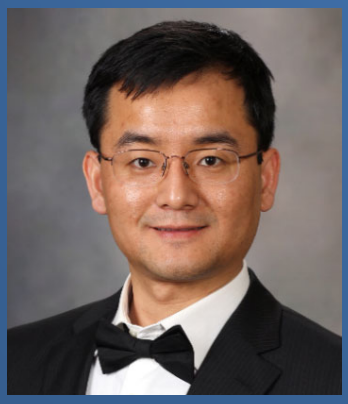
146th WPI-IIIS Seminar

Interrogating neural circuit of courtship learning and beyond — a combination of genetic and physiological approaches

A key feature of animals to survive in a changing environment is their capability to learn and modify behaviors based on previous experience. To understand how memory is processed and stored within neural circuits, I proposed to use fruit fly, Drosophila Melanogaster, to investigate molecular and biophysical mechanisms of learning and memory, specifically courtship learning. In past years, the wiring paradigm of the insect learning center, mushroom body (MB), is sophisticatedly resolved by the combination of advanced tools from genetics, anatomy, and physiology. With genetic access to different cell types within MB, such as Kenyon cells (KCs), MB output neurons (MBONs) and dopaminergic neurons (DANs), we have interrogated and characterized a novel recurrent connection between each type, and revealed how neural activity related to short-term memory is preserved in a specific circuitry responsible for courtship learning. In the future, it is important to map memory-related genes and perform biophysical measurement in each cell types. In addition, it is interesting to expand the study to search for a similar paradigm in a more complex system, such as the central nervous system in mouse.



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Date: **Wednesday, March 27, 2019**

Time: **12:00 – 13:00**

Venue: **1F Auditorium, IIIS Building**

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