



Karlsruhe Institute of Technology

Karlsruhe Institute of Technology
Personalservice (PSE)

Kaiserstraße 12
76131 Karlsruhe

<http://www.pse.kit.edu>

Postdoctoral position: Numerical simulation of drop-wall interaction and liquid film formation with OpenFOAM

Job description:

The chair of Fluid Mechanics (ISTM) at Karlsruhe Institute of Technology (KIT) seeks a highly motivated Post-Doctoral Research Fellow to conduct cutting-edge research in the area of numerical simulation and modelling of drop-wall interactions. The research relates to a project funded by the Friedrich and Elisabeth Boysen Foundation. The scientific topic is on interface-resolving numerical simulation of liquid film formation, which may undesirably occur in exhaust pipes of Diesel engines during spray injection of urea-water solutions for selective catalytic reduction. The simulations shall serve to understand the mechanisms of liquid film formation and to identify possible measures for avoiding it, e.g. by tuning the wall wettability. The simulations employ a phase field method that is implemented in OpenFOAM and shall be extended for heat transfer.

In addition to this main task, you are expected to actively support other current research projects with OpenFOAM and contribute to the further networking of the institute in the scientific field. You also support the team of ISTM in teaching activities and co-supervise student theses in your research field.

Qualification:

You hold a doctoral degree in engineering, physics, applied mathematics or related areas. Proven expert knowledge in programming (C/C++), in 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 fluid-structure-interaction are desired. Besides the professional qualification, strong commitment, independent and self-responsible working including fluent verbal and written English skill are 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 12 month, with the possibility of extension up to 18 month subject to satisfactory performance and funding.

Starting date:

January 2019 (preferred) but no later than March 2019

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. Martin Wörner, email: martin.woerner@kit.edu.

Application:

Interested candidates are asked to send a motivation letter, curriculum vitae, transcripts of grades, list of publications, information about teaching experience, and contact information for at least one academic reference in a single PDF file electronically to Prof. Bettina Frohnafel (bettina.frohnafel@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.

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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.