Karlsruhe Institute of Technology
Personalservice (PSE)

Kaiserstraße 12
76131 Karlsruhe

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Research associate / PhD candidate (f/m/d) in the research unit "ProMiSe": Numerical investigation of evaporation process in microchannels with OpenFOAM

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 numerical simulation and modelling of evaporation phenomena. The research is a part of a DFG-funded research unit "ProMiSe", which deals with the assessment and control of dynamic local process conditions in microreactors via novel integrated microsensors. The scientific topic deals with interface-resolving numerical simulation of evaporation process in microgeometries. The simulations shall contribute to the understanding of confined vapor bubble growth and provide insights into the possibilities of local evaporation control. The existing simulations are based on the volume-of-fluid method with an evaporation model, which has to be further extended in order to take into account the microscale heat transfer at the 3-phase contact line and the contact angle dynamics. Additionally, it is planned to add adaptive mesh refinement and improve the surface tension modeling with the aim to reduce spurious currents. The work will be carried out in the framework of OpenFOAM simulation toolbox. At the same time a concerted experimental investigation will be carried out by the project partners within the research group providing validation data.

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 hold a master degree in engineering, physics, applied mathematics or related areas. Proven knowledge in programming (C/C++), high-performance computing and in the development and application of OpenFOAM solvers for computational fluid dynamics are required. 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:	12 month with the possibility of extension up to 36 month subject to satisfactory performance
Starting date:	As soon as possible
Application up to:	Review of applications will begin as soon as they are received and will continue until the position is filled.
Contact person in line-management:	For further information, please contact Dr.-Ing. Alexander Stroh, email: stroh@kit.edu.
Application:	Interested candidates are asked to send a motivation letter, curriculum vitae, transcripts of grades and contact information for at least one academic reference in a single PDF file electronically to Dr.-Ing. Alexander Stroh (stroh@kit.edu). **Applications are accepted in both English and German.** We prefer to balance the number of female and male employees. Therefore we kindly ask female applicants to apply for this job. If qualified, handicapped applicants 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.