rocks and soils from the pore scale to the effective medium scale. Both positions comprise experimental laboratory studies to extend existing data bases and theoretical and numerical model development to better understand the textural, mineralogical, and temperature controls on the effective spectral electrical responses as increasingly exploited in permafrost studies.

The two positions are to be filled as soon as possible, each for a period of 3 years.

Your tasks include:

- Conduction of broadband electrical impedance measurements on rock/soil samples in controlled freezing/thawing experiments
- Development of theoretical and numerical models describing the electrical properties of frozen rocks/soils
- Presentation of results at conferences and publication in peer-reviewed journals

We expect:

- Excellent Master or an equivalent degree in Geophysics or Physics
- Background in numerical modelling and rock/soil physics
- Excellent writing and oral communication skills along with the ability to work within an interdisciplinary research team

We particularly welcome:

- Experience in programming and data management
- Experience in petrophysical laboratory experiments

We offer:

- An open, stimulating and interdisciplinary working environment
- The opportunity of conducting research towards a PhD
- Opportunity to attend international conferences
- Salary according to the German Federal pay scale (75% TV-L E13)

Please send your application in electronic form (as a single pdf) with the relevant documentation (including letter of motivation, curriculum vitae, copy of Master's degree certificate and transcript of record, names and contact details of two referees) to Prof. Dr. Andreas Hördt (E-mail: a.hoerdt@tu-braunschweig.de) for the position at TU Braunschweig or Prof. Dr. Andreas Kemna (E-mail: kemna@geo.uni-bonn.de) for the position at University of Bonn, respectively. Applications will be assessed starting March 1, 2026. Later applications may be considered until the positions are filled.

TU Braunschweig and University of Bonn are committed to diversity and equal opportunities. They are both certified as family-friendly university and have a Dual Career Service. Their aim is to increase the proportion of women in areas where women are underrepresented and to particularly promote their careers. Therefore, applications from relevantly qualified women are strongly encouraged. Applications from suitable persons with proven severe disabilities and persons of equal status are particularly welcome.