Technische Universität Dresden - Faculty of Mechanical Science and Engineering, Institute of Aerospace Engineering, Chair of Space Systems

Dresden University of Technology

TUD Dresden University of Technology, as a University of Excellence, is one of the leading and most dynamic research institutions in the country. Founded in 1828, today it is a globally oriented, regionally anchored top university as it focuses on the grand challenges of the 21st century. It develops innovative solutions for the world's most pressing issues. In research and academic programs, the university unites the natural and engineering sciences with the humanities, social sciences and medicine. This wide range of disciplines is a special feature, facilitating interdisciplinarity and transfer of science to society. As a modern employer, it offers attractive working conditions to all employees in teaching, research, technology and administration. The goal is to promote and develop their individual abilities while empowering everyone to reach their full potential. TUD embodies 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.

Research Associate / PhD Student (m/f/x) within the MSCA Doctoral Network SLICE

At the Faculty of Mechanical Science and Engineering, Institute of Aerospace Engineering, the Chair of Space Systems offers a full-time project position as Research Associate / PhD Student (m/f/x) within the MSCA Doctoral Network SLICE (due to funding, the salary is calculated according to MSCA regulation) starting October 1, 2026. The position is limited to 36 months (max. until 12/2029). The period of employment is governed by § 2 (2) Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz – WissZeitVG).
About the Individual Research Project (IRP): Problem Definition: The influence of emissions caused by ablation/demise on the atmosphere and is directly dependent on the propagation of those residuals along the flight path. The investigation of the temporal and spatial distribution of the generated emissions in the atmospheric layers after the re-entering launch vehicle has passed through is therefore crucial for drawing conclusions about their climate impact.

City: Dresden; Starting date (earliest): 01/10/26; Duration: 36 months (max. until 12/2029); Remuneration: due to funding, the salary is calculated according to MSCA regulation; Reference number: Application for DC9 position; Closing date: 31/03/26

Working field

Research Objectives:
— Definition of a suitable interface region based on the results from other IRP.
— Numerical analysis of the emission propagation in the near field of the re-entering vehicle.
— Multiscale simulations of the downstream expansion behaviour of the residuals for different atmospheric layers.
— Definition of suitable interfaces to process data for the climate models.
Expected Results:

— Ability to assess the influence of demise process on the release of emissions into different atmospheric layers.
— Numerical model to describe the temporal and spatial dispersion behaviour of ablated gases in the atmosphere.
— Derivation of parameters necessary for the calculation of regional atmospheric effects.
Secondments:
— von Karman Institute for Fluid Dynamics (VKI, Sint-Genesius-Rode, Belgium, ca. 3 months): definition of common model interfaces
Astos Solutions GmbH (ASTOS, Stuttgart, Germany, ca. 3 months): coupling with trajectory profiles

Requirements

— university degree (MSc or equivalent) in the field of aerospace engineering, physics or similar
— solid knowledge of Physical and Analytical Chemistry (phase changes), Computer Science and Informatics (Numerical Analysis; simulation, optimization and modelling tools; Computational Fluid Dynamics (CFD)), Product and Processes Engineering (Space Engineering), Condensed Matter Physics (Fluid mechanics and dynamics) and Applied Physics (atmospheric entry flows)
— ability to work efficiently and self-reliantly in a diverse inter-disciplinary and multi-cultural environment
— ability to work in a team as well as independently
— ability to solve complex problems with adherence of strict deadlines
— proactive attitude
— excellent communication skills (both written and verbal) in English to derive the full benefit from the network training
— as secondments and events are foreseen, applicants must be ready to travel
— Applicants must be eligible to enroll on a PhD program at TU Dresden (see https://tu-dresden.de/ing/maschinenwesen/postgraduales/promotion?set_language=en)
— knowledge in EcoDesign, climate sciences and life-cycle assessments
— project management
— knowledge of the host institution language is a plus
Applicants can be of any nationality.
Candidates may apply prior to obtaining their master’s degree, but cannot receive an employment contract before having obtained the master degree.
Candidates may apply to multiple positions offered within SLICE, but should carefully choose the ones that they apply for.
In addition:
Horizon Europe MSCA Mobility Rule: Researchers must not have resided or carried out their main activity (work, studies, etc.) in the country of the host organization (Germany) for more than 12 months in the 36 months immediately before the recruitment date – unless as part of a compulsory national service or a procedure for obtaining refugee status under the Geneva Convention.
Horizon Europe MSCA Eligibility Criteria: Doctoral Candidates (DC) must, at the date of recruitment by the host organization, have not been awarded a doctoral degree.
Applicants who do not fulfill the Mobility Rule and the Eligibility Criteria CANNOT be considered for the research position.

