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

Open PhD Position at Freie Universität Berlin, offered only to Chinese CSC scholarship candidates 2027

Department/Institute: **Biology**

Subject area: **Neurobiology**

Name of Supervisor: **Prof. Dr. Mathias F. Wernet**

Number of open PhD positions: *1*

Type of the PhD Study: Full time

Project title: **Dissecting the neural circuits for skylight navigation**

PhD Project description:

Understanding how neural circuits guide the behavioral decisions of an animal remains one of the big questions in biology. We take advantage of the vast molecular genetic and connectomic resources available for the vinegar fly Drosophila melanogaster, to dissect the roles of specific cell types in executing navigational decisions. To this end, we combine light microscopic neuroanatomical methods (immune histochemistry) with optophysiology (Calcium imaging), and quantitative behavior experiments. Behavioral decisions of single flies can be studied using virtual flight arenas and identified cell types can be manipulated in the brain of a behaving fly using circuit breaking tools, including optogenetics. Together, these techniques reveal both the contributions of identified cell types to the behavioral decisions of the animal, as well as the concerted action of many circuit elements that are interconnected via chemical synapses. The insight gained through these experiments adds important new insight towards understanding brain function across species.

Language requirements:

IELTS: 6,5 oder TOEFL: 95 ibt

Academic requirements:

B.S. and/or M.S. degree; knowledge in biology, neurobiology, quantitative biology

Information of the professor or research group leader (website, awards etc.):

Website: http://www.flygen.org/wernet

Recent publications:

1. Garner D*, Kind E*, Lai JYH*, Nern A, Zhao A, Houghton L, Sancer G, Wolff T, Rubin GM, **Wernet MF**#, Kim SS# (2024) Connectomic reconstruction predicts the functional organization of visual inputs to the navigation center of the Drosophila brain. ***Nature*** 634(8032):181-190. doi: 10.1038/s41586-024-07967-z.

2. Matsliah A, Yu SC, Kruk K, Bland D, Burke A, Gager J, Hebditch J, Silverman B, Willie K, Willie RW, Sorek M, Sterling AR, Kind E, Garner D, Sancer G, **Wernet MF**, Kim SS, Murthy M, Seung HS; FlyWire Consortium (2024) Neuronal "parts list" and wiring diagram for a visual system. ***Nature*** 634(8032):166-180. doi: 10.1038/s41586-024-07981-1.

Please note:
In a first step, the complete application should be uploaded to the online portal (https://fuberlin.moveon4.de/form/60acfece5d328710e40bdbd5/eng) for evaluation by January 15th, 2027.