



Photo: P. Fleischmann

PhD Position in Magnetoreception and Navigation in *Cataglyphis* Desert Ants

Schinias National Park

We look for a **PhD student** (65% part-time, salary according to E13 TV-L).

The position is available from 1st of January 2023, for three years. It will be under the supervision of Dr. Pauline Fleischmann in the work group AG Neurosensorik/Animal Navigation of Prof. Dr. Henrik Mouritsen at the Carl von Ossietzky Universität Oldenburg.

Project Background

Cataglyphis* ants** are well known for using celestial compass cues (e.g. UV polarization pattern, position of the sun) for path integration during their extensive foraging trips. The **recent discovery of the magnetic compass in *Cataglyphisⁱ opens up many new possibilities to understand the magnetic sense better in a **well-characterized experimental model for insect navigation**. *Cataglyphis*' magnetic compass is a unique example of an **essential magnetic compass used for close-range navigation**.ⁱⁱ The pirouettes performed by *Cataglyphis* novices during their initial learning walks provide an **ideal behavioral read-out**ⁱⁱⁱ to investigate the underlying magnetic compass mechanisms in more detail.

The selected candidate will perform **neuroethological experiments** with *Cataglyphis* desert ants both in the field (Schinias National Park, Greece) and in the laboratory to answer the following questions:

- What are the characteristics of the magnetic compass in *Cataglyphis* ants? (*behavioral biology*)
- Where are the magnetic sensors located and how do they function? (*sensory biology*)
- How is magnetic information processed and integrated in the brain? (*neurobiology*)

We offer:

- Opportunity to perform **innovative science** in an inspiring and highly collaborative research atmosphere. The project will be embedded in the **research environment of the SFB 1372** "Magnetoreception and Navigation in Vertebrates" at the Carl von Ossietzky Universität Oldenburg and benefit from further national and international collaborations.
- Possibility to combine **field experiments** in Greece with **state of the art research techniques** (e.g. high-speed video analysis, close-range photogrammetry, immunohistochemistry, 3D-reconstruction etc.).
- Enrolment in the local **graduate school OLTECH** with a variety of soft and scientific skills courses as well as mentoring programs.
- Participation in **international conferences**.

Position's Requirements

- Completed scientific university studies (Diploma (Uni) / Master) in biology, neuroscience or a related discipline.
- Interest to perform neuroethological experiments is a must, former experience in field experiments (especially behavioral experiments) is a plus.
- Willingness to perform field experiments abroad (Greece) in the summer (2-3 months, e.g. June-August), driver's license (car) and heat-resistance are mandatory.
- Additionally, good command of English (written and spoken) is a must, Greek is a plus.

We seek a highly motivated and reliable team member eager to develop methods further, to think analytically, and to work diligently and independently in order to advance our knowledge about the compass systems of *Cataglyphis* ants.

The University of Oldenburg is aware of the power of diversity. order, the Carl von Ossietzky University of Oldenburg is striving to increase the proportion of women in the field of science. Therefore, women are strongly encouraged to apply. According to § 21 paragraph 3 of the Lower Saxony Higher Education Act, female applicants should be given preferential consideration if their qualifications are equivalent.

Applicants with disabilities will be given preferential consideration if they are equally qualified.

Your application should include

- a letter of motivation,
- a detailed CV,
- a publication list,
- names and contact details of at least two personal references,
- and university and high school certificates.

Please send your application as a single pdf-file to Dr. Pauline Fleischmann (pauline.fleischmann@uol.de) or mail to Dr. P. Fleischmann, AG Neurosensorik/Animal Navigation, IBU, Carl von Ossietzky Universität Oldenburg, Carl-von-Ossietzky-Strasse 9-11, D-26129 Oldenburg, Germany

All applications received before the 14th of November 2022 will be considered.



ⁱ Fleischmann, P. N., Grob, R., Müller, V. L., Wehner, R. and Rössler, W. (2018). The Geomagnetic Field Is a Compass Cue in *Cataglyphis* Ant Navigation. *Curr. Biol.*, 28, 1440-1444

ⁱⁱ Fleischmann, P. N., Grob, R., and Rössler, W. (2020). Magnetoreception in Hymenoptera: importance for navigation. *Anim. Cogn.*, 23, 1051-1061.

ⁱⁱⁱ Fleischmann, P. N., Grob, R., Wehner, R. and Rössler, W. (2017). Species-specific differences in the fine structure of learning walk elements in *Cataglyphis* ants. *J. Exp. Biol.*, 220, 2426-2435.