Trinity Term 2007

COMPLEX ADAPTIVE SYSTEMS GROUP SEMINAR
Saïd Business School, University of Oxford

Convenors:
Felix Reed-Tsochas, Saïd Business School
Jukka-Pekka Onnela, Department of Physics and Saïd Business School

Our meetings intend to provide a forum for rigorous research (in a broad range of disciplines) focusing on complex adaptive systems, using methods and techniques such as agent-based modelling and complex network analysis. Since potential areas of application for such approaches can be located across the social, natural and engineering sciences, our aim is to involve participants from a wide range of departments in Oxford. We welcome talks which focus on particular areas of application and associated technical issues, but also encourage contributions which address more fundamental conceptual or mathematical problems. The CASG Seminar Series is one of the activities of the CABDyN Research Cluster (http://sbs-xnet.sbs.ox.ac.uk/complexity/).

Tuesday 8th May 12.30 – 2.00 pm

Seminar Room A

Dr Tim Evans
Department of Physics
Imperial College London

Exact Results for Cultural Transmission and Network Rewiring

ABSTRACT

Rewiring a network is a classic problem exemplified by the original Watts and Stogatz paper. I will present a model with simple random and preferential attachment probabilities and show how it is related to a large number of other models including Urn models and zero range processes, Voter models and Minority games. Such models have been applied to a wide range of applications such as cultural transmission (baby names or pedigree dog popularity), family name frequency, gene frequencies, glasses, wealth distributions, and language distributions. I will explain why previous master equations for this problem were incomplete. More surprisingly I will show that the EXACT degree distribution for any finite parameter value at any time in the evolution is easily calculated in terms of simple known functions. This enables one to follow a network analytically as it undergoes a phase transition in time.

Sandwiches and drinks will be provided

For further information contact felix.reed-tsochas@sbs.ox.ac.uk
Seminar webpage: http://sbs-xnet.sbs.ox.ac.uk/complexity/complexity_casg.asp