



THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering
Seminar

Cheeger-Type Inequalities Using Reweighted Eigenvalues

by

Prof. Lap Chi Lau
University of Waterloo, Canada

Date : 18 August 2023 (Friday)

Time : 3:00pm – 4:00pm

Venue : Rm 833, Ho Sin Hang Engineering Building, CUHK

Abstract

Cheeger's inequality is a fundamental result in spectral graph theory connecting the edge conductance of an undirected graph to the second eigenvalue of its Laplacian matrix. In this talk, we will present a unifying approach to prove Cheeger-type inequalities in more general settings using the concept of reweighted eigenvalues. This provides a new spectral theory for vertex expansion, for directed graphs, and for hypergraphs, that is much closer to the spectral theory for undirected graphs that were previously known. An interesting consequence is a characterization of the fastest mixing time of a directed graph by its vertex expansion. Joint work with Tsz Chiu Kwok, Kam Chuen Tung, and Robert Wang.

Biography

Lap Chi is a faculty member at University of Waterloo. Before that, he was a faculty member in The Chinese University of Hong Kong.

**** ALL ARE WELCOME ****