

Cluster of Excellence SE²A - Sustainable and Energy Efficient Aviation

Junior Research Group Lead (m/f/d):

Socio-ecological Interaction of Air Transport System

(EG 14 TV-L, 100%, 4 years, for the next possible date)

Motivation: TU Braunschweig has defined one of its core research areas to create safe, efficient and sustainable mobility for the future (<https://www.tu-braunschweig.de/en/mobility-1>). In aviation research, we follow an interdisciplinary research concept, jointly with DLR and Leibniz University Hannover, within the Cluster of Excellence “SE²A - Sustainable and Energy Efficient Aviation” (EXC 2163). The Cluster defines scientific and technological foundations for a sustainable future global air transport system to meet the mobility demands. It defines solutions for transformation needs of the air transport system by introducing new aircraft technologies, new energy storage and conversion approaches, and fundamental evaluations of the overall aviation system. (<https://www.tu-braunschweig.de/en/se2a>).

Approach: The Cluster of Excellence is structured into the three core research areas, namely “Assessment of the Air Transport System”, focusing on Operations Research, technology assessment and life cycle analysis, “Flight Physics and Vehicle Systems” for new aircraft technologies in flight physics and aircraft structures, and “Energy Storage and Conversion”, focusing on vehicle energy storage and conversion systems and full- and hybrid-electric aircraft drive systems. The Cluster has established Junior Research Groups (JRG) as an effective means to generate effective thrusts in critical research fields. We therefore search for JRG leads with a doctoral degree and a strong research background in their respective fields for the next possible date.

The JRG “Socio-ecological Interaction of Air Traffic System” will be part of the core research area “Overall System Evaluation”. Addressing social and environmental issues is central to an accurate holistic assessment of the air transportation system (ATS). This provides the basis for designing an effective and efficient transition to a sustainable system. The JRG will be comprised of the lead and 2 doctoral candidates, funded initially for 4 years as part of the overall project. The group will work in close collaboration with related research efforts planned in the field of system evaluation and optimization, life cycle engineering, air traffic and airport management, as well as noise assessment. Therefore, we expect a full commitment to undertaking interdisciplinary research.

Expected research focus: Of key importance for the future of aviation is what basket of technological, operational and political measures should be deployed over time in order to cut down emission to a significant extent despite rocketing air travel demand while ensuring safe, seamless and cost-effective operation. Especially against the background of disruptive global changes, it is essential to consider social and ecological interactions. These would have to find their way into a model-based assessment of the ATS. Such a holistic assessment strives to achieve a thorough understanding of the mechanisms by which the development of the ATS can be steered in order to derive recommendations on its future design and operation. The JRG's methods and research should support and enrich system dynamics and agent-based models for analyzing the behavior of the entire ATS, as well as multicriteria optimization models for selecting and allocating actions over time. We are therefore looking for experts in socio-ecological interaction of mobility systems, ideally with a focus on aviation and sustainability, who are open to close collaboration with Operations Research and Management Science.

Qualifications: The Junior Research Group lead must hold, beside a completed scientific higher education (master, university diploma), a PhD and is expected to have an excellent record of publications in good venues in their field, international exposure and have participated in competitive research projects.

Application Process:

Please send a complete written application in English as a single PDF file to: se2a@tu-braunschweig.de.

Applications have to consist of a cover letter (statement of purpose, including your motivation), your idea of methodical and contextual contribution to the project (length about two pages), full CV, academic certificates and transcripts (bachelor, master, and PhD), and other supporting certificates.

Please check our website www.tu-braunschweig.de/se2a for further details and detailed description of the available positions linked to the JRG topics. Please specify in your application which JRG you are applying for. We thank all applicants, but only short-listed candidates will be contacted.

The deadline for submitting applications is the 31st of May 2022.

For further questions, please contact: Prof. Dr.-Ing. Sabine C. Langer, s.langer@tu-braunschweig.de, +49 531 391 8770

Benefits: We offer a fixed-term full-time contract with an average weekly working time of 39.8 hours for a period of up to four years. The payment will be according to task assignment and fulfillment of personal requirements up to salary group 14 TV-L. Contracts include health, retirement and unemployment benefits.

At TU Braunschweig we appreciate a team-oriented and communicative style of work. Gender Equality is an important factor for us. We aim to increase the share of women in academic positions and therefore particularly welcome applications from women. We support all our academics in their scientific and personality development and we offer a family-friendly workplace. Applications from international scientists are welcome. International applicants may have to successfully complete a visa process before hiring can take place. Severely disabled persons with equivalent qualifications will be given preference. Please attach a form of evidence of your handicap to your application. Your personal data will be saved for the application procedures. Application costs cannot be reimbursed.