



PhD position in functional plant anatomy at Ulm University

A PhD position is available at the [Institute of Systematic Botany and Ecology](#), Ulm University (Germany). The salary will be paid according to the TV-L (65% position) for the duration of three years. It is planned to start the position in early 2019.

This PhD position is part of the 3 year project “*The frequency and mechanisms behind drought-induced hydraulic failure in woody angiosperms from temperate to tropical biomes*”, which is a joint project with the [Plant Ecophysiology Evolution Group](#) of Prof. Dr. Kunfang Cao at the Guangxi University (China). Financial support for this joint project is provided by the German Research Foundation (DFG) and the National Natural Science Foundation of China (NSFC).

Project description: Although the flow of water through plants has utmost importance for the functioning of our biosphere and the human population, it is still unknown whether hydraulic failure by air entry in the xylem tissue represents a common or rare occurrence in trees. This project aims to investigate the frequency of drought-induced embolism in woody angiosperms and the underlying mechanisms of embolism formation in water transporting xylem cells. By conducting field work at a temperate forest in Ulm (Germany), and a savannah and seasonal rainforest site in southern China, this project will test the hypothesis that a diverse range of species show a similar *relative* risk to hydraulic failure, despite clear differences in *absolute* resistance to drought-induced embolism. This project has implications for biomimetic applications, and will increase our understanding of plant water use and drought tolerance, which is especially relevant given current concerns about climate change.

Besides ecophysiological measurements in the field to measure xylem water potential and embolism resistance, xylem anatomical observations will be conducted using electron microscopy, confocal microscopy, and atomic force microscopy. These data will contribute to ongoing work on xylem sap lipids and the development of a three-dimensional model of cell wall pores between water conducting cells. The PhD student will closely collaborate with other students at Ulm University and with Chinese collaborators. Two research trips to the savanna and rainforest field sites in China are planned in 2019 and 2020, each for 3 and 2 months, respectively.

Requirements: Applicants should hold a master or diploma degree in biology, forestry, environmental sciences, or a related discipline. The candidates should be experienced with a variety of plant ecophysiological methods and instruments, and willing to learn how to work with new ones. Good English speaking and writing skills are essential. Previous experience with any type of research on plant water relations and functional plant anatomy would be a plus, but various techniques applied are not standard and can be learned on the job. We are looking for an outstanding and highly motivated candidate, who is team-oriented and willing to learn and work independently and precisely.

Since Ulm University is committed to increasing the share of women in research and teaching, qualified female scientists are encouraged to apply for this position. Disabled candidates with essentially equal qualifications will be given preference.

Application: Applications including a letter of motivation, research experience, CV (including degree certificates and grades) should be sent by **January 15, 2019** as a **single pdf-document** to Prof. Dr. Steven Jansen (steven.jansen@uni-ulm.de).