



統計科學研究所

INSTITUTE OF
STATISTICAL SCIENCE



S.E.M.I.N.A.R.



S.T.A.T.*A.S.

Orientation Seminar

Title : Statistical Inference with Complex Time Series
Data

Speaker : Dr. Hsueh-Han Huang (黃學涵 博士)
(Institute of Statistics, National Tsing Hua University)

Time : 10:30 AM~12:00 PM, Wednesday, Jan 4, 2023

Place : Auditorium, B1F, Institute of Statistical Science

Abstract

This talk consists of two parts. The first part of the talk is related to the order selection problem for the autoregressive fractionally integrated moving average (ARFIMA) model, which has been a long-standing problem in time series analysis. To tackle this problem, we establish the order selection consistency of the Bayesian information criterion (BIC) in very challenging situations where the memory parameter of the model is allowed to be any real number, the error terms can be conditionally heteroscedastic, and the candidate models are not necessarily identifiable. The second part of the talk is about the problem of estimating the covariance matrix of serially correlated vectors in high-dimensional scaling. We have an interesting finding that the covariance estimation problem can be connected with the problem of variable selection. Following this lead, we design a variable-selection-based covariance estimation method and prove that it is rate optimal under a sparsity condition more flexible than those in the existing literature. When the covariance matrix is bandable, we propose a novel information criterion and show that it can select the optimal bandwidth parameter for a banding/tapering estimate asymptotically. With the help of this information criterion, we establish the first adaptive estimation results of banding-type estimators under the operator norm.

※ Online live streaming through Cisco Webex will be available.

※ The tea reception will be held at 10:10.