

MICHIGAN STATE UNIVERSITY
Department of Statistics and Probability

COLLOQUIUM

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Varying Kernel Marginal Density Estimator for a Positive Time Series

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10:20 a.m. - 11:10 am
Refreshments 10:00 am
C405 Wells Hall

Abstract

The modeling and analysis of positive valued time series has emerged as an interesting area of research, especially in analyzing financial durations, trading volume of orders, high-low range of asset prices, absolute value of daily returns, realized volatility, etc. The popular models such as Autoregressive Conditional Duration (ACD) and Stochastic Conditional Durations models (SCD) are discussed under the parametric setup assuming specific distributions for the innovations. In this talk we briefly review the literature on parametric models for non-negative time series and their estimation. Further we propose a varying kernel estimator for the stationary marginal density function of a non-negative time series. The large sample properties of the proposed estimator are established for a stationary, ergodic and strongly mixing time series. In particular, we obtain an approximation for bias, mean square error and establish asymptotic normality of this density estimator. Almost sure uniform consistency of the estimator over bounded intervals is also established.

*This talk is based on a joint paper with Prof. Hira L. Koul.