What we offer

— You will be working within our international group of > 30 researchers with experience in a broad range of sciences.
— You will get in contact with the other members of this international consortium.
— You will benefit from the well-structured training program offered by the host institution and the SLICE consortium to develop skills and thorough understanding of space transportation systems and their environmental impact.
— A competitive salary plus allowances. Moreover, funding is available for technical and personal skills training and participation in international conferences.
— You will participate in international conferences and secondments to other organisations within the SLICE network and in outreach activities targeted at a wide audience.
— A competitive salary according to MSCA regulations (see page 118ff, https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2023-2024/wp-2-msca-actions_horizon-2023-2024_en.pdf), including a living allowance, a mobility allowance and, if eligible, a family allowance. The stated allowances represent the gross funding amounts. Employer contributions to social security, health insurance, and other statutory costs will be deducted in accordance with the applicable national regulations.

Application

Please find additional information in the Information package for Marie Curie fellows in doctoral networks (https://op.europa.eu/s/z831).
Selection Procedure:
For the selection procedure, the SLICE consortium will appoint a Recruitment Committee (RC) for each position. The selection will be carried out in two consecutive stages. In the primary selection, the RC evaluates all submitted application documents. Eligible candidates of sufficient quality will be shortlisted. In the final selection, short-listed applicants are invited to interviews, held either in person at the host institution or via video-conference, and to complete a position-specific task. Both inter-views and tasks are evaluated against predefined criteria, leading to a ranked list of candidates. Final decisions are made by consensus within the RC. Applicants will be informed about rejection or admission to the interview stage by mid of April 2026, and final outcomes will be communicated by the end of June 2026. The employment and relocation phase will then start immediately, allowing sufficient time for contracting, visa applications, and relocation before the official start of the DC projects in October 2026.
Timeline:
Application deadline: March 31, 2026
Primary Selection: April 30, 2026
Final Selection: June 30, 2026
Starting date: October 1, 2026
For additional information about the research project and this individual position, please contact: slice@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. 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.
How to apply: Please submit your detailed application with the
— Application Form (https://www.verw.tu-dresden.de/VerwRicht/Formulare/download.asp?file=SLICE_Application_Form.pdf)
— Cover letter
— an evidence-based CV that reflects a representative array of achievements and qualifications appropriate to the position you are applying for
— Reference letters or, at minimum, the contact details of persons that may be contacted for reference
— educational and professional certificates (university degree(s) with marks, internships, work-shops, languages, etc.)
— and a short video (maximum 30 seconds, not longer, including personal introduction, background and your motivation to apply to the research position, the video may need to be sent in a separate email)
by March 31, 2026 quoting the reference “Application for DC9 position” (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 slice@tu-dresden.de or to:
TU Dresden, Chair of Space Systems, Dr.-Ing. Christian Bach, Helmholtzstr. 10, 01069 Dresden, Germany.
The email size of each e-mail incl. attachments must not exceed 10 MB in total.
Please submit copies only, as your application will not be returned to you. Expenses incurred in attending interviews cannot be reimbursed.
We in the SLICE consortium value diversity and we commit to equal treatment of all applicants irrespective of gender, sexuality, health status as well as social, cultural or religious background.

TUD is a founding partner in the DRESDEN-concept alliance.

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.
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More information at https://stellenticket.de/199868/HTWB/
Offer visible until 31/03/26