



THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY
Division of Life Science

LIFS Seminar Series

Understanding the structure-function relationship at the neuronal synapse in plasticity and disease

by

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Abstract

The neuronal synapse represents a compact, yet highly complex and dynamic macromolecular system, where distinct structural and functional domains must be intricately coordinated in space and time in order to ensure an appropriate functional outcome. While the overall structure of the synapse has been subject to much scrutiny over the years, the structural plasticity within the synapse and how it relates to function remains poorly understood. Synaptic abnormalities are implicated in a large number of neurological disorders; yet, the critical insight into the development and breakdown of the structure-function relationship at the synapse in health and disease is currently lacking. In my recent work, I have been using advanced microscopy methods for integrated imaging of local synaptic structure and function. Drawing on these approaches, I now aim to extend my research program to achieve in-depth understanding of the dynamic structure-function relationship at the synapse, focusing on the following lines of enquiry:

- 1) Comprehensive mapping of synaptic architecture;
- 2) Direct manipulation of synaptic architecture - "synaptic engineering";
- 3) Intercepting and characterizing synaptic dysfunction in early neurodegeneration;
- 4) Unbiased screening for rescue of synaptic deficits and neurodegeneration;
- 5) Temperature-dependent synaptic plasticity.

Date : 14 July 2017 (Friday)

Time : 4:00 p.m.

Venue : Lecture Theatre G
The Hong Kong University of Science & Technology
Clear Water Bay, Kowloon

(Host faculty: Dr. HYOKEUN PARK)

All are Welcome!!