



Karlsruhe Institute of Technology

Karlsruhe Institute of Technology
Personalservice (PSE)

Kaiserstraße 12
76131 Karlsruhe

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

Researcher position (f/m/d)

DNS of heat, momentum and mass transfer near walls

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 direct numerical simulation with heat and mass transfer. The research is part of the Collaborative Research Center/Transregio 150 "Turbulent, chemically reactive, multi-phase flows near walls" founded by the German Research Foundation (DFG). In strong collaboration with other project partners the near-wall turbulence properties of an impinging jet with particular thermal and concentration fields is to be studied. The DNS carried out in the present project are based on the spectral element solver Nek5000 and form the digital twin of an experimental investigation of the same non-equilibrium flow configuration carried out by collaboration partners. The obtained data provide the basis for joint modelling efforts of the near-wall flow physics.

You are expected to independently carry out HPC simulations, the related post-processing and physical data interpretation. You collaborate with all partners of the Collaborative Research Center, co-supervise student theses in your research field and actively contribute to this ongoing interdisciplinary research project.

Qualification:

You must have a master's degree and preferably also a PhD in engineering, physics or applied mathematics. You are highly motivated, with proven expert knowledge in Fortran programming, high-performance computing, and in the physical interpretation of turbulent flow phenomena. Specific experience with NEK5000 and flows with heat and mass transfer are beneficial. Besides the professional qualification, strong commitment, independent and self-responsible working including fluent verbal and written English skills are expected. Besides the professional qualification, strong commitment, independent and self-responsible working including fluent verbal and written English skills 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 36 months

Starting date: April 1st 2020

Application up to: January 15th, 2020

Contact person in line-management: For further information, please contact Prof. Dr.-Ing. Bettina Frohnafel, email: bettina.frohnafel@kit.edu or Dr.-Ing. Franco Magagnato, email: franco.magagnato@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, email: bettina.frohnafel@kit.edu.

Applications are accepted in both English and German.

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.

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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.