

PHD SEMINAR ANNOUNCEMENT
Department of Statistics

"Inferences on Time Series Driven by Dependent Innovations"

THURSDAY, June 10, 2004, 3:00 pm
Eckhart Hall, Room 110, 5734 S. University Avenue

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ABSTRACT

Many time series are driven by uncorrelated but serially dependent innovations. The dependence of innovations presents unique challenges in time series inference. In the framework of geometrical moment contracting (GMC), we establish the central limit theorems and invariance principle for sample autocovariances of linear time series. We prove a large class of time series models can be incorporated into this framework, particularly the generalized autoregressive conditional heteroscedastic (GARCH) models. We investigate the impact of the dependence of innovations on the properties of sample (partial) autocorrelation functions as well as various information criteria for model selection, and compare with the existing results established in the context of iid innovations. For a multivariate time series, its Kronecker index entails a parsimonious autoregressive moving average (ARMA) model specification. Canonical correlations are the major tools to identify Kronecker index. Inferences on canonical correlations is shown to be adversely affected by the dependence of innovations. We proposed an approach that accounts for the dependence. The proposed approach is shown to be effective by simulation study and is further illustrated by a real example.