Karlsruhe Institute of Technology
Personalservice (PSE)

Kaiserstraße 12
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Research associate / PhD candidate (f/m/d) in the project “Ex2Flow”

Experimental characterization and 2-phase flow modelling of water transport phenomena in PEM fuel cells

Job description:

The chair of Fluid Mechanics (ISTM) at Karlsruhe Institute of Technology (KIT) seeks a highly motivated research assistant to conduct cutting-edge research in the area of experimental characterization and numerical of condensation phenomena in PEM fuel cells. The scientific topic deals with flooding phenomena happening during operation of PEM fuel cells under particular conditions, which might lead to condensation in the gas diffusion layer and degradation of the cell performance. The project includes in-situ experimental investigations of the phenomena with subsequent development and implementation of an experimental-based numerical model of the condensation process into the available OpenFOAM-base implementation of a fuel cell model. The experiment shall contribute to the understanding of condensation process and link operational conditions and local flow properties to possible flow-regimes and condensation. The existing numerical model needs to be extended with a flow-regime dependent condensation model, which eventually enables the prediction of the efficiency drop. You publish and present the results of your work in international journals and at international conferences. You are also expected to support the team of ISTM in teaching activities and co-supervise student theses in your research field. We offer a friendly and supportive working environment with dedicated and highly qualified scientific team.

Qualification:

You must have a master’s degree in engineering, physics or applied mathematics. Proven knowledge in programming (C/C++), and in the development and application of OpenFOAM solvers for computational fluid dynamics are required. In addition, hands-on practise with flow-measurement techniques is mandatory, where experience with LASER-based and/or imaging techniques is particularly beneficial. Furthermore, experience in modeling of multiphase flows and phase change is desired. Besides the professional qualification, strong commitment, independent and self-responsible working style including fluent verbal and written English skill is expected.

We offer:

We offer an attractive and modern workplace with access to excellent facilities of KIT, diverse and responsible tasks, a wide scope of advanced training options, supplementary pension with the VBL (Pension Authority for Employees in the Public Service Sector), flexible working time models, a job ticket (BW) allowance, and a cafeteria/canteen.

Salary:

The remuneration occurs on the basis of the wage agreement of the civil service in TV-L, E13.

Institute:

Institute of Fluid Mechanics (ISTM)

Contract duration:	limited to one year
Starting date:	as soon as possible
Application up to:	January 5th, 2020
Contact person in line-management:	For further information, please contact Dr.-Ing. Alexander Stroh, email: stroh@kit.edu.
Application:	Please send the full application with a motivation letter, curriculum vitae, transcripts of grades and contact information for at least one academic reference as a single PDF file by January 5th, 2020 to Dr.-Ing. Alexander Stroh, email: stroh@kit.edu. We prefer to balance the number of employees (f/m/d). Therefore we kindly ask female applicants to apply for this job. If qualified, severely disabled persons will be preferred.
Karlsruhe Institute of Technology Personalservice	KIT is certified as a family-friendly university (familienfreundliche Hochschule) and offers part-time employment, leaves for family-related reasons, dual career options, and individual coaching for family-work balance.