

Open PhD position at KIT – Institute for Applied Materials

The Institute for Applied Materials – Materials- and Biomechanics (IAM-WBM) at the Karlsruhe Institute of Technology (KIT) strives for a fundamental understanding, prediction and optimization of mechanisms responsible for the degradation of advanced functional material systems. Our material portfolio comprises, among others, materials required for the energy transition, i.e. for energy conversion and storage. This also includes advanced material systems being possible candidates for future fusion power plants. For this purpose, the IAM-WBM operates a state-of-the-art characterization facility, the so-called fusion materials laboratory (FML).

The IAM-WBM is offering a PhD position in material science at the FML. The focus of the thesis is the identification and application of high-throughput techniques to predict the changes in structural and mechanical properties of materials during service. The main goal of the project is to develop small-scale mechanical tools, which allow to assess the reliability and safety-potential of materials being subjected to microstructural changes during service.

Tasks carried out at the KIT include:

- Scale-bridging (from sub- μm to mm sizes) mechanical experiments for instance in stand-alone and *in situ* SEM indenters as well as universal testing machines;
- Microstructural characterization of advanced high strength steels and body centered cubic model materials;
- AI-based prediction(s) of macroscopic material behaviors (e.g. establishing of a multi-dimensional neural network);
- Scientific publishing (journal publications and scientific talks at international conferences).

Candidates must hold a master degree with focus on physics, materials science or mechanical engineering. Experiences in microstructural properties of materials, mechanical testing and AI-methods are beneficial.

Besides a state-of-the-art laboratory at the IAM and an inclusive, caring as well as supportive atmosphere, we can offer a three years lasting PhD contract. We warmly welcome applicants of different cultures, ethnicities and beliefs – indeed this very diversity is vital to our success, it is fundamental to our values and enriches life at the institute.

The call for applications is open until filled.

For more information, do not hesitate to contact either one of us.

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