

PhD-Researcher Position within the Cluster of Excellence SE²A (ExC 2163)

Synthetic Fuel Combustion for Aviation Application

Temporary Position (3 years), Salary Level EG 13 TV-L, 75 - 100%

Background:

The Cluster of Excellence *SE²A - Sustainable and Energy-Efficient Aviation* is a DFG-funded interdisciplinary research center investigating potentially new technologies for a sustainable future air transport system. Scientists in an interdisciplinary team from TU Braunschweig, LU Hannover, and other groups are working together in this extraordinary scientific undertaking.

Employment:

The position is located at the *Institut für Technische Verbrennung* (www.itv.uni-hannover.de) at *Leibniz University Hannover*. The entry date is as soon as possible, and the duration is initially limited until the end of 2025 with chance of prolongation for one year. The position is part-time suitable. Active participation in SE²A's own doctoral program is offered and required. The payment is according to EG 13 TV-L with 75% for the initial phase (6 month) and later up to 100%, if scientific and project management abilities are proved. International applications are welcome, if knowledge of German and English is given. Applications from female candidates are welcome. Where candidates have equal qualifications, preference will be given to female applicants. Candidates with handicaps will be preferred if equally qualified. Please enclose a proof.

Task:

Within the project "Synthetic Fuel Combustion for Aviation Application" experimental and to a minor extend numerical investigations shall be conducted to find and evaluate suitable new electro-fuels for potential application in future green house gas free clean aviation which is based on lean premixed combustion concepts. Especially the reactivity, self-ignition and flame stability limits of different electro-fuels and fuel mixtures will be investigated experimentally as a function of temperature, pressure and equivalence ratio. Strong cooperation with our partners of reaction modelling is given. The basic experimental test-rig is operating. A high-pressure test-rig will be build up.

- Setup of an improved heating system for the experimental test rig.
- Measurements of flame stability limits and self-ignition for varied fuel/air mixtures and elevated temperatures and later elevated pressures for e-fuels, being potentially suitable for future clean aviation concepts.
- 3D-simulation of detailed flow and reaction processes is possible as option.
- Evaluation of the application potential for aviation engines.

- Project management and reporting as well as publication of results is strongly expected.
- With 15 percent of time teaching of students (exercise classes, labs, student theses) is obligatory.
- Strong support for research and for PhD will be given to engaged candidates.

Who we are looking for:

- Students of Mechanical Engineering / Aeronautics / Chemical Engineering / Environmental Engineering or related fields with Master or Diploma degree with good or very good results.
- Proven ability for experimental work in combustion or fluid mechanics or aeronautics is required.
- Good analytical skills are required. Preknowledge in combustion fundamentals is desired.
- Knowledge of German and English language.
- The position is available only for potential PhD candidates which fulfill the entrance conditions according to the Doctoral Degree Regulations of the Faculty of Mechanical Engineering at LU Hannover (see www.maschinenbau.uni-hannover.de/promotion-und-habilitation.html).

Application Process:

Applications should be sent by e-mail to (dinkelacker@itv.uni-hannover.de) or mail (Prof. Dr. Friedrich Dinkelacker, Institut für Technische Verbrennung, Leibniz Universität Hannover, An der Universität 1, 30823 Garbsen, Germany) until 15.11.2022 and must contain the following documents:

- Motivation Letter
- Curriculum Vitae including complete address, phone number, email address, educational background, work experience and language skills
- List of publications (if available)
- Copies of school graduation certificate, bachelor and master diploma and transcript of grades in original language and in english or german translation.

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.

Please note that application costs cannot be refunded.