Indiana University-Purdue University Indianapolis

Department of Mathematical Sciences

STATISTICS SEMINAR

12:15pm—1:15pm, Tuesday, November 16, 2021
Zoom Meeting: Meeting ID: 845 0989 4694

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

Title: **Efficient Semiparametric Inference with Reproducing Kernel Hilbert Space Covariance Estimation for Longitudinal Data**

Abstract:

For longitudinal data, the semiparametric model is usually used. To improve the efficiency, it is important to use the information of with-subject correlation. We combine the efficient semiparametric regression with a Reproducing Kernel Hilbert Space covariance estimation so that the covariance estimator is guaranteed to be positive definite. We show that using these estimated covariance matrices, the semiparametric estimator will still achieve the semiparametric efficiency bound. We also propose an empirical likelihood (EL) based testing procedure for the parametric part in the semiparametric model. With incorporation of with-subject correlation, the EL based test gains more power. Our simulation studies show the finite sample efficiency of the proposed estimation and testing.