TUD Dresden University of Technology, as a University of Excellence, is one of the leading and most dynamic research institutions in the country. TUD has established the Research Training Group "AirMetro - Technological & Operational Integration of Highly Automated Air Transport in Urban Areas" (RTG 2947), funded by the German Research Foundation (DFG). This interdisciplinary group, involving five faculties and the German Aerospace Centre (DLR), will conduct research on 11 research topics with 22 PhD candidates in the first funding period (05/2024 to 04/2029). The goal is to address the technical and social challenges of Advanced Air Mobility (AAM), considering ecological, economic, technological, and sociological factors. The RTG's structured PhD program aims to train young researchers in highly automated, networked mobility, featuring international collaboration with mentors from the USA, Asia, and Europe. TUD and the RTG embody a university culture that is characterized by cosmopolitanism, mutual appreciation, thriving innovation and active participation. For TUD diversity is an essential feature and a quality criterion of an excellent university. Accordingly, we welcome all applicants who would like to commit themselves, their achievements and productivity to the success of the whole institution.

The **Research Training Group RTG 2947 "AirMetro"**, funded by the DFG, offers a position, subject to the availability of resources, as

Research Associate / PhD Student (m/f/x)
(subject to personal qualifications employees are remunerated according to salary group E 13 TV-L)

starting **as soon as possible**. The position is limited until April 30, 2028. The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz - WissZeitVG). The position aims at obtaining further academic qualification (usually PhD).

Job ID:	**RTG2947-T7**
Title:	Microclimatic effects: Weather-robust UAS flight planning and operation
Investigators:	Dr.-Ing. habil. Judith Rosenow, Chair of Air Transport Technology and Logistics and co-supervised by at least one additional professor plus an international tutor of the RTG
Requirements:	very good or good university degree in physics, meteorology, fluid dynamics or comparable

Description of the PhD topic: (subproject T7) In Urban air mobility, a high wind sensitivity of UAVs as well as a sensitive interaction of the natural frequency of the UAVs with the surrounding turbulence are expected. These boundary conditions must be considered in the regulatory Certification Specifications. The PhD topic consists of two parts, the weighting of which can be adjusted. First, natural frequencies of different UAV categories for different power settings shall be modelled. Second, based on mesoscale fluid dynamic simulations, microclimatic and turbulence modelling procedures in urban environments shall be performed. Subsequently weather-and turbulence-related limit values shall be formulated and compared with corresponding verifications (e.g., stable flight behavior at wind speeds of up to 14 m/s and high turbulence).

Tasks: Independent and cooperative qualification through scientific research within one of the PhD study projects on offer; training in the technical tasks of the individual dissertation topics through study of the literature and in making the objectives more precise; working on the individual PhD study project with experimental, numerical, metrological or empirical focus in collaboration with other RTG members (fellow students and supervising professors); implementation of the planned research

program, evaluation and interpretation of the results and transferring them to a RTG internal exchange platform, elaboration and presentation of the state-of-the-art in the respective research fields; participation in lectures, workshops and summer schools according to the guidelines of the RTG curriculum; supporting scientific graduation work (Bachelor/Master/Diploma) in the subject-specific research field; regular reporting on research progress to the supervising professors; publishing the results of the research work individually and in concert with others; cooperative maintenance of exchange platforms (database, information pages, etc.); summarizing the results of the individual PhD study project in a dissertation.

Successful candidates will work together with approx. 18 PhD candidates at the Chair of Air Transport and Logistics and together with other chairs being part of the RTG.

General Requirements: We are looking for first-class graduates with expertise in the RTG-addressed PhD subjects, high interdisciplinary desire to learn and willingness to cooperate, very good verbal and written English communication skills.

What we offer:

- **Pioneering Research Environment:** Shape the future of advanced air mobility through involvement in innovative drone-related projects that bridge technology, urban planning, material sciences, sensors and aviation. With the upcoming Smart Mobility Lab in Lusatia, Saxony, you will have access to state-of-the-art and extensive facilities for experiments. This includes a hall measuring 100x100x30 meters and outdoor space (available from 2026).
- **Cross-Disciplinary Collaboration:** Immerse yourself in a highly collaborative and interdisciplinary research environment, where you'll work alongside experts from fields such as engineering, data science, urban studies, and aerospace.
- **Skill Development:** Our extensive qualification concept goes beyond research, offering targeted training in drone technology, data analytics, regulatory aspects, project management, and leadership skills. This ensures you graduate not only as a specialist in your field but also as a well-rounded professional.
- **Global Networking:** Collaborate with our network of local and international partners, fostering connections that transcend geographical boundaries and enrich your academic and professional network. This includes a research stay abroad.
- **Career Advancement:** Receive dedicated support for fellowship applications and tailored guidance for your career.
- **Quality of Life in Dresden:** Experience a high quality of life in Dresden, with its dynamic urban scene, relatively affordable living, rich cultural offerings, and vibrant nightlife.

Further questions regarding the open PhD positions can be discussed with the supervisor, Dr.-Ing. habil. Judith Rosenow (judith.rosenow@tu-dresden.de).

TUD strives to employ more women in academia and research. We therefore expressly encourage women to apply. The University is a certified family-friendly university and offers a Dual Career Service. We welcome applications from candidates with disabilities. If multiple candidates prove to be equally qualified, those with disabilities or with equivalent status pursuant to the German Social Code IX (SGB IX) will receive priority for employment.

Please submit your detailed application including a cover letter detailing your research interests stating the **job-ID "RTG 2947-T7"** along with your curriculum vitae, academic transcripts with marks, a letter of recommendation and your publications (if applicable) by **July 2, 2025** (stamped arrival date of the university central mail service or the time stamp on the email server of TUD applies), preferably via the TUD SecureMail Portal https://securemail.tu-dresden.de by sending it as a single PDF file to **airmetro@tu-dresden.de** or to: **TU Dresden, RTG 2947, Herrn Prof. Dr. Hartmut Fricke,**

Helmholtzstr. 10, 01069 Dresden, Germany. Please submit copies only, as your application will not be returned to you. Expenses incurred in attending interviews cannot be reimbursed.

DRESDEN concept

Reference to data protection: Your data protection rights, the purpose for which your data will be processed, as well as further information about data protection is available to you on the website: https://tu-dresden.de/karriere/datenschutzhinweis.