Friedrich Schiller University is a traditional university with a strong research profile rooted in the heart of Germany. As a university covering all disciplines, it offers a wide range of subjects. Its research is focused on the areas Light—Life—Liberty. It is closely networked with non-research institutions, research companies and renowned cultural institutions. With around 18,000 students and more than 8,600 employees, the university plays a major role in shaping Jena’s character as a cosmopolitan and future-oriented city.

The DFG-funded International Research Training Group GRK 2324 "TreeDì - Tree Diversity Interactions: The role of tree-tree interactions in local neighbourhoods in Chinese subtropical forests" (www.treedi.de) seeks to fill the position of a

Postdoctoral Researcher (m/f/d)
on the project: "Higher-order interactions drive diversity effects on productivity" (P11G)
commencing on 01 December 2022, limited to 2 years. This is a full-time position with 40 hours per week; place of work is the German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig in Leipzig.

Background
The German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig is a National Research Centre funded by the German Research Foundation (DFG). Its central mission is to promote theory-driven synthesis and data-driven theory in the emerging field of biodiversity research. For more information please visit: www.idiv.de.

Theory in Biodiversity Science (EcoNetLab) is one of the research groups at iDiv, developing trait-based movement and interaction models to predict the structure, dynamics and functioning of complex food webs and spatial networks. We aim at understanding environmental and anthropogenic constraints on biodiversity as well as the consequences of biodiversity changes for ecosystem functions. More information on the working group is available at www.idiv.de/econetlab.

Research topic
Tree growth depends on resource conditions, tree identity, traits, and interactions with other trees in the neighbourhood. Animals moving among trees can mediate these interactions. The TreeDì research environment provides a unique database on the growth of tree species under different environmental conditions and other neighbouring trees. Because it is typically difficult to empirically decipher the relative contributions of these different influences on tree growth, this project uses systematic modeling approaches to gain a mechanistic understanding of how interactions among trees, trees and herbivores, and among animals determine the relationship between tree diversity and productivity. A particular challenge is to determine whether some of these interactions are not direct but influence interactions between other species pairs. Such higher-order interactions may have multiple causes, including changes in the abiotic environment or the provision of information. This project provides a unique opportunity to gain a mechanistic understanding of higher-order interactions in dynamic models of complex food webs (differential equation-based modeling of complex networks in C or Julia) that can be applied to long-term datasets of tree growth (Bayesian modeling in R). EcoNetLab provides a highly interdisciplinary team with ample experience in both modeling areas to support this project.
Your responsibilities:

- Task1: Developing quantitative models of higher-order interactions.
- Task2: Embedding these higher-order interactions in models of complex ecological networks to address their effects on biodiversity dynamics and ecosystem functioning.
- Task3: Testing for higher-order interactions in a long-term dataset of tree growth.

The Postdoc will team up with a fellow on the Chinese side (group of Prof Shaopeng Wang, Peking University, [https://www.ues.pku.edu.cn/english/faculty/faculty1/lastname/w1/311948.htm](https://www.ues.pku.edu.cn/english/faculty/faculty1/lastname/w1/311948.htm)), who will study in parallel theoretical models of higher-order interactions.

Your profile:
We are searching for applicants interested in conceptual thinking about ecosystems, a drive to develop quantitative models, and an interest in natural communities’ complex structures. The following points describe the expected profile:

- a PhD degree in biology, ecology, physics, or a similar discipline
- knowledge of ecological theory
- good quantitative and statistical skills in R are essential, skills in creating simple programming structures are necessary
- knowledge of C, C++, Julia or a similar fast programming language is advantageous
- experience in modeling ecological systems or ecological networks such as food webs, mutualistic networks, or meta-communities is desirable
- fluent in English communication in writing and speaking
- flexible and well organized, hands-on mentality

We offer:

- Work in a dynamic, international, and interdisciplinary environment in the beautiful city of Leipzig
- Opportunities to develop and advance scientific networks
- Flexible working hours and a family-friendly working environment
- Participation in our iDiv postdoc career support programme
- Attractive fringe benefits, e.g. capital formation benefits (VL), Job Ticket (benefits for public transport), and an occupational pension (VBL)
- Remuneration based on the provisions of the Collective Agreement for the Public Sector of the Federal States (TV-L) at salary scale E13 — depending on the candidate's personal qualifications— including a special annual payment in accordance with the collective agreement

Queries concerning the application process should be directed to Prof Dr Ulrich Brose (ulrich.brose@idiv.de).

All applications should include:

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

Kindly send your application, quoting the vacancy ID 318/2022, via our application portal at [https://apply.idiv.de](https://apply.idiv.de) by 15 September 2022.

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)**
Prof. Dr. Brose
Puschstr. 4
04103 Leipzig
The position is offered with reservation of possible budgetary restrictions. Application portfolios will not be returned; application costs will not be reimbursed.

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.

Candidates with severe disabilities will be given preference in the case of equal qualifications and suitability.

Since all application documents will be duly destroyed after the recruitment process, we ask you to submit only copies of your documents.

For further information for applicants, please also refer to [www.uni-jena.de/Job portal (in German)](http://www.uni-jena.de/Job portal (in German)). Please also note the information on the collection of personal data at [https://www.uni-jena.de/en/jobs_information_collecting_personal_data-path-18,27.html](https://www.uni-jena.de/en/jobs_information_collecting_personal_data-path-18,27.html).