

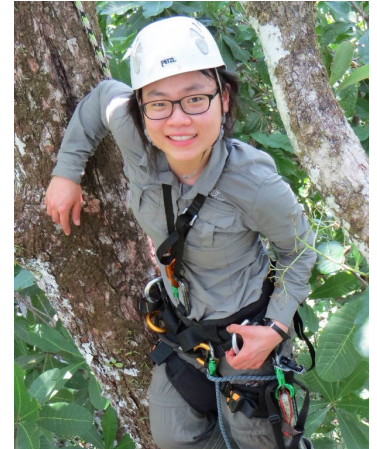
SEMINAR

Thurs, 24 Nov 2022 | 2 pm | DBS Conference Room 1

Hosted by Asst. Prof Long Yuchen

Biomechanics of bark epiphytes

Vascular epiphytes represent almost 10 % of all vascular plant diversity. Life in the treetops exposes epiphytes to higher temperatures, radiation and wind intensity compared to conditions in the understory. Besides being challenged by atmospheric changes, epiphytes also face biomechanical challenges throughout different stages of their life cycle, such as 1) initiating and establishing first contact for successful propagule attachment to the host, 2) growing roots and maintaining secure attachment to the host, and 3) having to withstand mechanical disturbances from factors such as heavy rain, strong winds or by crossing animals. However, biomechanical-related questions of epiphytes have received little attention, so far. A defining characteristic of an epiphyte is its structural dependence on a host, yet the fundamental mechanism of how these plants attach to their hosts remains poorly understood. Habitats of epiphytes are increasingly threatened by forest fragmentation and climate change, which might expose previously sheltered epiphytes to wind stress, risking dislodgement and falling to the ground where chances of survival are low. Therefore, the potential increased mechanical threats to epiphytes in this human-modified world only raise the importance to understand the mechanics and forces involved in the attachment of epiphytes. This talk highlights the recent progress towards understanding the biomechanics of the epiphytes and identify the bottleneck of the epiphyte-host system during the onset of a tropical storm.



By Jessica Tay

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Dr Jessica Tay is a graduate of the University of Oldenburg, Germany where she recently completed her PhD under the supervision of Prof Gerhard Zotz on the functional ecology of vascular epiphytes. It was here where she gained an interest in the biomechanics of bark epiphytes, with particular focus on the mechanics of attachment of these structurally dependent plants to their host trees, and the whether or not these plants are affected by mechanical perturbations imposed by wind. Prior to this, Jessica was part of the pioneer batch of students (Class of 2015) for the Bachelor of Environmental Studies programme in the National University of Singapore. She then moved abroad to pursue a Masters in Applied Ecology and obtained her M.Sc from a combined university consortium under the ERASMUS programme. in 2017. As an ecologist, she focusses on the attachment mechanics of different plant structures to various substrate surfaces, to expand current knowledge on nature-inspired designs for adhesion.