Indiana University-Purdue University Indianapolis
Department of Mathematical Sciences

STATISTICS SEMINAR

12:15pm—1:15pm, Tuesday, November 14, 2023
Zoom Meeting: Meeting ID: 845 0989 4694

Speaker: **Zixuan Cang**
Department of Mathematics ,
North Carolina State University

Title: **Analysis of single-cell and spatial genomics data with optimal transport**

Abstract:

The emerging single-cell and spatial genomics techniques allow us to elucidate the governing rules of multicellular systems with an unprecedented resolution and depth. These datasets are often high-dimensional, complex, and heterogeneous. Mathematical tools are needed to extract biological insights from such data. In this talk, we will discuss several mathematical and machine learning methods for exploring the tissue structures, temporal signatures, and cell-cell communication processes on single-cell and spatial genomics data. We will also discuss supervised optimal transport which is motivated by these biological applications where application-induced constraints are enforced in the optimal transport problem.

Bio:
Dr. Zixuan Cang is an Assistant Professor in Mathematics at North Carolina State University. He obtained his Ph.D. in Applied Mathematics from Michigan State University in 2018. His research interests include topological and geometric data analysis, machine learning, and their applications to data-driven biology.