

# PhD student position in Neuroscience

Bio-sonar processing of rare objects in complex scenes

The Chair of Zoology of the Technische Universität München (TUM, Germany) invites applications for a PhD student position (3 years) in experimental neuroscience.

Unlike in vision, where the processes that guide sequential sampling of space are well studied, very little is known about how echolocating bats scan complex natural scenes by echolocation and which reflective properties of objects guide the bat's sonar beam to select an important but rare object among a background of unimportant information.

The project aims to understand the behavioral strategy for the detection of rare objects and its neural basis. We will record neural activity, from both anaesthetized and awake bats to investigate the processing of rare objects in an odd-ball paradigm refined for echolocation.

Responsibilities:

Designing and conducting electrophysiological experiments in anesthetized and awake bats.

Analyzing data.

Preparing results for publication.

Desirable qualifications:

Neuroscience or biology background.

Experience with Matlab.

Work environment

The project is located at the Chair of Zoology, TUM, in Freising/Munich,

The TUM is among the leading universities in Germany. The TUM was one of the first "Universities of Excellence" of the nationwide Excellence Initiative in 2006. Research at the Chair of Zoology focuses on sensory processing in the central nervous system, using different animal model system and a wide range of methodological approaches including in-vivo and in-vitro electrophysiology, imaging and neuroanatomy.

The project will be conducted in close collaboration with Prof. Lutz Wiegrebe (Department Biologie II, LMU, Munich) whose psychophysical research on the behavioral strategies for rare object detection in bats will complement the electrophysiological experiments.

To inquire please contact:

Dr. rer. nat. habil. Uwe Firzlaff

[uwe.firzlaff@wzw.tum.de](mailto:uwe.firzlaff@wzw.tum.de)

Lehrstuhl für Zoologie, TU München

Liesel-Beckmann-Strasse 4

85354 Freising, Germany

Tel: +49 (0)8161 712803

<http://zoologie.wzw.tum.de/index.php?id=113&L=1>