



The Hong Kong University of Science and Technology

Department of Mathematics

Seminar on Statistics

Estimation and inference for the covariance and precision matrices of non-stationary time series

By

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Abstract

In this talk, I will discuss the estimation and inference of the covariance and precision matrices of a rich class of non-stationary time series. Under mild conditions, we propose an efficient method to consistently estimate the underlying high dimensional covariance matrix and its precision assuming that only one time series is available. Based on our estimation procedure, we provide some useful statistics to test the structure of the covariance and precision matrices of the time series. Monte Carlo experiments are designed to verify the finite sample accuracy of our estimation and the statistical power of our tests. We also prove the high dimensional Gaussian approximation for the quadratic form of the non-stationary time series, give a consistent estimator of the large long-run covariance matrix and a robust bootstrapping procedure, which are of great interests by themselves. This is a joint work with Zhou Zhou.

Date: Thursday, 11 January, 2018

Time: 3:30p.m.-4:30p.m.

***Venue: Room 5506, Academic Building,
(near Lifts 25&26), HKUST***

All are welcome!