## Statistics and Data Science Seminar

Random graphs and networks: estimation and modeling challenges

Sonja Petrovic (IIT)

**Abstract:** The ubiquity of network data in the world around us does not imply that the statistical modeling and fitting techniques have been able to catch up with the demand. This talk will discuss some of the basic modeling questions that every statistician knows are fundamental, some of the recent advances toward answering them, and the challenges that remain. The specific focus of the talk will be on goodness of fit testing for random graph models. Recent joint work with Despina Stasi and Elizabeth Gross developed a new testing framework for graphs that is based on combinatorics of hypergraphs and model geometry. I will summarize our work by showing simulation results for the popular  $p_1$  model for directed random graphs.

Wednesday, November 5 at 4:00 PM in SEO 636