PhD position at Ulm University (Germany) to investigate gas entry in wood

Duration: 3 years, financed by the German Research Foundation (DFG)

About the position: Within an international research team, the PhD candidate is expected to combine experimental work with microscopy and modelling to investigate gas entry in wood under different levels of dehydration [1]. Major questions that will be addressed include the rate of gas entry into wood [2], its possible link with hydraulic failure of the transport system [3], and the application of novel insights to evaporation-driven transport systems such as synthetic or artificial trees. Based on the long-standing expertise at Ulm on functional plant anatomy and especially water transport in plants, the student will contribute to our understanding of drought-induced failure of water transport in plants. This project will have implications for our understanding of plant water use and how plants respond to drought, which is especially relevant given current concerns about climate change.

Expected starting date: ideally May 2021 (or to be discussed)

About the candidate: we are looking for a motivated PhD student with a MSc degree or equivalent. The candidate is expected to have experience with experimental lab work. Knowledge about porous media and a strong interest in plant biology are a plus.

To apply, please send your CV and cover letter before 31 March 2020 to steven.jansen@uni-ulm.de

References

- [1] Yang D., Pereira P., Peng G., Ribeiro R.V., Kaack L., Jansen S., Tyree M.T. (2021) A Unit Pipe Pneumatic model to simulate gas kinetics during measurements of embolism in excised angiosperm xylem. *New Phytologist*; preprint doi: https://doi.org/10.1101/2021.02.09.430450
- [2] Guan X., Pereira L., McAdam S.A.M., Cao K., Jansen S. (2021) No gas source, no problem: proximity to pre-existing embolism and segmentation affect embolism spreading in angiosperm xylem by gas diffusion. *Plant, Cell & Environment*. https://doi.org/10.1111/pce.14016
- [3] Kaack L., Weber M., Isasa E., Karimi Z., Li S., Pereira L., Trabi C., Zhang Y., Schenk H.J., Schuldt B., Schmidt V., Jansen S. (2021) Pore constrictions in intervessel pit membranes provide a mechanistic explanation for xylem embolism resistance in angiosperms. *New Phytologist*; preprint https://doi.org/10.1101/2020.10.19.345413