



DLR – DAAD Fellowships

Fellowship No. 553

Research Area : Energy

Research Topic: Evaluation for aviation powertrains and sustainable fuels

DLR Institute: Institute of Engineering Thermodynamics (TT), DLR Stuttgart

Position: Postdoctoral Fellow

Openings: 1

Job Specification: Future aviation will require new powertrains and sustainable fuels. User acceptance will depend on performance, cost and the degree of sustainability.
For different types of powertrains and sustainable fuels like hydrogenfuel cell energy systems, performance measures like energetic and exergetic efficiency, production costs and environmental footprint have to be quantified and optimized.
Current activities of the research group Techno Economic Assessment of the institute of engineering thermodynamics on the understanding of different alternative powertrains and sustainable fuels, have to be extended with new ideas, methodologies and experiences. As an innovative researcher you will join the team assessing new powertrains and sustainable fuels, where the technical, economic and ecological evaluation for different designs has to be performed.
The main task of this postdoctoral position is to develop a practical scheme for linking powertrain design parameters to the optimal performance, cost of ownership and ecological impact. Existing in-house software for the design and operation of aircraft fuel cell systems has to be used and adopted. The existing methodology and the in-house software for techno-economic and ecological assessment has to be applied and extended.

The candidate must be in the position to identify beneficial powertrain design options, its limitations, challenges and improvement potential. New knowledge has to be included into existing software tools for

continuous performance improvements. Experimental work with hydrogen fuel cell technology in Hamburg based DLR Fuel Cell Laboratory will be conducted to validate the results. It includes efficient reporting and communication to colleagues and project partners. In addition to the project work, you are welcome to support and contribute by bringing your expertise in aviation powertrain design and assessment to the R&D activities of the group, aiming at the development of new designs and assist students as well as Ph.D. students in their thesis work with process simulation, cost estimation, life cycle assessment and project data interpretation.

1. Aviation powertrain design, cost estimation, project work including efficient reporting and documentation.

2. Writing scientific publication.

3. Develop the cost estimation tool in our group, supervise and ensure the good working project engineers. It is expected you to take over the supervision of European research projects, and ensure scientific excellence in the field.

4. Acquire and supervise students.

5. Contribute to scientific project acquisition.

Required Qualification: PhD in Chemistry, Mechanical Engineering, Physics or related disciplines with background in powertrain design, cost estimation, LCA etc.

Advantageous Skills:

- Knowledge and experience in aviation powertrains as well as the interpretation of the simulation results
- Technical, economic and ecological process evaluation and the capability to find improvements in powertrain designs
- Experience in working at European Research projects of the Horizon Europe program is a plus

English competence: **Fluent** - See requirements on www.daad.de/dlr

Earliest Start Date: Starting immediately initially for 12 months with a possible extension of one additional year

Application Deadline: Until position is filled

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