

Eugene Wigner Colloquium

joint event of GRK 1558 and SFB 910



Dr. Glenn Lawyer

MPI für Informatik, Saarbrücken

“Beyond Centrality: Understanding node influence in networks”

Network models have become ubiquitous, raising node centrality from an obscure aspect of social science research to a basic mathematical tool. Yet centrality measures are designed only to identify the most important nodes in a network, and are rarely usefully accurate for the 99% of nodes which are not highly central. After showing how this counter-intuitive result follows directly from the definition of centrality, Dr. Lawyer will present a new approach to measuring node influence. The approach is based on first principles, building on the expected value of the force of infection which would be seen in a spreading process seeded from a given node. The expected force (ExF) measure is highly predictive of epidemic outcomes on a broad range of networks, and gives a framework understanding the nature of influence. The talk will conclude with an application of the ExF to the world airline network.

[1] G. Lawyer, *Understanding the influence of all nodes in a network*, Sci. Rep. **5**, 8665 (2015).

[2] G. Lawyer, *Measuring the potential of individual airports for pandemic spread over the world airline network*, BMC Infectious Diseases **16**, 1 (2016).

Thursday, 07.07.16 · 16:15h · EW 202

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