



Doctoral Positions

Flow Simulation, High-Performance Computing, Computational Modeling

Simulation techniques have become an important instrument for the development, design and quality assurance of engineering components. Since its foundation in 2004, our institute conducts active research at the interface between mechanical engineering and applied mathematics. Our main focus is the development and implementation of numerical methods. Currently, we are searching for new doctoral candidates to complement our group in one of the following areas:

Manufacturing technology Within Collaborative Research Center SFB 1120 Precision Melt Engineering we develop novel finite element methods for molding simulation and other production processes. Evolving domain shape and topology, as well as material models are the main challenges.

High-performance computing New generations of high-performance computers will require unprecedented scalability. Adaptation of the numerical algorithms to account for heterogeneous and distributed nature of the hardware is a great challenge, especially for implicit unstructured mesh computations.

Model development and selection In all our application areas, but in particular in biomedical engineering, there is a need for new physical and data-driven models to describe the complex reality. The questions of model hierarchies, model error, and automatic selection are investigated in our group.

Your profile: Requirement for these positions is a Master's degree in CES, engineering, applied mathematics, physics, or a similar subject with a superior academic record.

Strong theoretical backgrounds as well as ability to apply it in technical fields are expected. You are open to collaborative software development in a diverse international team. You are capable of independent goal-oriented work style, creativity, and flexibility.

Practical programming experience in Fortran, C, or C++ as well as with parallelization (MPI or OpenMP) are of advantage. Familiarity with UNIX operating system would be ideal. We expect you to contribute to general tasks at the institute, such as teaching and advising master or project theses. Language skills in German are preferred but not 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 German civil service pay scale TV-L E 13 (roughly 4000 euros/month before taxes). The expected appointment period is up to five years, with an initial appointment for one year.

At our chair, we consider serious and reliable research an important task. At the same time, we can offer you to become part of a very social and well-functioning team of currently roughly 20 members. Especially for international students, open doors and regular social events help become acquainted with the German culture quickly. Furthermore, we can assure you that we will support your personal development in all ways possible, thus giving you a good starting point for a future career in both academia or industry. Feel free to contact us for further information!

German and English calls for applications in SFB 1120 can be also found in RWTH Jobbörse under IDs 32864 and 32865.

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Starting date: April 2021 or as soon as possible