

For the **Research Training Group “Mineral-bonded Composites for Enhanced Structural Impact Safety” (GRK 2250)** funded by the Deutsche Forschungsgemeinschaft (DFG), the Institute for Structural Analysis at TU Dresden welcomes applications for a

PhD position (Research Associate)

(subject to personal qualification, employees are remunerated according to salary group TV-L E 13)

starting at **01/05/2020**, for a three-year program (period of employment according to § 2 Fixed Term Research Contracts Act (WissZeitVG)), with 100 % of the regular weekly working hours. The GRK program aims at obtaining a PhD.

Tasks: Independent and cooperative qualification through scientific research within the PhD project “**B3 Modeling reinforced components**” (see <http://www.grk2250.de/?s=b3-modeling-reinforced-components>) offered by the Research Training Group GRK 2250. The focus of this project is the development of numerical models to investigate the mechanical behavior of mineral-bonded composites at static and high dynamic loads by multiscale analysis. This includes the setup of an FE model representing the heterogeneous meso-structure of the hybrid reinforced composite in terms of a representative volume element (RVE). The RVE should capture all relevant physical effects such as plasticity and damage. Beside the detailed study of the meso-mechanical behavior, a sufficient homogenization strategy, based on machine learning approaches such as artificial neural networks, should be achieved. Moreover, the program encompasses training in the subject-specific technical tasks of the PhD project through literature studies and further identifying individual objectives; Working on the individual doctoral project in close collaboration with other GRK members; Conducting experiments, drawing conclusions and interpreting results; Sharing results on an internal GRK exchange platform; Elaboration and presentation of newly attained knowledge in the respective field of research; Participation in lectures and workshops according to the guidelines of the GRK agenda; Supporting scientific graduation theses (Master/Diploma) within the respective field of research; regular reporting on individual research progress to the corresponding professors; Publishing of research results in the form of individual or joint publications; Summarizing the individual research results of the PhD project in the form of a dissertation, submitted within the time limit of 3 years.

Requirements: Acquired very good degree as Master of Science (M.Sc.) or Diplom-Ingenieur (Dipl.-Ing.) in civil engineering or mechanical engineering with deep knowledge in continuum mechanics, structural analysis, advanced mathematics, modelling and simulation. We are seeking particularly motivated candidates exhibiting high interdisciplinary desire to learn and cooperate, fluent oral and written English communication skills and the absolute willingness to complete the dissertation by the end of the three-year research period. Female candidates are explicitly invited to submit their application; the same applies to persons with disabilities.

Questions can be directed to Prof. Michael Kaliske (Michael.kaliske@tu-dresden.de). Interested applicants should include the following documents: motivation letter stating your research interests, curriculum vitae, degree certificates including lists of grades, recommendation letters, publications or, where appropriate, a graduation thesis. Application documents should be submitted **until 31/01/2020** preferably via e-mail to Michael.kaliske@tu-dresden.de or by post to **TU Dresden, Prof. Kaliske, Institut für Statik und Dynamik der Tragwerke, 01069 Dresden**. Please submit copies only, as your application will not be returned to you. Expenses incurred in attending interview cannot be reimbursed (when appropriate, interviews can be conducted online).