Complexity Science Group Seminar

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Assessing the relevance of structural features in networks

A lecture by

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Networks describe a variety of interacting complex systems in social science, biology and information technology. Usually the nodes of real networks are identified not only by their connections but also by some other characteristics. Examples of characteristics of nodes can be age, gender or nationality of a person in a social network, the abundance of proteins in the cell taking part in a protein-protein interaction networks or the geographical position of airports that are connected by directed flights. Integrating the information on the connections of each node with the information about its characteristics is crucial to discriminating between the essential and negligible characteristics of nodes for the structure of the network. In this talk I propose a general indicator θ , based on entropy measures, to quantify the dependence of a network's structure on a given set of features. We apply this method to social networks of friendships in US schools, to the protein-interaction network of Saccharomyces cerevisiae, and to the US airport network, showing that the proposed measure provides information which complements other known measures.



Everyone is welcome! The talk will be followed by light refreshments & a wine and cheese reception

