



Karlsruhe Institute of Technology

Karlsruhe Institute of Technology
Institute of Soil Mechanics and Rock
Mechanics

Engler-Bunte Ring 14
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<http://www.ibf.kit.edu>

Karlsruhe Institute of Technology (KIT) – The Research University in the Helmholtz Association creates and imparts knowledge for the society and the environment. It is our goal to make significant contributions to mastering the global challenges of mankind in the fields of energy, mobility, and information. For this, over 9000 employees of KIT cooperate in a broad range of disciplines in research, academic education, and innovation.

We are looking for a

PhD Student/ Research Assistant (f/m/d) in soil mechanics

Research topic: Novel soil sample preparation method for triaxial testing of sands.

Job description:

One hundred years after Prof. Karl Terzaghi established soil mechanics, we are still relying on sample preparation methods that have not advanced at the same pace as modern sensor, measurement, and imaging technologies for soil testing. This discrepancy limits our current understanding of soils and their fabric-related properties.

With this PhD, your role will be to develop an innovative approach for generating soil samples for soil mechanical testing. Specifically, you will:

- Develop methods to elevate soil sample preparation to a new level and overcome reproducibility challenges.
- Apply these methods to test and evaluate uncertain observations in triaxial testing.
- Integrate these approaches with digitalization and simulation techniques to deepen our understanding of how sample preparation impacts soil testing.

As a PhD candidate, you will join the Institute of Soil Mechanics and Rock Mechanics (IBF) at the Karlsruhe Institute of Technology, directly benefiting from IBF's outstanding facilities. Your responsibilities will include:

- Designing and conducting experiments.
- Collecting and analyzing data.
- Simulating and digitalizing results.
- Communicating your findings through publications in peer-reviewed journals and conferences.

In addition, you will be involved in project work, teaching, and administrative activities at IBF.

Qualification:

You must hold an M.Sc. degree in one of the following subjects: Civil Engineering (preferably with a specialization in soil mechanics and geotechnics), Mechanical Engineering, Applied Mechanics, or a similar field.

The project will largely benefit from the following skills and expertise. While experience in any of these areas is desirable, a willingness to

acquire these skills is essential:

- Advanced soil mechanics
- Applied physics and mechanics
- Laboratory experiments, data acquisition, and control techniques
- Programming skills

Knowledge of the German language is beneficial.

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| We offer: | We offer you an attractive and modern workplace with access to the excellent equipment of the KIT, varied work, a wide range of training opportunities, an allowance for the job ticket BW and a casino/cafeteria. |
| Salary: | Salary category TV-L E13, depending on the fulfillment of professional and personal requirements. (Average salary of 57708 € before tax) |
| Institute: | Institute of Soil Mechanics and Rock Mechanics |
| Contract duration: | 3 years |
| Starting date: | 01.06.2025 or sooner |
| Application up to: | 28.04.2025 |
| Contact person in line-management: | For technical details please contact: Prof. Dr.-Ing Hans Henning Stutz, Hans.Stutz@kit.edu , +4972160842220 |
| Application: | Please send your application including a cover letter describing your motivation and why you want to work on the topic including a half page research abstract. Your CV and all important certificates/referees (M.Sc.; B.Sc.), in electronic form to: Hans.Stutz@kit.edu |

We prefer to balance the number of employees (f/m/d). Therefore, we kindly ask female applicants to apply for this job.

Recognized severely disabled persons will be preferred if they are equally qualified.