Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG

The Chair of **Behavioral Physiology & Sociobiology (Zoology II),** University of Würzburg is offering a

Postdoctoral Position (f/m/d) in Animal Behavior & Neurophysiology

"Studying the neural mechanisms of spatial memory in honeybees"

Background

Aside from humans, honeybees are the only known species that convey spatial information to conspecifics. When returning from a foraging bout, a bee advertises a food source's location by performing a 'waggle dance' inside the dark hive. From this dance, conspecifics extract and acquire a vector (direction and distance from the hive to the food source). When leaving the hive, bees retrieve the vector which guides them to the food source. Given the link between behavior and spatial memory processes, the waggle dance offers a unique chance to get a glimpse into the bee's spatial mind and study the neuronal mechanisms of spatial memory.

Project

The project's goal is to study how spatial memory is represented in the insect brain in two behavioral contexts, i.e., during the waggle dance in complete darkness and during flight in the presence of visual cues. To this end, the candidate will conduct tetrode recordings from the brain of dancing and tethered flying honeybees. To study tethered flying bees. The candidate will setup a virtual reality (in collaboration with Prof. Karin Nordström, Flinders University, Australia) in which a tethered flying bee navigates a reconstructed habitat. The bee's habitat will be reconstructed from aerial images taken with a quadcopter. For more infos: www.spatial-navigation.com

Other information

The position will be available from **November 2025 (or later)** on and will be fixed term for 2 years which can be aimed for an extension for up to 5 years. While the position is full time, candidates wishing to work part time may also be considered (if full-time work can be ensured through job sharing). The position is funded by German Research Council through the Emmy Noether program "Neural representation of insect spatial memory". Payment will be based on the tariff contracts for the public service (TV-L).

Successful candidate will:

- Conduct tetrode recordings in behaving honeybees
- Build a 3-D model of the bees' habitat by taking aerial images with a quadcopter
- Setup a virtual reality for tethered flying bees while recording from their brain

Candidate requirements:

- PhD/doctoral degree in Biology, Neuroscience or from an equivalent field
- Experience in *in-vivo* electrophysiology (preferably extracellular tetrode-recordings)
- Programming skills, e.g., Matlab, Python, DeepLabCut
- Experience working with insects is beneficial

The JMU aims to reduce the underrepresentation of women and therefore explicitly encourages qualified women to apply.[1] Severely handicapped applicants will be given preferential consideration in the case of broadly equal suitability, ability and professional achievements.

Please send your application including a motivation letter, CV, publication list, copies of relevant certificates and contact information of two academic references as a single PDF **until October 1st, 2025** to Jerome.beetz@uni-wuerzburg.de or

[1] Bei einer erheblichen Unterrepräsentation von Frauen ist eine besondere Aufforderung mit aufzunehmen.

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Please do not send any original documents to us; only send photocopies. As we need to save costs, we will not be able to return your documents to you. They will be shredded shortly after a hiring decision has been made. If you enclose a postage-paid return envelope, we will return your application documents to you three months after a hiring decision has been made.