

MICHIGAN STATE UNIVERSITY
Department of Statistics and Probability

COLLOQUIUM

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Gaussian approximation for multiple time series and applications

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10:20 AM - 11:10 AM

Refreshments 10:00 AM

C405 Wells Hall

Abstract

We obtain an optimal bound for Gaussian approximation of a large class of vector-valued random processes. Our results substantially generalize earlier ones which assume independence and/or stationarity. Based on the decay rate of functional dependence measure, we quantify the error bound of the Gaussian approximation based on the sample size and the moment condition. Under the assumption of p -th finite moment, with $p > 2$, this can range from the worst $n^{1/2}$ to the optimal $n^{1/p}$ rate. We exhibit multiple applications of our Gaussian approximation in the regime of simultaneous inference for time-varying models and change-point analysis. We conclude the talk discussing some natural extension to spatial/tensor data under a general form of dependence.

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