



With around 17,000 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 01.02.2024, the Institute of Space Systems (IRAS) is looking for a

## Research and Assistant position (m/f/d) in the field of “Space Transportation”

(EG 13 TV-L, full-time)

The position is to be filled on a fixed-term basis for a period of three years. The successful applicant will be given the opportunity to pursue a doctorate.

Cryogenic in-space propulsion is a new challenging field of research at the Institute of Space Systems (IRAS) at the Technische Universität Braunschweig. Due to the high specific impulse and availability in space, cryogenic propellant combination is highly suited to be used for in-space transportation vehicles. Together with the challenges that have to be addressed when considering in-space applications such as smaller size engines and harsh thermal environment, a new ecosystem has to be considered in order to make long-term cryogenic propulsion effective at working level. Here, concepts for refuelling stations, maintenance and storage of cryogenic propellants have to be developed.

Such systems have a high degree of complexity and therefore a coupling analysis between propellant handling and transfer must be performed. This includes designing hardware in the loop simulation to ensure compatibility and compliance.

For these reasons, we are opening at the Institute of Space Systems (IRAS) a new position which aim to exploit the building blocks for the creation of a new ecosystem for in-space transportation, combining the challenges provided by in-space propulsion, thermal management and in orbit servicing.

### Your tasks

- You will carry out research in the area of in-space transportation systems.
- You will develop, design and test a zero-boil off system for space environment conditions.
- You will develop hardware in the loop simulation for transport systems.
- You will define requirements for transportation vehicles using the ELISSA Laboratory at the Institute of Space Systems.
- You will apply for and work on research projects.
- You will publish research findings and participate in national and international conferences.
- You will be involved in teaching at the University (preparation and implementation of courses as well as supervision of students' work).

### Your Qualifications

- You have a degree (Master's or equivalent) in Aerospace, Mechanical, Physics, or related engineering fields.
- You have very good knowledge of the German and English language.
- You have experience MATLAB, Python and C++.

- You have experience in developing hardware in the loop simulations.
- You have experience in Robotic Operating Systems.
- You have background experience in space propulsion (e.g., mission design, experimental test).
- You are flexible, can perform under pressure and work well in a team.
- You are aiming for a doctorate.
- Previous experience with ELISSA Laboratory at the Institute of Space System is appreciated.

## We offer

- Work on exciting future-oriented research topics in an inspiring work environment as part of the university community
- 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.

## Further notes

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 form of evidence of your handicap 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 woman 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.

## Questions and Answers

For more information, please call Prof. Dr.-Ing. Simona Silvestri on +49 (0) 531 391-9960.

## Deadline for applications is 15.12.2023

Are you interested? Please send your application preferably via email to [aerospace@tu-braunschweig.de](mailto:aerospace@tu-braunschweig.de)

or via mail to

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