

**Indiana University-Purdue University
Indianapolis**
Department of Mathematical Sciences

STATISTICS SEMINAR

12:15pm—1:15pm, Tuesday, November 19, 2019
LD 265

Speaker: **Yishan Cui**
Department of Mathematical Sciences, IUPUI

Title: **Efficient semiparametric regression for longitudinal data with nonparametric covariance estimation**

Abstract:

For longitudinal data, when the within-subject covariance is misspecified, the semiparametric regression estimator may be inefficient. We propose a method that combines the efficient semiparametric estimator with nonparametric covariance estimation, and is robust against misspecification of covariance models. We show that kernel covariance estimation provides uniformly consistent estimators for the within-subject covariance matrices, and the semiparametric profile estimator with substituted nonparametric covariance is still semiparametrically efficient. The finite sample performance of the proposed estimator is illustrated by simulation. In an application to CD4 count data from an AIDS clinical trial, we extend the proposed method to a functional analysis of the covariance model.