

The DFG-funded International Research Training Group GRK 2324 "**TreeDi - Tree Diversity Interactions: The role of tree-tree interactions in local neighbourhoods in Chinese subtropical forests**" (www.treedidi.de) invites applications for the position of a doctoral researcher in Subproject P7G-2: "Rhizosphere and root microbes". The Helmholtz Centre for Environmental Research – UFZ as employer seeks to fill this position in cooperation with the **German Centre for Integrative Biodiversity Research (iDiv)**:

Doctoral Researcher (f/m/d)
on the TreeDi project P7G-2 "Rhizosphere and root microbes"

Starting date: 01 June 2021, limited to 3 years

65 percent of a full-time position

Salary: *Entgeltgruppe 13 TVöD*

Work place: Halle (Saale)

The UFZ is an equal opportunity employer. Female scientists are explicitly encouraged to apply for increase their share in science and research. Physically handicapped persons will be favored if they are equally qualified.

Background:

The rhizosphere is composed of a wide range of soil microorganisms characterized by different ecosystem functions, thereby influencing belowground ecosystem processes and aboveground plant diversity and community compositions. Previous studies in the BEF China platform revealed that in sub-tropical forest ecosystems tree species identity, plant diversity level, and mycorrhizal type affect the rhizosphere microbial community composition. We found that plant mycorrhizal type and diversity level affects the rhizosphere microbial community composition and their inter-kingdom co-occurrence patterns. Despite these recent advances in our knowledge of the rhizosphere and root-associated microbiomes, there is a limited knowledge on (1) the temporal patterns of inter- and intra-kingdom variation in community composition and co-occurrence patterns, (2) the functional or meta-transcriptomic gene profile patterns, and (3) the drivers of these network and/ or sub-network patterns and their functional gene profiles in the interaction zones of plant species pairs.

The project is supervised by [Dr. Tesfaye Wubet](#) (Senior scientist in Environmental Genomics, Department of Community Ecology, UFZ; tesfaye.wubet@ufz.de).

Your tasks:

- Analyze the seasonal dynamics of rhizosphere and root associated microbiomes using next generation sequencing (NGS) techniques and test the changes in community composition in response to tree/ shrub species identity and local neighborhood plant species composition,
- Assess the seasonal patterns of selected meta-genome and meta-transcriptome profiles with changing neighborhood tree/ shrub species and tree/ shrub species composition,
- Relate rhizosphere microbiome co-occurrence patterns and functional gene profiles to plant traits, root exudate patterns, and the overall tree/ shrub species pair functional dissimilarity.
- Identify indicators of microbial taxa and functional genes to seasonal changes, tree/ shrub species pairs, and tree diversity levels

The doctoral researcher will team up with the fellow on the Chinese side, who will study in parallel the root associated mycorrhizal and endophytic microbiomes. Supervision and assistance will be provided by a Joint German-Chinese PhD Advisory Committee (PAC), combining empirical and theoretical expertise.

All TreeDì fellows will have to submit their PhD thesis as a cumulative thesis, comprising at least three chapters in the form of first author papers in international peer-reviewed journals, of which at least one paper has to be accepted or published at the time of thesis submission. TreeDì fosters early experience in autonomous research, and thus, encourages to become engaged in synthesis, making use of available data from previous projects. Moreover, the work will also include scientific exchange with other working groups, participation in the TreeDì qualification programme, and presentations on international conferences.

Requirements:

- M.Sc. or equivalent degree in microbial ecology or environmental science
- Very good ecological knowledge and great interest in forest biodiversity research
- Experience in molecular microbial ecology, and experience in next-generation sequencing and data processing are advantageous
- Good multivariate statistical skills in R and bioinformatics knowledge are essential
- Fluent in English communication in writing and speaking
- Knowledge of German and/or Chinese is an advantage
- A clear drive to do science
- Motivated to be a proactive team player in an international research consortium
- Flexible and well organized, hands-on mentality
- Applicants must be prepared to spend substantial time (approx. 4-6 months per year) in China for fieldwork and lab visits.
- Willingness to work under subtropical field conditions. Field work experience would be advantageous.

Kindly send your application, quoting the reference number 03/2020, via our application portal at <https://apply.idiv.de>. While we prefer applications via this portal, hard-copy applications may also be sent to: **German Centre for Integrative Biodiversity Research – iDiv (Halle-Jena-Leipzig, HR Department, Puschstr. 4, D-04103 Leipzig.**

Submission deadline is 14 February 2021. Selected candidates will be invited to the online joint recruitment symposium taking place in March 2021 (22-23 March 2021).

All applications should include:

- Cover letter in English describing motivation for the project, research interests and relevant experience
- complete curriculum vitae including names and contact details of at least two scientific references
- digital copy of MA/BA/Diploma certificates

Queries concerning the application process should be directed to Dr. Stefan Trogisch (stefan.trogisch@botanik.uni-halle.de), for project-related questions, please contact Dr. Tesfaye Wubet (tesfaye.wubet@ufz.de).

iDiv is committed to establishing and maintaining a diverse and inclusive community that collectively supports and implements our mission to do great science. We will welcome, recruit, develop, and advance talented staff from diverse genders and backgrounds.