Technische Universität Dresden - Center for Molecular Bioengineering (B CUBE), Chair of BioNano-Tools

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) for a MSCA-DN project

At the Center for Molecular Bioengineering (B CUBE), the Chair of BioNano-Tools offers, subject to the availability of resources, a position as Research Associate / PhD Student (m/f/x) for a MSCA-DN project starting October 1, 2026. The position is initially limited to 24 months max. until November 30, 2028. An extension to allow completion of the PhD project is intended. The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz – WissZeitVG). The PhD student will receive a salary, including a living allowance, a mobility allowance and a family allowance (if eligible). Applicants may be of any nationality. However, at the date of recruitment, the applicant must not have resided or carried out his/her main activity (work, studies etc.) in Germany for more than 12 months in the last 3 years immediately prior to the recruitment.

City: Dresden; Starting date (earliest): 01/10/26; Duration: The position is initially limited to 24 months max. until November 30, 2028.; Remuneration: The PhD student will receive a salary, including a living allowance, a mobility allowance and a family allowance (if eligible).; Reference number: w26-162; Closing date: 31/07/26

Tasks

(i) biochemical preparation of motor proteins, (ii) setup of in vitro motility assays, (iii) development of strategies to mechanically couple molecular motors, (iv) dynamic acquisition of motor-driven movement by high-resolution fluorescence microscopy and/or magnetic/optical tweezers, (iv) quantitative image processing, data analysis and modeling.
The project is funded by the MARIE SKŁODOWSKA CURIE ACTIONS (MSCA) Doctoral Network (DN) MOtorized NAnomachines: fundamentaLs, InnovationS, Applications (MONALISA) within the Horizon 2020 Program of the European Commission

[https://cordis.europa.eu/project/id/101169136]. DN MONALISA, a consortium of nine partners composed of high-profile universities, research institutions and companies located in Europe, will train 15 doctoral candidates in a highly innovative and interdisciplinary scientific network. Scientifically, artificial molecular machine research and technologies are critical fields with the potential to offer significant benefits to chemical synthesis, medical technologies and treatment, smart materials, and nanotechnology. However, due to their novelty, there is a shortage of specialists in this sector, resulting in limited research manpower. With the support of the Marie Skłodowska-Curie Actions program, the MONALISA project will bring together specialists, Nobel laureates, prestigious institutions, and various non-academic partners to develop and implement an innovative training program for doctoral candidates. This extensive, in-depth training from expert researchers will enable the candidates to gain a deep understanding of the field and transform their findings into innovative solutions.
In this research project, the PhD student will aim to reconstitute artificial systems that mimic the oscillatory behavior observed in biological processes. Thereby, the focus will be on designing and investigating systems (i) that involve the bidirectional movement of cargo bound to motor proteins with opposite polarities along microtubules and/or (ii) where two or more microtubules are moved relative to each other by motor proteins, effectively cross-linking these filaments. To delve deeper into the underlying mechanisms, the PhD student will employ various strategies to link and couple motor proteins together within synthetic engineered systems. This may involve introducing mechanical constraints, such as restoring forces, to the system. The PhD student will investigate the minimal set of components that are needed to generate robust oscillations. The outcomes of this research will offer valuable insights for designing innovative, nanoscale systems with controllable, oscillatory behavior.

The key tasks of the PhD student are: (i) to manage and carry out research projects, (ii) to attend and participate in research and training activities within the MONALISA network and local courses, (iii) to write scientific articles and a PhD thesis, as well as (iv) disseminate research in the scientific community.

Requirements

- Applicants should hold a university degree (MSc or equivalent) in in the field of biology, (bio)physics, (bio)chemistry or (bio)engineering and have excellent English skills.
- Applicants should be ambitious, curious, creative, energetic and bright minds with a strong eagerness to take part in the research and training activities of this project. Candidates will be integrated in an international multi-disciplinary team and shall therefore have excellent personal skills and be able to work in a team.
- The position will be located in Dresden, Germany. Secondments to national and international partner groups are envisioned.
- Applicants must, at the date of recruitment, have NOT yet been awarded the doctoral degree and have to be in the first 4 years (full time equivalent) of their research career.
  A career development plan for the PhD student will be prepared in accordance with his/her supervisor and will include training, planned secondments and outreach activities in partner institutions of the network.

What we offer

- the opportunity for engaging and independent work within a flat hierarchy, in an open-minded team and supportive atmosphere
- flexible arrangements for work hours to support a good work-life balance
- 30 days of vacation per year (based on a 5-day workweek)
- extensive opportunities for professional development and continuing education
- health care and sports programs offered by TUD
- a discounted job ticket (also available as a Deutschlandticket)
- participation in the supplementary pension scheme for employees in the public sector via VBL (Federal and State Government Employees Retirement Fund)

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 a motivation letter, CV, publication list and two references by July 31, 2026 (stamped arrival date 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 stefan.diez@tu-dresden.de or to:
TU Dresden, B CUBE, Prof. Stefan Diez, Tatzberg 41, 01307 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/205330/TUD/
Offer visible until 31/07/26