



The Working Group Soil Science and Soil Resources at the Faculty of Geosciences is looking for a

## PhD student (m/f/d) in soil science within DFG priority programme "Soil Systems", for 3 years, 25.8895 hours per week, TVL E13

The working group Soil Science and Soil Resources is looking for a member of staff to work on a DFG research project within the DFG Priority Program (SPP) SoilSystems as soon as possible. The key concept of the priority program understands soil systems, i.e. their biodiversity and ecological functions, as controlled by energy and material flows. Energy is stored in the form of soil organic matter, including bio- and necromass, and its availability is subject to thermodynamic principles. Within the SPP we aim at integrating thermodynamic descriptions into processes of soil carbon turnover to develop a systemic understanding of energy and matter fluxes and their relation to biota, dead soil components and environmental conditions as boundary conditions.

Although the stabilization of organic matter by binding to minerals has been demonstrated, quantitative information on the relationship with the thermodynamics of sorption reactions is lacking. Furthermore, there is a lack of knowledge on the effect of aggregation, water potentials and microbial diversity on the relationship between thermodynamic parameters of (de)sorption and microbial utilization of substrates. As part of the project "Sorption thermodynamics and aggregation as controls of substrate use and mineralization 2: Response to complex boundary conditions", we therefore want to determine the importance of thermodynamic parameters that characterize the reactions relevant for substrate utilization under increasingly complex conditions. The project advertised here follows a mineral-based approach that scales from mineral surface-molecule interactions to microbial utilization of substrates, with increasing complexity of mineral surfaces (OH groups, crystallinity) and mixtures. A second PhD position is offered by project partners in Freiburg, in which an aggregate-based approach is pursued.

### Your tasks:

- Scientific collaboration in a research project (independent work)
- Synthesis/purification and characterization of model minerals (goethite,

<b>extent:</b>	full-time
<b>duration:</b>	temporary
<b>beginning:</b>	as soon as possible
<b>application deadline:</b>	03.03.2025

The Ruhr-Universität Bochum is one of Germany's leading research universities, addressing the whole range of academic disciplines. A highly dynamic setting enables researchers and

- boehmite, illite, kaolinite)
- Carrying out sorption and incubation experiments (model substances, SPP soils, partial work with <sup>14</sup>C labeled substrates)
- Carrying out measurements with isothermal titration calorimetry (University of Giessen)
- Participation in interdisciplinary experimental approaches in close coordination with project and SPP partners - Presentation of the results at scientific conferences
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## Your profile:

- Completed studies in the fields of physical geography, soil science, ecology, environmental, agricultural or geosciences or (physical) chemistry
- Enjoy precise laboratory work and thermodynamic calculations, willingness to work with <sup>14</sup>C-labeled substances
- Willingness to travel, including measurement stays in Giessen
- Strong teamwork and cooperation skills
- Very good knowledge of English
- Driving license class B is an advantage

## Our offerings:

- Challenging and varied tasks with a high degree of personal responsibility
- a friendly and cooperative environment
- a dynamic environment

## Additional information:

At the request of the applicant (m,f,x), the staff council may be involved in selection interviews. <https://www.wpr.ruhr-uni-bochum.de/>

If the position is funded by third-party funds the employee has no teaching obligation.

German language courses are offered by the University Language Center (ZFA) in the field of German as a Foreign Language (DaF). <https://www.daf.ruhr-uni-bochum.de/sbgk/index.html.en>

You can find information about TVL at: <https://oeffentlicher-dienst.info/>

## Contact details for your application:

Ines Mulder, Phone: +49234 32 22108

Travel expenses for interviews cannot be refunded.

For information on the collection of personal data in the application process see: <https://www.ruhr-uni-bochum.de/en/information-collection-personal-data-application-process>.

We are looking forward to receiving your **application with the specification ANR: 4254 until 03.03.2025**, send by e-mail to the following address: [ines.mulder@rub.de](mailto:ines.mulder@rub.de)

**students to work across the traditional boundaries of academic subjects and faculties. To create knowledge networks within and beyond the university is RUB's declared aim.**

The Ruhr-Universität Bochum stands for diversity and equal opportunities. For this reason, we favour a working environment composed of heterogeneous teams, and seek to promote the careers of individuals who are underrepresented in our respective professional areas. The Ruhr-Universität Bochum expressly requests job applications from women. In areas in which they are underrepresented they will be given preference in the case of equivalent qualifications with male candidates. Applications from individuals with disabilities are most welcome.



Please get in touch with the contact person named above if you would like to use an alternative application channel.

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<https://uni.ruhr-uni-bochum.de/de/stellenangebote>