



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 01.02.2025, the Institute of Space Systems (IRAS) is looking for a

## Research and Assistant position (m/f/d) in the field of "Space Propulsion" (EG 13 TV-L, full-time)

We are pleased to announce a fixed-term position available for a period of three years, providing the successful candidate with the opportunity to pursue a doctorate.

The Institute of Space Systems (IRAS) at Technische Universität Braunschweig is exploring the innovative and challenging field of cryogenic in-space propulsion. Given its high specific impulse and potential for availability in space, cryogenic propellant combinations are highly suitable for use in in-space transportation vehicles.

While cryogenic propellants are commonly utilized in large launch vehicles, significant new challenges emerge when considering their application in space, including the need for compact engine designs, the harsh thermal environment, and the capability for multiple restarts. A particularly pressing issue is achieving reliable ignition of cryogenic propellants in space. Despite noteworthy advancements in ignition technologies such as laser ignition systems, spark torches, and pyrophoric igniters, the mechanisms behind resonance igniters remain not fully understood.

To address these critical challenges, we are opening a new position at the Institute of Space Systems (IRAS) focused on investigating the working mechanisms of resonance igniters under space conditions.

### Your tasks

- You will carry out research in the area of in-space propulsion systems.
- You will develop, design and test a resonance igniter.
- You will design, build and test an experimental set-up for space environment conditions.
- You will plan, evaluate and execute test activities at TU Braunschweig.
- You will document and present results for technical reviews (CDR, QR).
- You will apply for and work on research projects.
- You will publish research findings and participate in national and international conferences.
- You will be responsible for the planning, implementation and evaluation of training courses for national and international customers.
- 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 a good understanding in thermodynamics, fluid dynamics, gas dynamics and combustion mechanisms.

- You have experience MATLAB and Ansys and CAD Software.
- 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.

## 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 16.10.2024

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

or via mail to

Technische Universität Braunschweig  
Institut für Raumfahrt Systeme  
Hermann-Blenk-Straße 23  
38108 Braunschweig