The IMA is an NSF funded institute for mathematics and its applications.

International Workshop on Complex Systems & Networks

IMA Special Workshop
September 5-7, 2012

Description:
The ubiquity of complex networks in science and technology has been recently noted by researchers in various disciplines. Due to the availability of massive amounts of data regarding large-scale complex networks and the availability of computational resources to analyze them, there has been a resurgence in activity to study such networks. These networks can be man-made, natural, or spontaneously emerging. What is remarkable is the pervasiveness and ubiquity of complex networks in all aspects of science and technology, appearing in subjects such as social group dynamics, animal flocking, communication networks, emergence of complex structures, and the function and structure of biological networks. A common thread is the emergence of complexity from a large number of simple agents. An important part of this complexity comes as a result of the way the agents are connected to and interact with each other and therefore it is important that we understand how the coupling topology affects properties of the ensemble system.

This strongly interdisciplinary workshop is intended to bring together mathematicians, physicists, biologists, social scientists, and engineers working on different aspects of network dynamics. The main focus of the meeting will be devoted to the impact of network structure on collective dynamics. This area is currently a hot research topic in all branches of science and technology, thanks in part to the ebullition about distributed systems, functional genomics, social and financial networks, and neuronal networks. The workshop will provide opportunities for participants to learn about state-of-the-art research in various related yet disparate fields. To this end, we plan to have overview talks in various areas and in-depth technical talks describing the latest research. A second objective of this workshop is to allow researchers and students from these diverse disciplines to interact, find common ground, share results and insights, and collaborate.

Speakers:
Igor Belykh (Georgia State University)  Jun Liu (RMIT University, Melbourne)
Stefano Boccaletti (Polytechnical University of Madrid)  Bojan Mohar (Simon Fraser University)
Guanrong Chen (City University of Hong Kong)  Edward Ott (University of Maryland)
Mario di Bernardo (University of Bristol)  Kenneth Showalter (West Virginia University)
Martin Golubitsky (Ohio State University)  Ljiljana Trajkovic (Simon Fraser University)
David Hill (Australian National University)  Chai Wu (IBM)

Apply to participate at:  www.ima.umn.edu/2012-2013/SW9.5-7.12

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