THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

SEMINAR ON PROBABILITY

Some results on random matrices with dependent entries

By

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Abstract

In the last few years, we have seen remarkable progress on the theory of random matrices with independent entries. For example, one might consider the successful resolution of the Dyson Mehta conjectures. After the independent case being solved, recently some amount of interest has been shown in matrices with dependent entries. In this talk, we shall discuss our result on the spectral norm of Wigner matrices with dependent entries. When the entries of the matrix are correlated centered Gaussians, we show under some assumptions, the largest eigenvalue converges to the support of the limiting spectral distribution. Our result is in some sense optimal as we show counter examples (i.e. the largest eigenvalue goes beyond the support) under minor violations of the assumptions. We also have weak results in the non-centered case. Due course of the talk, I shall also discuss some ongoing projects with my collaborators. If time permits, I shall further talk about some of my earlier results in high dimensional hypothesis testing where random matrix theory plays an important role.

Date: 10 October 2024 (Thursday)

Time: 1:30pm

Venue: Room 5506 (Lifts 25/26)

All are Welcome!