

Thesis-Topics 2025 - Evolution of Behaviour (Bachelor, Master BEE)

Bachelor or Master thesis:

Diversity of silk based locomotion behaviours (abseiling, bridging, ballooning)

Supervisors: Maitry Jani; Josefine Kreuz; Dr. Jonas Wolff

Background: Spiders use silk to elegantly move through the three-dimensional space - including vertical drop-down on dragline (abseiling), the bridging of vertical gaps by ‚shooting‘ lines (like Spiderman) and even flying through the air using sails of silk fibres.

Question: How did silk based locomotion evolve across different lineages of spiders? How do these behaviours differ between different species? For example, which techniques are applied by the spider to initiate and control the silk flow and descend? And which silk glands are used for these silk lines?

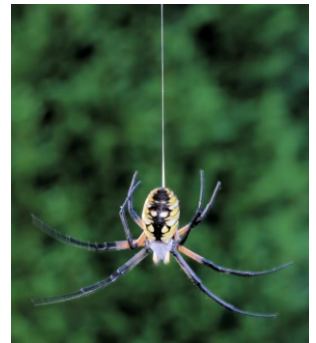
So far this is barely known to science - and you could change that!

Start: any time 2025

- Tasks:**
- observation and documentation (with macro-photography and filming) of silk based locomotion behaviours in different spider species
 - video-tracking analyses to determine silk drawing speeds and silk-based deceleration in abseiling and bridging behaviours
 - microscopy (light and scanning electron microscopy) of silk threads

Why should I take this topic?

- work with diverse species and materials - get fascinated by biodiversity
- improve digital photo/videography and microscopy skills and learn digital video analysis techniques
- learn about locomotion, kinematics and biological materials
- work in a young, interdisciplinary team



Caught your interest? Please contact

Dr. Jonas Wolff, AG „Evolutionäre Biomechanik“, Raum 2.09, 2. OG
Soldmannstraße 14 (Lab- und Teaching-Building of the Zoological Institute)

j.wolff@uni-greifswald.de | Tel.: 03834 420-4243