



Center for Statistical Sciences Seminar

“Evolutionary Factor Analysis”

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Monday, December 7, 2009 ~ 3:30 pm

121 South Main Street, Providence, RI, Room 245

Refreshments beginning at 3:15pm

In this work, we generalize the tools of factor analysis for the study of multivariate stochastic processes whose second order structure evolves over time. In particular, we introduce a new class of factor models with time-varying factor loadings. The basic idea is to consider these as smooth functions of time, rendering the process non-stationary while the factors are stationary. The assumption that loadings are smooth enables to estimate the model using non-parametric methods. To estimate these non-stationary factor models, we generalize the properties of the principal components techniques to the time-varying framework. We discuss identification and estimation of the model and derive the asymptotic theory for the estimated loadings, the factors and the common components. We provide simulation results and applications to real data.