

# Communications Seminar



**Title:** Bargaining Dynamics in Exchange Networks

**Speaker:** Yashodhan Kanoria  
PhD Candidate in Electrical Engineering  
Stanford University

**Date:** Monday, February 20, 2012

**Time:** 4:00 p.m.

**Location:** 141 Coordinated Science Lab

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**Abstract:** Social and economic networks are becoming increasingly important, both on the internet and otherwise. Agents in these networks possess limited information, and interact chiefly with their local neighborhood. Yet these networks have proven remarkably effective at the aggregation of 'information' at massive scales. It is of great scientific and commercial interest to build realistic models for phenomena in networks of agents.

Exchange networks model the behavior of a set of players who need to reach pairwise agreements for mutual benefit, as in the labor market, the housing market and the 'market' for social relationships. A crucial but little understood aspect of exchange networks is the dynamics of bargaining between players. We present a natural model of the bargaining dynamics on general networks, and show rapid convergence to certain socially optimal outcomes. We also describe ongoing internet-based experiments on bargaining in networks.

**Biography:** I'm a PhD student in Electrical Engineering at Stanford University. My advisor is Andrea Montanari.

My core research interests are:

- Learning in social and economic networks (theory and web experiments).
- Mechanisms for the smart grid.
- Graphical models, message passing algorithms, probability and game theory.

**Website:** <http://www.stanford.edu/~ykanoria/>