

MICHIGAN STATE UNIVERSITY
Department of Statistics and Probability

COLLOQUIUM

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**Parameter Estimation of Stationary Gaussian
Processes using the Generalized Method of
Moments**

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10:20 a.m. - 11:10 am

Refreshments 10:00 am

C405 Wells Hall

Abstract

We consider the class of all stationary Gaussian process with explicit parametric spectral density. Under some conditions on the autocovariance function, we define a GMM estimator that satisfies consistency and asymptotic normality, using the Breuer-Major theorem and previous results on ergodicity. This result is applied to the joint estimation of the three parameters of a stationary Ornstein-Uhlenbeck (fOU) process driven by a fractional Brownian motion. The asymptotic normality of its GMM estimator applies for any H in $(0; 1)$ and under some restrictions on the remaining parameters. A numerical study is performed in the fOU case, to illustrate the estimator's practical performance when the number of data-points is moderate.

This is a joint work with Luis A. Barboza from the Department of Mathematics at the University of Costa Rica.

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