



PhD Program between the Freie Universität Berlin (FUB) and the China Scholarship Council (CSC)

Open PhD position at FUB for CSC scholarship candidates 2016

Please note: the PhD position is only offered to Chinese PhD candidates for application in the framework of the FUB-CSC PhD Program.

<u>Department/Institute:</u>	Institute for Bee Research & Freie Universität Berlin
<u>Subject area:</u>	Bee Pathology
<u>Name of Supervisor:</u>	Prof. Dr. Elke GENERSCH (Ms.)
<u>Number of open PhD positions:</u>	Full-time
<u>Type of the PhD Study:</u>	Obligate intracellular bee parasites: Cellular and molecular analyses of pathogen-host interactions

Project title:

PhD Project description:

Honey bees (*Apis mellifera*) are attacked by numerous pathogens. Some of them are just causing covert infections while others are causing overt disease symptoms and even death of individuals and entire colonies. Due to the wide distribution of bee pathogens and the high pathogen load in bee colonies, co-infections of both colonies and individuals with more than one pathogen are the rule rather than an exception. While at least few data exist on the impact of co-infections at individual or colony level, nearly nothing is known about pathogen-host interactions at cellular or molecular level. This project concentrates on two widely distributed and devastating bee pathogens: *Nosema* spp. and deformed wing virus (DWV). Although *Nosema* spp. is a fungal-related pathogen and DWV is a virus, they both have their obligate intracellular life style in common and, therefore, co-infections of individuals may lead to co-infections of cells. Using experimental infection of caged honey bees and cell culture approaches based on lepidopteran cell lines and primary bee cell cultures we will establish experimental co-infections models. The fitness costs of single and co-infections will be analyzed at the level of the individual bee using appropriate functional assays. The mechanisms of host cell reprogramming and the interference of *Nosema* spp.- and DWV-reprogramming will be analyzed using appropriate molecular tools in singly infected and co-infected cultured cells, respectively. The biological relevance of the findings will be confirmed in naturally infected honey bees collected in the field.

Language requirements:

PhD study in English (IELTS 6,5 or TOEFL 95 ibt) is possible. However, the candidate is requested to also learn German to be able to deal with everyday live in Germany.

Academic requirements:

A Master's degree (MS) is mandatory for this full-time Ph.D. project. Experience in both bee science and molecular techniques is highly appreciated.

Information of the professor or research group leader:

www.honigbiene.de

or:

Just check me in ResearchGate.

Please note:

In a first step the complete application should be submitted to the Beijing Office for evaluation by January 4th, 2016. Please don't contact the professor before. He/She will get in contact with you after having received the complete application in January.