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

Technische Universität Dresden

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 (m/f/x) within the STEP-Junior research group “FUNgiSpace”

(subject to personal qualification, employees are remunerated according to salary group E 13 TV-L) At the Faculty of Mechanical Science and Engineering, Institute of Aerospace Engineering, the Chair of Space Systems offers, subject to the availability of resources, a full-time position as Research Associate (m/f/x) within the STEP-Junior research group “FUNgiSpace” starting November 1, 2026. The position is limited to 24 months. The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz – WissZeitVG). The position offers the chance to obtain further academic qualification.

City: Dresden; Starting date (earliest): 01/11/26; Duration: The position is limited to 24 months.; Remuneration: subject to personal qualification, employees are remunerated according to salary group E 13 TV-L; Reference number: Application for FUNgiSpace; Closing date: 31/08/26

Tasks

About the STEP-Early-career research group “FUNgiSpace”: FUNgiSpace investigates the untapped potential of the bioeconomy: the innovative utilization of waste materials from edible mushroom production to create high-quality bio-based materials for demanding technical applications and products with high added value. The focus is on the use of mushroom substrates (a solid composite of mycelium and wood fibers), which already possess fire-retardant, hydrophobic, and heat- and sound-insulating properties. Through the development of suitable processing methods and their targeted integration into existing material systems, novel functionalized material solutions are being created for lightweight construction, building components, packaging, paper technology and aerospace.

Tasks:

- screen and select suitable fungal species and substrates, optimize cultivation conditions, and characterize mycelial growth, substrate degradation and fungal vitality
- evaluate agricultural, textile and mushroom-production residues and develop tailored cultivation processes for producing sustainable mycelium-based materials
- apply principles of bioeconomy, cascading use and resource-efficient circular production throughout the material development process
- characterize and optimize the resulting materials regarding mechanical properties, fire performance, moisture resistance, mycelium distribution and biological activity
- analyze requirements, standards and potential applications for mycelium-based systems on the Moon, Mars and space stations, including building materials, biological recycling processes and food-related applications
- develop, manufacture, test and optimize functional prototypes for selected space applications, incorporating feedback from interdisciplinary researchers and external experts
- contribute to interdisciplinary project coordination, knowledge transfer and the dissemination of results to the scientific and industrial communities
- mandatory training in the areas of gender equality, teaching, social skills and project management
- document, publish and present the research results

Requirements

- you have a university degree (MSc or equivalent) in aerospace engineering, materials science, biotechnology, engineering or a related field.
- your last degree was not obtained before April 1, 2020. In case of parental leave, the period is extended by two years per child born between the completion of your degree and April 1, 2026
- you have a strong interest in and, ideally, prior knowledge in bioeconomy, circular economy, cascading use, sustainable materials and biological systems
- you have a strong interest in and, ideally, prior knowledge of space systems and in-situ resource utilization (ISRU)
- you have an interest in working with fungi and ideally prior knowledge of fungal cultivation, mycelial growth and the handling of fungal cultures
- you have experience in material development, experimental testing, biotechnology or prototype development
- you have a creative and solution-oriented mindset and are willing to explore unconventional approaches
- you have an independent, structured and proactive working style, as well as strong teamwork and interdisciplinary collaboration skills
- you have the ability to solve complex problems efficiently and meet project deadlines
- you have very good English skills; German language skills are a plus
  Applicants can be of any nationality.

What we offer

- you will work within our international group of more than 30 researchers with expertise across a broad range of scientific disciplines
- you will join an interdisciplinary junior research group funded by the ESF Plus program
- you will contribute to the development of innovative and sustainable materials for future space applications
- you will have access to research infrastructure for fungal cultivation, material testing and prototype development
- you will have opportunities for scientific qualification, publications and participation in conferences
- you will develop transferable skills that enhance your career prospects in the green economy and resource-efficient industries, including (but not limited to) the space industry
- you will collaborate with academic institutions, research organizations and industrial partners
- you will participate in international conferences, symposia and workshops
- you will benefit from flexible working conditions in a creative and interdisciplinary research environment

Application

TUD strives to employ more women in academia and research. We therefore expressly encourage women to apply. The university is a 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.

Application: Please submit your detailed application with

- cover letter with statement on motivation
- 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, workshops, 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 August 31, 2026 (stamped arrival date of the university central mail service or the time stamp on the email server of TUD applies), quoting the reference “Application for FUNgiSpace”, preferably via the TUD SecureMail Portal https://securemail.tu-dresden.de by sending it as a single pdf file to christian.bach1@tu-dresden.de or to:

  TU Dresden, Chair of Space Systems, Dr.-Ing. Christian Bach, 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.

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.

More information at https://stellenticket.de/206328/HAWK/
Offer visible until 31/08/26