

**MICHIGAN STATE UNIVERSITY**  
Department of Statistics and Probability

# **COLLOQUIUM**

**Kun Ho Kim**  
Hanyang University

## **Simultaneous Inference for the Partially Linear Model with a Multivariate Unknown Function when the Covariates are Measured with Errors**

**Tuesday, April 18, 2017**  
**10:20 a.m. - 11:10 am**  
**Refreshments 10:00 am**  
**C405 Wells Hall**

### **Abstract**

In this paper, we conduct simultaneous inference of the non-parametric part of a partially linear model when the non-parametric component is a multivariate unknown function. Based on semi-parametric estimates of the model, we construct a simultaneous confidence region of the multivariate function for simultaneous inference. The developed methodology is applied to perform inference for the U.S. gasoline demand where the income and price variables are measured with Berkson-type errors. The empirical results strongly suggest that the linearity of the U.S. gasoline demand is rejected.

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