Institut für Flugzeugbau und Leichtbau

IFL

SE²A

PhD-Researcher Position within the SE²A Research Cluster

Hydrogen Driven Aircraft Design

Temporary Position, Salary Level TV-L E13, 100%

Background:

The Cluster of Excellence *SE²A - Sustainable and Energy Efficient Aviation* is a DFG-funded interdisciplinary research center investigating technologies for a sustainable and eco-friendly air transport system. Scientists from engineering, economics, chemistry and biology are working on the reduction of drag, emissions and noise, life-cycle concepts for airframes, improvements in air traffic management and new technologies for energy storage and conversion. Technische Universität Braunschweig (TUBS), the German Aerospace Center (DLR), Leibniz University Hannover (LUH), the Braunschweig University of Art (HBK) and the National Metrology Institute of Germany (PTB) have joined forces in this extraordinary scientific undertaking. The overall project is structured into the three core research areas "Assessment of the Air Transport System", "Flight Physics and Vehicle Systems" and "Energy Storage & Conversion".

(www.tu-braunschweig.de/se2a)

Employment:

The position is located at the Institute of Aircraft Design and Lightweight Structures of TUBS in Braunschweig. However, it will be co-supervised by the Institute of Electric Power Systems of LUH. The entry date is June 1st 2021, and the duration is initially limited until the end of 2022. Depending on fulfilment of personal requirements, the remuneration is based on the salary level TV-L E13. International applicants may have to successfully complete a visa process before hiring can take place. We are an equal opportunity employer and all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin, disability status, or any other characteristic protected by German law.

Task:

The need for sustainable and energy efficient aviation, pushes the aviation industries toward the design of the next generation of transport aircraft, with dramatic reduction in energy consumption, emissions and noise. Based on the Flightpath 2050 the airplanes flying in 2050 should have 75% CO2 reduction per passenger-kilometer. To achieve this goal, new technologies as well as novel aircraft concepts need to be developed. Electric or hybrid electric aircraft, active flow control technologies, active load alleviation technologies, bionic airframes and novel aircraft configurations such as blended wing body are examples of the solutions suggested to achieve the mentioned goals for the design of future aircraft. The focus of this project is to investigate the potentials of Hydrogen driven propulsions to realize emission-free aviation. To achieve this goal, a hydrogen driven mid-range passenger aircraft should be designed and the

impact of the novel technologies on its performance need to be evaluated. The design includes both conceptual design and multidisciplinary design optimization.

Who we are looking for:

The requirements for this position are as follows:

- A Master of Science degree in aerospace engineering.
- Knowledge of aircraft design.
- Knowledge of multidisciplinary design optimization.
- Strong programming skills (Python).
- Excellent communication skills in spoken and written English.
- Creativity, positive attitude, and perseverance.

Application Process:

Applications should be sent by e-mail to Prof.Dr. Ali Elham (a.elham@tu-braunschweig.de) and must contain the following documents.

- Motivation Letter
- Curriculum Vitae including complete address, phone number, email address, educational background, language skills, and work experience
- Copies of bachelor and master diploma and transcript of grades (and English translation if the original documents are not in English)
- Additional Documents must be provided on request

All documents should be in PDF format, preferably in a single file. Personal data and documents relating to the application process will be stored electronically. The deadline for applications is March 31th 2021.