Opening PhD position at the Institute for Applied Materials
Micromechanical characterization of grain boundary slip

The Institute for Applied Materials – Mechanics of Materials- and Interfaces (IAM-MMI) 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 as well as advanced structural materials.

The IAM-MMI is offering a PhD position in material science. Within the next three years, the successful candidate shall develop a fundamental, quantitative understanding of grain boundary sliding in model materials using experimental micromechanics. Two main experimental techniques will be used:

(i) Micro pillar manufacturing using a state-of-the-art focused ion beam microscope (FIB). The FIB is equipped with a femtosecond laser for low damage laser ablation.

(ii) In situ small scale mechanical testing at non-ambient temperatures using a field emission scanning electron microscope (SEM) equipped with a high temperature nanoindenter.

Through the combination of aforementioned techniques with data processing (e.g. digital image correlation), the shear stress vs. shear strain behavior of a single grain boundary should be measured at the micron scale for the first time.

Candidates must hold a master degree with focus on physics, materials science or mechanical engineering. Experiences in microstructural properties of materials, electron microscopy and mechanical testing 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 PhD contract (75%TVL-E13 three years lasting). We encourage 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

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