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THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

PHD STUDENT SEMINAR

Eigen-transform Test for Change-points in High Dimension

By

Mr. Xuchen WEI

Abstract

This paper studies high dimensional time series in which the mean structure changes at a certain time point. We propose a test statistic based on the eigen-transform of the cumulative sum (CUSUM) process and derive its asymptotic theory as both the sample size n and the dimension p tend to infinity. To handle heavy-tailed time series and broaden the applicability of our method, we further incorporate a winsorizing technique and provide the corresponding asymptotic results. The proposed procedures are established under mild conditions, ensuring flexibility for many popular time series models, including ARMA and GARCH. Simulations are carried out to assess the performance of our procedures.

Date : 27 April 2026 (Monday)
Time : 11:00am
Venue : Room 4472 (near Lifts 25/26)

All are Welcome!