



The University of Hong Kong  
School of Biological Sciences

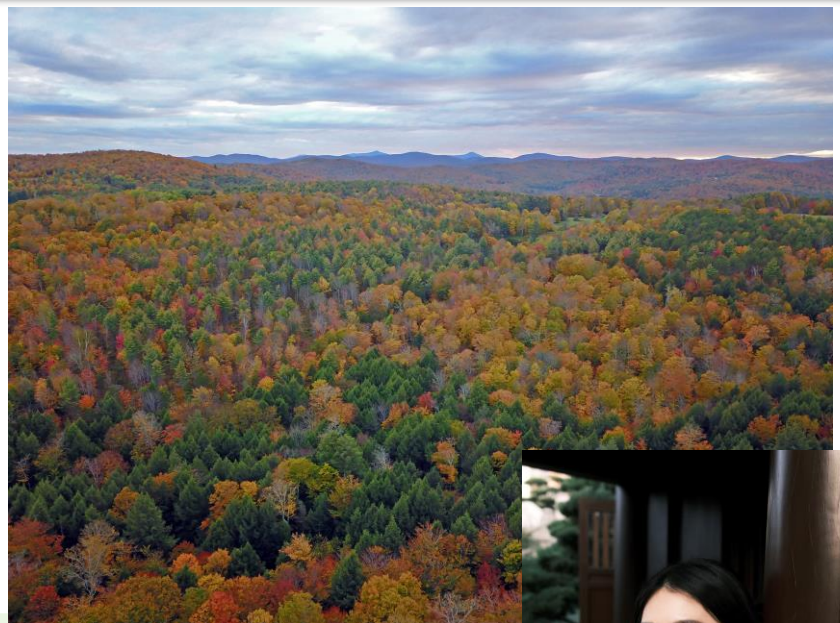
**Qualifying  
Seminar**

# The role of spatially varying tree type composition in temperate forest photosynthesis under climate change

**Date: 7<sup>th</sup> April 2022**

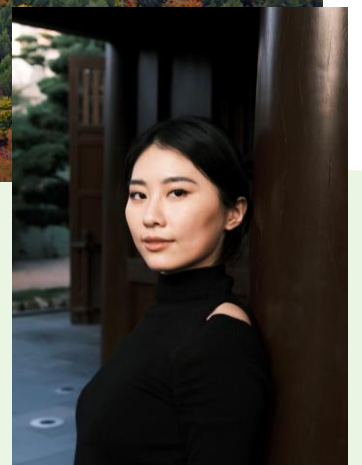
**Time: 11 AM**

**Venue: Zoom**



## About the speaker:

Ziyu LIN is a PhD student supervised by Dr. Jin WU. She is interested in exploring the global-scale forest biomass dynamic based on cutting edge remote sensing techniques.



## Abstract:

Photosynthesis is the primary driver of the carbon cycle, and thus observing its dynamics is essential to understand how plants interact with the changing climate. Among all the forest ecosystems, temperate forest is an important net carbon sink that buffers the climate change, but its photosynthesis dynamic is hard to predict due to its high sensitivity to the changing climate. Most studies regarding temperate forest photosynthetic processes and their responses to climate change are conducted on a coarse spatial resolution (~1km), neglecting the effect of spatial heterogeneity of tree communities in temperate mixed forest ecosystems. Moreover, the competition and shift of tree types within the community in the future are underexplored, hindering the prediction of future carbon cycling.

My PhD research aims to advance the understanding of tree type composition and its impact on photosynthesis dynamics across North America. Specifically, the work includes: (1) mapping tree type composition based on high spatiotemporal resolution satellite image; (2) evaluating the spatial heterogeneity effect on photosynthesis modelling based on high resolution tree type composition map; (3) exploring the biotic and abiotic impact on light use efficiency for different tree types across North American; (4) predicting the future temperate forest photosynthesis by incorporating the tree type distribution shift and their biotic interactions.