THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

Summer Research Program 2022

PG STUDENT SEMINAR

Limiting Spectral Distribution of Sample Block Correlation Matrices

By

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Abstract

A fundamental concept in multivariate statistics, sample correlation matrix, is often used to infer the correlation/dependence structure among random variables, when the population mean and covariance are unknown. A natural block extension of it, *sample block correlation matrix*, is proposed to take on the same role, when random variables are generalized to random sub-vectors. More specifically, we consider a random vector of dimension p, consisting of k sub-vectors of dimension p_t's, where p_t's can vary from 1 to order p. In this seminar, we will discuss the limiting spectral distribution of the sample block correlation matrices. Under three different settings of possibly n-dependent k and p_t's, we show that the empirical spectral distribution of the sample block correlation matrix converges to the free Poisson binomial distribution, free Poisson distribution (Marchenko-Pastur law) and free Gaussian distribution (semicircle law), respectively.

Date : **1 August 2022 (Monday)**
Time : **3:00pm**
Zoom Meeting : **https://hkust.zoom.us/j/94369152125 (Passcode: hkust)**

All are Welcome!