Multi-resolution Methods in the Analysis of Large Networks

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Abstract: I will discuss statistical mechanics inspired methods to analyze large scale systems. In recent years, physicists have started to investigate old known graph theory problems. One of the most studied problems is that of "community detection". The goal of this problem is to find, in a network, tightly bound subgraphs ("communities") within the larger network. This is a very practical problem that has attracted considerable attention. I will discuss a Potts spin glass model based approach that addresses this problem and further allow the determination of the natural structure of the system on all scales.

Studies:
Ph.D. (Physics) University of California, Los Angeles, 2000
B.Sc. (Physics) Tel-Aviv University, 1987

Appointments:
2005-Present Assistant Professor, Physics, Washington University in St. Louis
2002-2005 Postdoctoral researcher, Theory Division, Los Alamos National Lab
2000-2002 Postdoctoral Researcher, Lorentz Institute for Theoretical Physics, Leiden

Host: Jung-Tsung Shen

Friday, April 9, 2010
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Bryan Hall, room 305

Light refreshments will be served.