

abstract

Computer Science/Discrete Mathematics Seminar I
Topic:

Speaker:

Affiliation:

Date:

Time/Room:

A long-standing line of work in economic theory has studied models by which a group of people in a social network, each holding a numerical opinion, can arrive at a shared opinion through repeated averaging with their neighbors in the network. Motivated by the observation that consensus is rarely reached in real opinion dynamics, we study a related sociological model in which individuals' intrinsic beliefs counterbalance the averaging process and yield a diversity of opinions.

By interpreting the repeated averaging as best-response dynamics in an underlying game with natural payoffs, and the limit of the process as an equilibrium, we are able to study the cost of disagreement in these models relative to a social optimum. We provide a tight bound on the cost at equilibrium relative to the optimum; our analysis draws a connection between these agreement models and extremal problems for generalized eigenvalues. We also consider a natural network design problem in this setting, where adding links to the underlying network can reduce the cost of disagreement at equilibrium.

This is joint work with David Bindel and Jon Kleinberg.