Technische Universität Braunschweig - Institute of Internal Combustion Engines and Fuel Cells

With more than 15,000 students and 3,800 employees, the Technische Universität Braunschweig is one of Germany´s leading institutes of technology. It stands for strategic and performance-oriented thinking and acting, relevant research, committed teaching, and the successful transfer of knowledge and technologies to the economy and society. We consistently advocate for family friendliness and equal opportunities. Our research focuses are mobility, engineering for health, metrology, and city of the future. Strong engineering and natural sciences are our core disciplines. These are closely interconnected with economics, social and educational sciences and humanities. Our campus is located in the midst of one of the most research-intensive regions in Europe. We work successfully together with over 20 research institutions in our neighborhood as we do with our international partner universities. Starting from the earliest possible date, the Institute of Internal Combustion Engines and Fuel Cells is looking for a

Doctoral candidate (m/f/d) in the field of mechanical engineering: Simulation of phase change cooling strategies for low-temperature PEM fuel cells in aviation

(E13 TV-L, full-time) The position is to be filled on a fixed-term basis for an initial period of 2.5 years. The successful applicant will be given the opportunity to pursue a doctorate. This research is part of the EU Horizon project EFACA, short for "Environmentally Friendly Aviation for All Classes of Aircraft", which aims to further develop low-emission aviation in a wide range of areas of aviation technology. As part of the work package at ivb, a demonstrator for fuel cell cooling using phase change and compressors is being set up, and phase change cooling and novel gas diffusion layer concepts are being simulated in the aviation context.

City: Braunschweig; Starting date (earliest): At the earliest possible; Duration: 2,5 years; Remuneration: EG 13 TV-L; Closing date: 15/02/26

Tasks

- Further development and optimization of existing models of phase change cooling with compressors for fuel cells
- Integration of the models for the cooling system and fuel cell system into a flight mechanics model to investigate the expected thermal efficiency of various fuel cell cooling strategies using exemplary flight missions
- Validation of the models using experimental data obtained from our institute's own cooling system demonstrator
- Participation in the EU project EFACA by writing sub-project reports and discussing the results at consortium meetings
- Publication of research results in renowned journals and presentation of results at national and international conferences
- Participation in the design and application for follow-up projects with the prospect

of follow-up funding if successful.

Requirements

- Education: Master's degree in mechanical engineering, energy technology, aeronautical engineering or a closely related field.
- Skills:
    - In-depth knowledge of thermodynamics and energy systems o Knowledge of modelling and simulation of thermal systems with Modelica, Engineering Equation Solver, Matlab Simulink or comparable software
    - Excellent analytical and problem-solving skills
    - Knowledge of flight mechanics, hydrogen technologies and/or fuel cells is highly advantageous
    - Other: Strong written and oral communication skills in English. Knowledge of German is an advantage but not essential.

What we offer

- Work in a state-of-the-art research environment with access to the latest facilities, including fuel cell test benches, thermal test benches, mass spectrometry equipment and hydrogen liquefaction systems
- Collaboration on high-impact projects with partners from academia and industry addressing critical challenges in hydrogen mobility and sustainability
- Participation in interdisciplinary research in the fields of mechanical engineering, materials science, aeronautical engineering and energy systems
- A vibrant campus life in an international atmosphere with lots of intercultural offers and international cooperations
- Pay in accordance with the collective agreement TV-L (a special payment at the end of the year as well as a supplementary benefit in the form of a company pension, comparable to a company pension in the private sector) including 30 days' vacation per year
- Flexible working and part-time options and a family-friendly university culture, awarded the "Family-friendly university" audit since 2007
- Special continuing education programs for young scientists, a postdoc program, as well as other offerings from the Central Personnel Development Department and sports activities.

Application

We welcome applicants of all nationalities. At the same time, we encourage people with severe disabilities to apply. Applications from severely disabled persons will be given preference if they are equally qualified. Please attach a proof of disability to your application. We are also working on the fulfilment of the Central Equality Plan based on the Lower Saxony Equal Rights Act (Niedersächsisches Gleichberechtigungsgesetz—NGG) and strive to reduce under-representation in all areas and positions as defined by the NGG. Therefore, applications from women are particularly welcome in this case.

The personal data will be stored for the purpose of processing the application. By submitting your application, you agree that your data may be stored and processed electronically for application purposes in compliance with the provisions of data protection law. Further information on data protection can be found in our data protection regulations at https://www.tu-braunschweig.de/datenschutzerklaerung-bewerbungen .

Application costs cannot be reimbursed.
Application process: Interested candidates should submit the following:

1. A cover letter explaining their motivation and relevant experience.
2. A detailed CV, including academic achievements and any publications
3. Copies of transcripts and certificates
4. Contact information for two academic references

Questions and answers
Do you have any questions? Michael Heere will be happy to answer them by telephone on (0531) 391-66902.

Apply by 15 February 2026

If we have sparked your interest, please send your application with relevant documents in PDF format, preferably by email to m.heere(at)tu-braunschweig.de

or by post to

TU Braunschweig
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More information at https://stellenticket.de/201110/TUB/
Offer visible until 15/02/26