Bachelor/Master thesis topic:

Reproductive consequences of vibratory communication in spiders

Background:

The Biotremology project in the Zoology Dept. of the University of Greifswald explores how male Nursery Web spiders (*Pisaura mirabilis*) communicate via vibration during courtship. These spiders don't live on webs, but walk along the ground making short pulses of vibrations while searching for a mate. Male spiders also carry a "nuptial gift" (prey wrapped in silk) which they present to the female during courtship. This combination of vibrational signals as well as chemical and visual signals makes *P. mirabilis* an excellent candidate for the study of complex communication by several modes.

In the spring and summer of 2023, we will collect *P. mirabilis* spiders in the Greifswald area and perform screening tests to categorize males according to their vibratory performance. These males will be used in mating trials where their courtship behaviors, as well as the reactions of female spiders, will be recorded. Further experiments will explore how paternity of offspring relates to male vibrational strength, as well as how the nuptial gift aspect factors in to a male's success in courtship. Do males with better signals father more spiderlings? Will a better gift make up for poor vibrational signaling and vice-versa?

The overall scope of this work addresses multimodal signaling in nature and how it may be adapted to different environments and circumstances. This DFG-funded project is a collaboration between researchers in the Dept. of General and Systematic Zoology at the University of Greifswald, the Dept. of Behavioral Ecology at the Ludwig-Maximilians University in Munich, and the Tuni Lab at the University of Torino.

More background information and relevant publications can be found here

What you will learn:

- Experimental procedures in the study of animal behavior
- Statistical analysis
- Scientific writing and presentation skills in English

Methods:

- Behavioral assays via observation
- Vibrational signal recording with a Laser Doppler Vibrometer
- Signal measurement using Avisoft Bioacoustics Software
- Statistical analyses via linear mixed models in R

If you are interested in learning more, please get in touch with:

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