



*Opportunities  
for Talents*

## PhD studentship (m/f/d): Tree Carbon Allocation to the Rhizosphere and Related Microbial Processes under Severe Drought

**Join the new EU-funded FutureForests international doctoral network and undertake an interdisciplinary PhD project with the Plant Ecophysiology group at the TUM School of Life Sciences**

FutureForests aims to train next generation scientists in assessing the impacts of global change on European forests, using a unique network of European flagship field forest facilities. It connects nine manipulation facilities and >20 academic and associated partners in an interdisciplinary career skills programme across Europe. The Technical University of Munich (TUM) is one of the best universities in Europe. It is characterised by excellence in research and teaching, interdisciplinarity and talent promotion. The studentship is based within the Ecophysiology of Plants group at the Land Surface-Atmosphere Interactions professorship at the TUM.

The position aims to understand the impact of recurrent droughts on the carbon allocation by trees to the rhizosphere and related processes, as well as its effect on soil microbial diversity. The experimental forest site is a throughfall exclusion study in Southern Germany which has undergone long-term drought treatments since 2014 (KROOF: <https://www.lss.ls.tum.de/en/l sai/kroof/>). You will use this unique experimental setup, in which drought-naïve trees are subjected to recurrent drought summers for the first time, to make comparisons with legacy trees that have experienced drought treatments before.

### Key objectives

- 1) Assess changes in soil microbial biodiversity (using state-of-the-art methods, .e.g. Oxford Nanopore) in response to experimentally induced drought in European beech and Norway spruce grown in monospecific and mixed stands.
- 2) Using stable carbon isotope labelling to study the sustained support of the root-soil systems of mature trees under intense drought conditions.
- 3) Study the persistence of belowground structures (e.g. fine roots and mycorrhizae) in the rhizosphere of mature trees under drought conditions.

You will develop measurement concepts and experiments that align with these objectives, carry them out and report on the results. The methods applied will range from physiological measurements in the forest to stable isotope and molecular biological analyses in the lab, as well as conducting complementary data analyses and interpretations.

### Experience

We are looking for a dynamic, highly motivated individual with a relevant background and a Master's degree in **Biology**, (Soil-) **Microbiology**, **Ecophysiology**, **Biogeochemistry**, **Ecology**, **Forestry** or a related discipline. Applicants should demonstrate strong communication skills, self-motivation, an aptitude for process-oriented field research and a commitment to collaborative, interdisciplinary research. Experience with soil microbial methods, stable isotopes, ecophysiology and statistical data analysis (R) would be advantageous, as would a driving license.

### Eligibility requirements

- Must not have a doctoral degree (PhD) by the recruitment date
- Should comply with MSCA (Marie Skłodowska-Curie's Actions) mobility rules: must not have resided or carried out their main activity (work, studies, etc.) in the country of the recruiting organisation for more than 12 months in the 36 months immediately before their recruitment date (Feb 2026).
- Can be of any nationality
- Must hold a Master's degree by the start date (Feb 2026)
- Should be enrolled in a doctoral programme during the project
- Good English proficiency and writing skills
- Be available to start full-time from **February 2026**

### Benefits

- Full employment contract with competitive salary for three years.
- Living allowance (Living allowance €4058/month pre-adjustment), mobility allowance (€710/month), and family allowance if applicable (€660/month), adjusted for the cost of living in the host country (Germany in this case)
- Access to state-of-the-art forest manipulation facilities, laboratories and expert supervision
- International secondments and training events
- Become part of the TUM Graduate School of Life Sciences, which offers a range of additional benefits, incl. networking opportunities within a broad multidisciplinary group of early career scientists

### Application Process

Interested candidates are invited to apply for this position by contacting Prof. Dr. Thorsten Grams (eMail: [grams@tum.de](mailto:grams@tum.de)). Applications should be submitted by October 31, 2025 and include the following documents in a single pdf-file (FutureForests\_yourname.pdf):

1. Curriculum Vitae
2. A cover letter of up to two pages, describing the applicant's vision for the selected project and how they see meeting the essential criteria of the project
3. BSc and MSc diplomas, along with their translations in English
4. If available, links to the scientific publications, degree or diploma thesis
5. Contact details of at least two academic or professional references

For additional information about the research project and this individual position, please contact Prof. Dr. Thorsten Grams ([grams@tum.de](mailto:grams@tum.de)) and visit the FutureForests international doctoral network homepage (<https://futureforests.uk/>) and the KROOF project homepage (<https://www.lss.ls.tum.de/en/l sai/kroof/>).

### Technische Universität München

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TUM is an equal opportunity employer. Qualified people of all gender are encouraged to apply. We strive to increase the proportion of women, so applications from women are especially welcome. Applicants with disabilities will be given preference, if they essentially have the same qualifications. As part of your application for a position at the Technical University of Munich (TUM), you are transmitting personal data. Please note our data protection information in accordance with Art. 13 General Data Protection Regulation (GDPR; Datenschutzgrundverordnung DSGVO) on collection and processing of personal data in the context of your application (<https://portal.mytum.de/kompass/datenschutz/Bewerbung/>). By submitting your application, you confirm that you have read TUM's data protection information.