PhD Position in Multi-scale Reactive Transport Modeling (m/w/d)

We invite applications for a PhD position in the Hydrogeology workgroup at the University of Tübingen, Germany, to work on a project recently funded by the German Research Council (DFG). The aim of this project is to simulate the effects of pore-scale variability of surface reactivity on mineral dissolution and upscale the results to Darcy-scale reactive transport. The PhD candidate will be supervised by Dr. Tao Yuan and co-supervised by Prof. Olaf A. Cirpka.

Responsibilities:

1) Develop pore-scale reactive-transport models of calcite dissolution kinetics
2) Develop an upscaling workflow to implement pore-scale spatially variable intrinsic surface reactivity into core-scale models and develop core-scale models
3) Validate the models using measured data
4) Publish high-quality articles in peer-reviewed journals in the field
5) Present research outcomes at national and international conferences

Basic Qualifications:

1) A completed M.Sc. degree in Hydrogeology, Environmental Engineering, Geosciences, Applied Mathematics, Applied Mechanics, or a related field
2) Strong proficiency in English
3) Capability to work independently and collaboratively

Preferred Qualifications:

1) Experience with reactive-transport simulation, groundwater flow simulation, and model development
2) Basic knowledge of numerical methods for solving nonlinear systems of partial differential equations (e.g., finite volume method, finite element method)
3) Experience using open-source CFD software such as OpenFOAM, PFLOTRAN, and geochemistry software such as PHREEQC

This is a **three-year** fixed-term position with a preferred start date of **April 2025 or as soon as possible thereafter**. Employment (TV-L E13, 75%) will be arranged by the administration of the University of Tübingen. The university is committed to equal opportunities and diversity. It therefore takes an individual's situation into account and asks for relevant information. People with disabilities will be given preferential consideration if they are equally qualified. The University of Tübingen strives to increase the proportion of women in research and strongly encourages qualified women to apply.

Applicants should submit a single PDF file containing the following: (1) CV, (2) a motivation letter describing your research interests and reasons for applying, (3) copies of transcripts (BSc and MSc degrees), and (4) names and email addresses of two references. Applications should be sent to Dr. Tao Yuan, tao.yuan@uni-tuebingen.de by **January 15, 2025.**

For further information regarding the position, please contact Dr. Tao Yuan, tao.yuan@uni-tuebingen.de, or Prof. Olaf A. Cirpka, olaf.cirpka@uni-tuebingen.de.