

The Brandenburg University of Technology Cottbus-Senftenberg (BTU) is a young, up-and-coming university and the only technical university in the state of Brandenburg. With more than 1,500 employees, the BTU is one of the largest employers in Lusatia and makes a significant contribution to shaping the structural transformation with its combination of fundamental and application-oriented research.

We would like to strengthen our team at the **Chair of Control Systems and Network Control Technology** at the BTU Cottbus-Senftenberg and are therefore looking for **three** excellently qualified and ambitious

Research Associates/PhD Students (m/f/d)

Full-time, **E13 TV-L**, temporary for 3 years

Reference number: 154/21

Hybrid-electric as well as battery-electric propulsion technologies offer the possibility to partially or completely displace fossil fuels from regional aviation. To achieve the economic goals of environmentally friendly, safe, and competitive aviation, a holistic systematic approach to the design of electrified flight propulsion systems is necessary. Due to the significantly higher system complexity, this results in substantial new requirements for the control systems used for energy and power management. To accomplish this, we need your creative ideas and support!

The research will be carried out as part of the LuFo joint project "Safe and reliable electrical and thermal networks for hybrid-electric drive systems (ETHAN)". The project is integrated into the "[Center for Hybrid Electric Systems Cottbus \(CHESCO\)](#)".

These are your tasks:

Performing scientific work in the **field of control and operation of highly integrated electro-thermal systems of future electrified flight propulsion systems**. The respective research focus of the three positions are:

- 1. Predictive energy management system;**
- 2. Intelligent power control system for the electrical grid components;**
- 3. Real-time fault detection system for the propulsion components.**

Other activities include:

- Lecturing and publication activities on the respective research topic, preparation of contributions for reports and presentations
- as well as other research-related administrative tasks within the scope of the research project.

What you bring with you:

- A completed scientific university degree (accredited master's degree/university diploma/equivalent) in a field relevant to the job (electrical engineering, power engineering, physical engineering, aerospace engineering, or similar).

- Profound knowledge of control engineering and/or in optimization methods and/or energy systems engineering
- Desire for professional and personal development, especially for doctoral studies
- Experience in Matlab/Simulink and/or at least one higher programming language (preferably C++, Python or Julia)
- Ability to work scientifically, independently and flexibly
- Good communication skills and enthusiasm for teamwork
- Interest in applied research in the areas of control and analysis of complex systems as well as intelligent operation of future energy systems - in the air and also on the ground
- Very good English and German language skills

For further information please contact Prof. Dr.-Ing. Johannes Schiffer; E-Mail: johannes.schiffer@b-tu.de

We offer you:

- Exciting and varied tasks in a highly innovative research project led by Rolls Royce Germany and several partners at the BTU as well as at five other universities
- Modern infrastructure with high development and design potential as well as an international team
- Participation in international conferences with corresponding publications
- Extensive opportunities for flexible working hours, such as home office, to enable a better work-life balance and to achieve higher work and result satisfaction through more self-responsibility in the design and execution of your work
- Participation in the design of follow-up projects

Become a part of the BTU family. We look forward to getting to know you.

The BTU Cottbus-Senftenberg is committed to equal opportunities and diversity and strives for a balanced gender ratio in all employee groups. Persons with a severe disability as well as persons of equal status will be given priority in the case of equal suitability.

Application photos are not required.

Please note the detailed information on the selection procedure on the BTU Cottbus-Senftenberg website.

Please send your application documents in PDF format (with a maximum of 5 MB), **indicating the reference number and your preferred research focus (1-3)**, exclusively by e-mail to the **Dean of the Faculty of Mechanical Engineering, Electrical and Energy Systems, Brandenburg University of Technology Cottbus-Senftenberg**, E-mail: fakultaet3+bewerbungen@b-tu.de by 18.01.2022.

