



CHEMICAL COMMUNICATION IN ECOLOGICAL SYSTEMS

Application Call 2024 - Project 3

World on vibration – how ants sense vibrations

Supervisors:

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Background:

There is increasing evidence that eusocial insects, such as ants, use vibratory signals for communication to coordinate members' activities. This hidden information channel seems to complement the primary mode of chemical communication to reach nestmates. There are many ways to send out vibratory signals, including drumming body parts, scraping mandibles or engaging a specialized stridulatory organ. While knowledge about the sender exists, less is known about the receiver side. With this project we aim at investigating the sensory organ that is sensitive to airborne and substrate-born signals in ants.

Project description:

We will investigate sensory organs in ant legs and antenna that are known to detect airborne and substrate-born vibrations. We will combine a broad spectrum of methodological approaches, starting from mechanical measurements of the stimulus-induced organ motion by optical measurements up to neurophysiological and functional imaging techniques. We aim at identifying the different mechano-sensors in the ant leg and antenna and bridge that to behavioral context through collaborating with the Yuko Ulrich lab (social behavior).

Candidate profile:

We are looking for a highly motivated and creative candidate with a strong background in sensory biology, neurophysiology, or animal cinematics. Computational experiences and work with ant are highly recommended. A master's degree in Neuroscience, Biology or related discipline is required for this PhD position.