For favour of Posting
Revised (*)

THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

SEMINAR ON PROBABILITY

Regularization of non-Hermitian matrices by noise

By

Dr. Hong Chang Ji
Institute of Science and Technology Austria

Abstract

The spectrum of a general non-Hermitian (non-normal) matrix is unstable; a tiny perturbation of the matrix may result in a huge difference in its eigenvalues. This instability is often quantified as eigenvalue condition numbers in numerical linear algebra or as eigenvector overlap in random matrix theory. In this talk, we show that adding a smoothly random noise matrix regularizes this instability, by proving a nearly optimal upper bound of eigenvalue condition numbers. If time permits, we will also discuss the effect of the noise matrix on a macroscopic scale in terms of the Brown measure of free circular Brownian motion. This talk is based on joint works with Laszlo Erdos.

Date : 9 November 2023 (Thursday)

Time : 4:00pm

Venue : Room 4472 (Lifts 25/26) *

All are Welcome!