



DLR – DAAD Fellowships

Fellowship No. 560

Research Area : Energy

Research Topic: **Ecological Evaluation for future aviation powertrains (LCA)**

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

Position: Postdoctoral Fellow

Openings: 1

Job Specification: Future aviation will require new powertrains. User acceptance will depend on performance, cost and the degree of sustainability. For different types of powertrains and sustainable fuels like hydrogen fuel cell energy systems, performance measures like energetic efficiency and environmental impacts have to be quantified and optimized. Current activities of the research group Techno Economic Assessment of the Institute of Engineering Thermodynamics in the field 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 different designs thereof. The main task of this postdoctoral position is to develop a practical scheme for linking powertrain design parameters to the optimal performance with minimal ecological impact. Existing in-house software for the ecological assessment of alternative fuel production pathways has to be adapted and extended for the design and operation of innovative aviation powertrains. 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 an existing software tools for continuous performance improvements. Experimental work on future powertrains will be conducted by project partners to validate the results. The work includes efficient reporting and communication to colleagues and project partners. In addition to the project work, you are welcome to support and contribute

to the R&D activities of the group with your expertise in aviation powertrain design and assessment by assisting 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, life cycle assessment and project work including efficient reporting and documentation.
2. Writing scientific publication.
3. Driving the further development of the techno-economic and ecological assessment tool in our group, supervise and ensure the good working of project engineers. It is expected of 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 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>