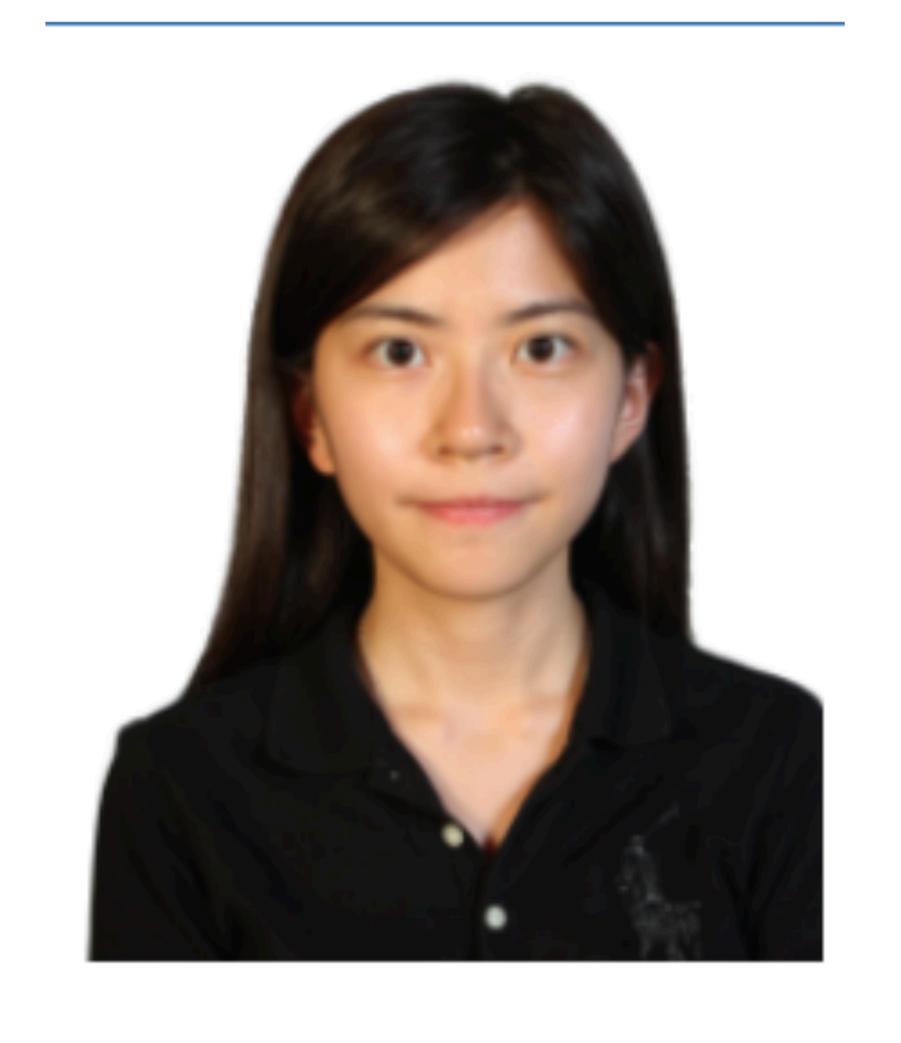# XIAMEN UNIVERSITY MALAYSIA
厦門大學馬來西亞分校

Research Talk

Spectral Variation of Normalized Laplacian for Various Undirected and Directed Network Models

November 14, 2022 (Monday), 3:30–4:30 pm Room A4#104

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Research interests: Spectral Variation of Normalized Laplacian for Various Undirected and Directed Network Models.

Speaker Introduction

Ms. Jessica Yei Shan Liang is a graduate teaching assistant at Imperial College London. She received her Master of Science at Institute for Mathematical Research, University Putra Malaysia, Serdang.

Abstract

Many network models have been proposed to mimic real-world systems when they become too large and complex to be described explicitly. Since the models inherit similar structural properties to the real-world network, by studying their nodes and links, many network properties can be identified. While most of the tools used to study their structural properties are coming from graph theory, spectral analysis is another method that can be used to reveal the structural inheritance properties of a network. In this work, we performed spectral analysis on network models namely Erdös-Rényi (ER), Watts-Strogatz (WS), Barabási-Albert (BA), grids and growing geometrical network (GGN) with the undirected and directed connection. The eigenvalue spectrum of the normalized Laplacian was computed for each model and used in spectral plots, Cheeger constant and energy measurement. Results from the spectral measures have revealed specific characteristics for different models which in turn make them easier to be recognized.