
Joint Statistics Seminar

The Hong Kong University of Science and Technology

Recent Developments in Long Memory Continuous-Time Series Analysis

by

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Time: 4:00 p.m. - 5:00 p.m.

Venue: Room 3315 (Lift 17 & 18)

Abstract

The definition and properties of ARMA processes are reviewed. Since discrete-time series are often obtained by observing a continuous-time process at a discrete sequence of observation times, it is natural to model the underlying process as a continuous-time series. For this reason continuous-time ARMA (CARMA) models are introduced, which involve autocorrelation functions that show an exponential decrease over time. Hence, ARMA and CARMA processes belong to the family of *short memory* models. However, several measurements in hydrology, turbulence, finance, economics or telecommunications show long memory behaviour in the sense that they seem to require models, whose autocorrelation functions decay much less quickly. In this talk the fractionally integrated CARMA (FICARMA) models will be introduced, which belong to a class of *long memory* continuous-time stationary processes whose autocorrelation functions converge to zero at a power law. In particular, we develop a new approach to generate long memory moving average models by defining the class of fractional Lévy processes which leads to a generalization of fractional Brownian motion. We also study the second order properties, sample path properties and consider integrals with respect to fractional Lévy processes.

❖ **All interested are welcome!** ❖

For details, please contact ISMT Department.