



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

### Open PhD position at FUB for CSC scholarship candidates 2017

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

<b><u>Department/Institute:</u></b>	Department of Veterinary Medicine/ Institute of Animal Hygiene and Environmental Health (FUB) and Department Engineering for Livestock Management/ Leibniz Institute for Agricultural Engineering Potsdam-Bornim (ATB)
<b><u>Subject area:</u></b>	Livestock – Environment – Infections
<b><u>Name of Supervisor:</u></b>	Prof. Dr. Thomas AMON (Mr.)
<b><u>Number of open PhD positions:</u></b>	1
<b><u>Type of the PhD Study:</u></b>	Both types are possible, but full-time is preferred.
<b><u>Project title:</u></b>	Aerosol transmission properties of Zoonotic pathogens from naturally ventilated animal housings

#### **PhD Project description:**

Air in animal housings could be contaminated with biogenic aerosol like dust, fungi, bacteria, viruses and allergens. They can cause health risks for animals and human beings in the vicinity of animal housing with naturally ventilation. Biogenic aerosol is an important source of zoonosis in and around animal housings. Up to now there is limited knowledge about the airborne transport of infective particles in animal housing and the near vicinity. The project focuses on biophysical properties of infectious particles and evaluates their health risks through airborne transmission dynamics in naturally ventilated animal housings and their vicinity. The first step should systematically quantify the spatial distribution of flow patterns and indoor climate parameters in naturally ventilated animal housings and their influence on pathogenic particle transport. Typically parameters (survival time, concentration) of particle transportation changes depending on changing flow dynamics inside animal housing. The focus is directed to duration periods, pathways, temperature and humidity. Another step is to evaluate different pathways in different housing geometries to simulate their influence on the potential of animal-animal or animal-human being transmission. To achieve this, three methodical approaches are used: (i) computational fluid dynamics, (ii) analysis of wind tunnel measurements, and (iii) analysis of high-resolution long-term measurements in two different naturally ventilated dairy barns. Results of all three approaches are required to gain knowledge on this fundamental research.

#### **Language requirements:**

IELTS 6.5 or TOEFL 95 ibt.

#### **Academic requirements:**

The project is a true interdisciplinary endeavor to study aerosols containing pathogenic bacteria and viruses relevant for zoonosis and public health. The candidate will model air borne transmission processes under various climatic conditions. Requirements are a strong interest in research across disciplinary boundaries from infection biology to aerosol physics, curiosity beyond the tip of your nose, flexibility and capability to work in different lab environments, willingness to work with farm animals and methods of numerical simulation. Successful candidates have MSc in either Veterinary Medicine, Agricultural science, Biology, Biochemistry, Chemistry, Biophysics or Physics.

#### **Information of the professor or research group leader:**

We offer involvement in an interdisciplinary team in an attractive working environment, application-oriented basic research and development with high practical relevance and very good conditions for your professional development.

<http://www.vetmed.fu-berlin.de/en/einrichtungen/institute/we10/index.html>

<http://www.atb-potsdam.de/en/institute/departments/engineering-for-livestock-management.html>

<http://www.atb-potsdam.de/en/research-programs/precision-farming-and-precision-livestock-production/anwendungsfelder/livestock-farming.html>

<http://www.atb-potsdam.de/institut/ueber-uns/mitarbeiterinnen/portrait/portrait/thomas-amon.html>

#### **Please note:**

In a first step the complete application should be submitted to the Beijing Office for evaluation by January 4<sup>th</sup>, 2017. Please don't contact the professor before. He/She will get in contact with you after having received the complete application in January.