

# STATISTICS SEMINAR

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Thursday, October 23, 2014

Dickens Hall, Room 207, 4:00-5:00 pm

Refreshments: Dickens 108, 3:30-4:00 pm



## Statistical Methods for the Analysis of Financial Trading Networks

Financial trading networks (FTNs) are directed graphs in which nodes correspond to traders participating in a financial market, and edges represent pairwise buy-sell transactions among them that occur within a period of time. FTNs contain important information about patterns of order execution in order-driven markets; hence, they can provide insights into aspects of market microstructure such as market frictions, trading strategies, and systemic risks. This talk will discuss a series of novel statistical models for the analysis of FTN data. The main goal of these models is short term link prediction: given the history of transactions, we are interested in predicting the identity of traders involved in future transactions. A secondary but also important goal of the models is to understand the structure of the market and its evolution over time. In particular, our models allow us to identify trading communities and evaluate their evolution over time, as well as identify the presence of substitution and disintermediation effects. We illustrate the performance of the models using a dataset from the New York Mercantile Exchange natural gas futures market.