

## Doctoral position

in DFG International Research Training Group 2379 “Modern Inverse Problems”

The DFG International Research Training Group (IRTG) 2379 builds on a unique consortium, at **RWTH Aachen University** with its JARA Center for Simulation and Data Science, and at the **University of Texas at Austin** with its Institute for Computational Engineering and Sciences. The projects are embedded in the field of modern inverse problems and introduce a new innovative perspective into the education of future scientists and engineers.

The advertised position is associated with the project “P13 Bayesian model selection for complex shallow flow”, and advised jointly by Prof. Julia Kowalski in Aachen and Prof. Clint Dawson in Austin. The project will advance the state of the art in model selection for shallow flow models, which have been applied to a wide range of science and engineering fields including open channel hydraulics, the assessment of certain types of geohazards, weather forecasting, etc.

The specific aims of this project are:

- Develop a Bayesian model selection workflow that relies on goal-oriented Gaussian process emulation for complex shallow flow;
- Implement and validate against synthetic benchmark and real-world field data;
- Investigate the impact of different types of data on the model selection result.

**Your profile:** Requirement for this position is a master’s degree in computational engineering, simulation science, applied mathematics or a related subject with above average results. A keen interest in developing computational methods for model-based development and decision support and a strong background in continuum-mechanical modeling and numerical methods for partial differential equations are desired. Experience with numerical methods for hyperbolic conservation laws and fundamental knowledge in the area of Bayesian methods are of advantage. Familiarity with git and modern research data management (FAIR) would be ideal. Excellent written and spoken English language skills are required.

**Our offer:** The candidate will be employed as a regular employee and must meet required personal qualifications. This is a **full-time position with salary according to civil service pay scale TV-L E 13**. The expected appointment period is **three years**. Full involvement in the IRTG activities, including joint RWTH-UT colloquia, annual workshops and schools, and short courses is expected. A **six-month research stay at University of Texas in Austin** is part of the training program.

At our chair, we offer an exciting career development opportunity in computational engineering / simulation science, a positive working climate in an exciting academic environment, and family-friendly and flexible working times.

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Starting date: next possible date

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