

## **Two Job Openings in the Field of “Mechanisms and Plasticity of Chemical Communication in the Honeybee Colony”**

At the Faculty of Biology of the Julius-Maximilians-University Würzburg, two temporary scientist positions (m/f/d) with the possibility of pursuing a PhD are available for three years starting on 1 February 2026 in the project: **“Functions and mechanisms of task-related changes in the cuticular hydrocarbon profiles of honeybees.”** The remuneration is based on the TV-L.

Cuticular hydrocarbon profiles are species-specific chemical signatures on the insect surface that not only protect against desiccation but also serve as finely tuned cues and signals for recognizing conspecifics, sex, or colony membership. They vary greatly among individual worker honeybees performing different tasks, but their function in communication within the colony is still unknown.

In this project, we will study

(1) the impact of social role, age and environment on CHC composition of honeybees,  
(2) the molecular and physiological mechanisms underlying changes in cuticular hydrocarbon profiles in worker honeybees,

(3) whether bees can perceive and learn the odor of hydrocarbons, and

(4) the function of selected candidate genes in the synthesis of cuticular hydrocarbons.

To address these questions, we will use behavioral–physiological assays, genetic knockout via CRISPR/Cas9, RNA interference, electroantennography, calcium imaging and gas chromatography/mass spectrometry.

### **Required qualifications:**

- Master's degree in Biology, Molecular Biology, Genetics, Evolution, Chemical Ecology or related fields
- Strong written and spoken English skills

### **Advantageous qualifications:**

- Experience in beekeeping
- Proficiency in molecular techniques and/or gas chromatography/mass spectrometry
- Experience in bioinformatic tools/RNAseq data analysis
- Experience in R or other statistical tools

One position will focus on the molecular analysis and the physiological assays. The other position will focus on the chemical analysis and the perception assays. The behavioral assays will be conducted by both PhD students in close collaboration.

Please submit a CV with certificates, a one-page motivation letter outlining your research interests and contact details for two referees preferably by mail to

**ricarda.scheiner@uni-wuerzburg.de** and **thomas.schmitt@uni-wuerzburg.de**

The postal address is: Prof. Dr. Ricarda Scheiner, Universität Würzburg, Biozentrum, Zoologie II, Am Hubland, 97074, Würzburg, Germany. Application documents will not be returned.

Application Deadline: With publication until **17 December 2025**. Starting Date: 1 February 2026.

For further inquiries, contact [ricarda.scheiner@uni-wuerzburg.de](mailto:ricarda.scheiner@uni-wuerzburg.de) or [thomas.schmitt@uni-wuerzburg.de](mailto:thomas.schmitt@uni-wuerzburg.de).

In cases of essentially equal suitability, qualifications, and professional performance, applicants with severe disabilities will be given preference.



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