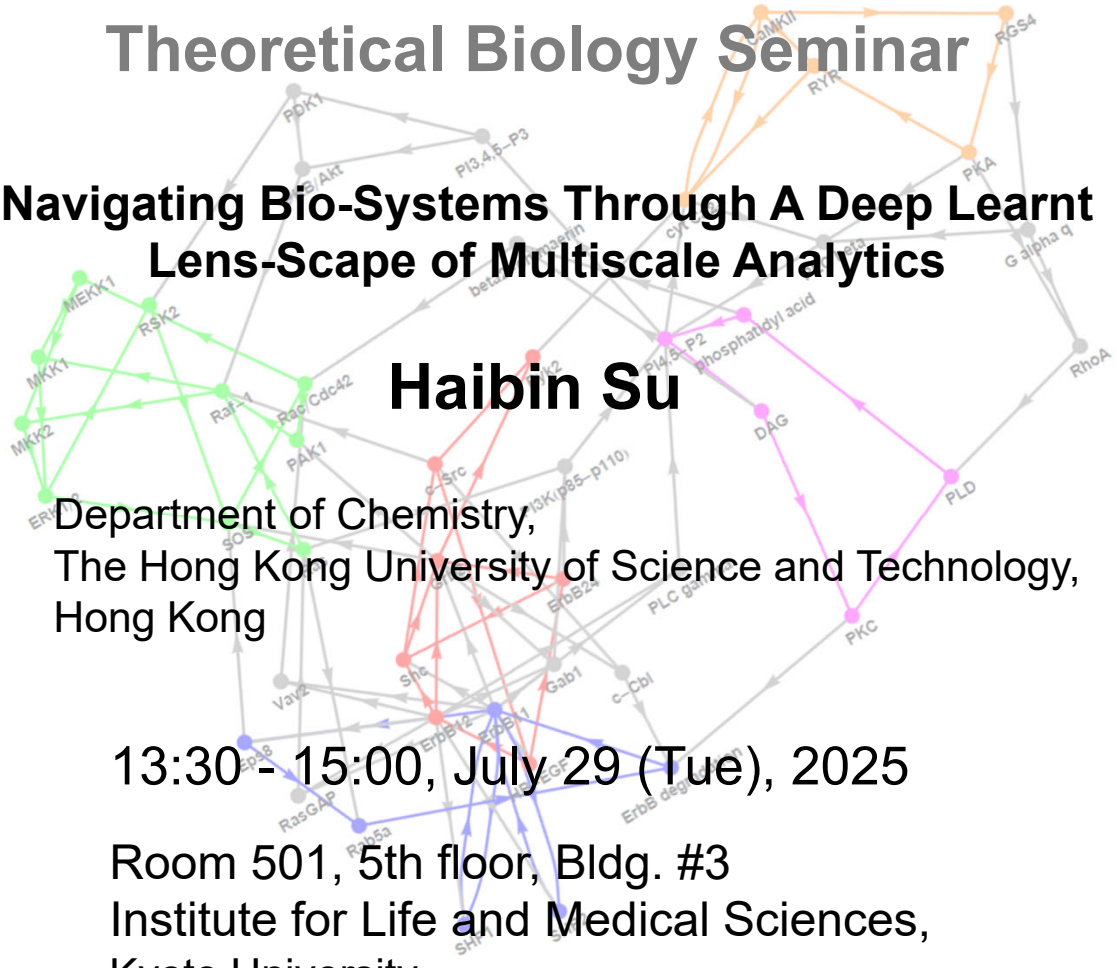
Theoretical Biology Seminar

Navigating Bio-Systems Through A Deep Learnt Lens-Scape of Multiscale Analytics



Haibin Su

Department of Chemistry,
The Hong Kong University of Science and Technology,
Hong Kong

13:30 - 15:00, July 29 (Tue), 2025

Room 501, 5th floor, Bldg. #3
Institute for Life and Medical Sciences,
Kyoto University

Multiparadigm methods to span the scales from atomic dynamics at enzymic reaction centres to practical issues of cells are enabling first principles quantitative explanatory of biological systems with intriguing functions. Bottom-up integration is based on the notions of up-scaling strategy, while top-down effects can be accounted for in terms of effective constraints and inputs. Biological systems are essentially characterized by their evolutionary history. A deep learnt multiscale scheme is established to unravel the architecture of living systems and their regulation. Recent results ranging from ribosomal peptidyl transferase reaction to cell growth, and from spike glycoprotein dynamics to the complex evolutionary landscape of SARS-CoV-2 will be presented.

Language: English

contact: Atsushi Mochizuki
Laboratory of Mathematical Biology,
Institute for Life and Medical Sciences,
Kyoto University
Email: mochi@infront.kyoto-u.ac.jp
Tel: 075-751-4612