

2-Year Postdoc Position: Rules governing collective behavior at different scales - Collective sensing and group behavior in epithelial cells and honey bees
([link to this ad online](#))

[Heidelberg Academy of Sciences project page](#)

We seek candidates for a theoretical/computational postdoctoral research position to work on an interdisciplinary project examining collective sensing in two model systems: Epithelial cells and honey bees. Using a combination of experiments, modeling, and simulation, we will investigate how group composition affects collective sensing and decision making at these different biological scales. The proposed analysis is divided into three parts. The first step involves a robust characterization of how individual cells in a group, or individual bees in a colony, differ from each other. Following this, we examine the mechanisms that drive type/task differentiation in the group. Finally, we seek to use experimental manipulations combined with data analysis and model simulation to ask how group composition and within-group differences affect group function in these systems. Through this comparative analysis we seek both common rules of behavior, as well as contrasting mechanisms which are specific to each system.

The position will be based in the Department of Collective Behavior at the Max Planck Institute of Animal Behavior and the Centre for the Advanced Study of Collective Behavior at the University of Konstanz. For this project, the successful candidate will join an active team of postdoctoral researchers spanning multiple disciplines: Cellular biology (Medhavi Vishwakarma), honey bee biology (Michael L Smith), and mathematical modeling (Jacob D Davidson). Specific expertise in cellular biology or social insect biology is not necessary, but an ability to span between and contribute to both systems is essential.

The postdoc will work both independently and part of an active research team to develop research questions and perform analysis. A strong computational background is ideal (e.g. data analysis, modeling, simulation). Experimental data will be provided, so this position does not involve lab or field work. Preliminary results, however, may lead to additional experiments in collaboration with other team members. Innovative and creative thinkers are especially encouraged to apply. The working language is English.

Requirements

- Ph.D. (or equivalent) in computer science, physics, engineering, computational biology, or related.
- A commitment to working in an interdisciplinary and collaborative environment.

Applicants should email the following as a single PDF to: Collective.Sensing@gmail.com

- cover letter describing your interest and qualifications for this position (1-page)
- curriculum vitae (CV)
- contact information for 3 references

All applications received prior to 15 July 2019 will be given full consideration.

Employment information:

The position is fully funded by the Heidelberg Academy of Sciences for two-years. The initial appointment is for one year, with renewal for a second year contingent on satisfactory performance. Start date is negotiable, but ideally no later than 1 January 2020. The postdoc will be employed through the Heidelberg Akademie der Wissenschaft, with a guest hosting agreement through the Max Planck Institute for Animal Behavior.

Salary will be set based on the fee group 13 TV-L, in accordance with your qualification and the collective agreement for the public service (TVöD-Bund). Handicapped applicants will be given preferential treatment if they are of the same suitability.