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DLR – DAAD Fellowships

Fellowship No. 415

Research Area : Aeronautics

Research Topic: **Simulation of the atomization and breakup of liquid fuels**

DLR Institute: Institute of Combustion Technology, DLR Stuttgart

Position: Doctoral Fellow

Openings: 1

Job Specification: At the Institute of Combustion Technology located in Stuttgart, technical combustion processes are optimized by our 80 male and female scientists, who are specialized in different disciplines, applying numerical models, modern experimental equipment and methods of chemical reaction kinetics. In the department “Multiphase Flows and Alternative Fuels" you work in an international team of 6 to 8 scientists. Here, new computational methods and physico-chemical models for the computation of turbulent spray combustion processes are developed and tested on academic and real configurations. The department is highly active in the development of in-house CFD codes and in the assessment of future aviation fuels. The majority of the work is carried out within DLR-internal research projects as well as research projects funded by the government or by industrial partners. The computational resources at the institute comprise modern, powerful Linux-Clusters as well as access to supercomputers at the computing centers of Stuttgart, München and Jülich

You have the following tasks:

- Development, testing and documentation of numerical methods and models for the atomization sub-process in turbulent spray combustion.
- Implementation of these numerical methods and models into the DLR in-house codes.
- Application of the newly developed models to the numerical simulation of nozzles and injectors relevant to aerospace applications.

Required Qualification:

- Completed master studies in physics, computer science or engineering, i.e. aerospace engineering or mechanical engineering.
- Good knowledge in fluid mechanics and thermodynamics.
- Experience in the field of Computational Fluid Dynamics (CFD)
- Programming skills in Fortran / C and Python.

Advantageous Skills:

- It is beneficial to have experience in the field of CFD code development.
- It is beneficial to have knowledge in modeling complex physico-chemical sub-processes relevant to spray combustion, i.e. turbulence, atomization, dispersion and combustion as well as their interactions.

English competence: fluent (See requirements on www.daad.de/dlr)

Earliest Start Date: 01.02.2020

Application Deadline: Until the position is filled

Further Information: http://www.dlr.de
http://www.daad.de/dlr