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## 2 PhD positions: eco-evo-immunology of *Drosophila* – bacteria interactions

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Applications are invited for 2 PhD positions at the Freie Universität (FU) Berlin, Institute of Biology. The positions are funded by the German Research Foundation (DFG). The principle investigator is Sophie Armitage (<https://www.uni-muenster.de/Evolution/animalevolecol/armitage.shtml>), who will start a DFG Heisenberg Fellowship at the FU on the 1<sup>st</sup> October 2017. The PhD positions will start on the 1<sup>st</sup> December 2017, or as soon as possible thereafter. The group will collaborate with the evolutionary biology group of Jens Rolff ([http://www.bcp.fu-berlin.de/en/biologie/arbeitsgruppen/zoologie/ag\\_rolff/index.html](http://www.bcp.fu-berlin.de/en/biologie/arbeitsgruppen/zoologie/ag_rolff/index.html)). The projects are for three years each and the salary is according to the scale for public servants (TV-L E13/65%). The working language of the group is English.

### Project background

Our research lies in the field of eco-evo-immunology, with a focus on host resistance and tolerance. Pathogens can have substantial negative fitness effects on their hosts. This creates a strong selection pressure on a host to have efficient immune defences. A host can counteract an infection by directly reducing its pathogen load, i.e., resistance, or by reducing the harm that the infection does to its fitness, i.e., tolerance. Given that resistance can be costly and involve autoimmune damage, a more resistant host is not always the fittest. Tolerance is therefore an interesting concept because it describes how well hosts are able to ameliorate the fitness costs of a given pathogen load. Resistance and tolerance are predicted to give contrasting perspectives on host-pathogen evolution and infectious diseases, therefore it is important to understand infection in the light of these two concepts.

The **first PhD project** will utilise experimental evolution to understand more about the evolution of resistance and tolerance strategies. Previous pathogen experience, so-called priming in invertebrates, can increase host survival when it is subsequently infected with the same pathogen, and is likely to be a significant route to immune defence. The **second PhD project** will ask how previous pathogen experience affects tolerance and resistance. *Drosophila melanogaster* will be used as the host for these projects, and different bacterial species will be used as pathogens. The projects will include fitness and resistance assays as well as molecular work (depending upon the project).

**Requirements:** Master's degree in biology, evolutionary biology or related fields.

**Desirable:** We would like applications from enthusiastic and highly motivated students with a background / interest in evolutionary ecology. The candidates should have good communication skills and be happy to work independently as well as in a team, and be able to write proficiently in English. Knowledge of statistics would be a plus.

**How to apply:** Applications should be written in English, emailed as a single PDF file and include: (1) a cover letter with a short statement of motivation, (2) a CV including details of your research experience and any publications, and (3) the names of 2-3 potential referees. Please indicate in your cover letter whether you have a particular preference for one of the two projects, or whether both are potentially interesting. Please email your application no later than **18<sup>th</sup> September 2017** to [sophie.armitage@uni-muenster.de](mailto:sophie.armitage@uni-muenster.de), with the header “eco-evo PhD”.

For further information, please don't hesitate to contact Sophie Armitage.