

PhD position in behavioral ecology and evolutionary biology

Social and molecular control of queen specialization in ants

Application deadline: March 24th 2024

We offer a **fully-funded 3-year PhD position** supervised by Romain Libbrecht at the Insect Biology Research Institute (UMR7261, CNRS, University of Tours) to study the social and molecular control of queen specialization in ants.

In insect societies, like those of ants, bees, and wasps, queens are specialized in laying eggs and workers handle all the other, non-reproductive tasks. In our research group, we have recently found that the presence of workers not only initiates this queen specialization during the foundation of ant colonies, but also maintains it continuously in established colonies (Majidifar et al. 2024, *in press*, preprint accessible [here](#)). The PhD thesis will **combine mechanistic**



and evolutionary investigations to better understand this social control of queen specialization in ants. Specifically, the PhD student will 1) investigate how social partners communicate with each other to drive the queen specialization and 2) study queens at the molecular level to identify the transcriptomic mechanisms that translate the presence of workers into behavioral specialization.

WHAT WE OFFER

The research will include ant collection in the field, experimental manipulations of ant colonies in the lab, behavioral experiments, ant dissections, molecular biology and chemical ecology techniques, and RNA sequencing analyses. The student will also get hands-on training in experimental design, statistics and bioinformatics, and will have the opportunity to communicate their research at national and international scientific conferences. The PhD project is part of the recently-funded ANR project *ANTOGENY*.

WHO WE ARE LOOKING FOR

A highly motivated student with a Master degree in biology (at the starting date of the position), good written and oral communication skills, and a keen interest in animal behavior and evolutionary biology. Previous experience with social insects, behavioral experiments, statistics and bioinformatics is advantageous, but not required.

The successful applicant will join an international, interactive and dynamic scientific environment at the Insect Biology Research Institute (UMR7261, CNRS, University of Tours), with access to state-of-the-art, well-equipped laboratories and climate-controlled rooms. Tours is a French historic city located on the Loire river with a large student population and a rich social and cultural life.

Applications should include a 1-page cover letter describing the motivation, previous research activities and current research interests of the applicant, the CV of the applicant, all BSc/MSc university grades, and the names and email addresses of two potential referees. Please send all documents as a single PDF file before March 24th 2024 to Romain Libbrecht (romain.libbrecht@univ-tours.fr). The starting date for the position is October 1st 2024.