Hilary Term 2009

CABDyN SEMINAR SERIES
Saïd Business School, University of Oxford

<u>**Convenors:**</u>
Felix Reed-Tsochas, *James Martin Institute*, *Saïd Business School*
Eduardo López, S*aïd Business School*

JamesMartinInstitute
for science and
civilization

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 CABDyN Seminar Series is one of the activities of the CABDyN Complexity Centre (http://sbs-xnet.sbs.ox.ac.uk/complexity/).

Tuesday 27th January, 12.30 – 2.00 pm

Seminar Room B, Saïd Business School

Prof Shlomo Havlin
Physics Department, Bar-Ilan University, Ramat Gan, Israel

'Statistical physics and complex networks'

ABSTRACT

Statistical physics approaches are developed and applied successfully in recent years to understand the topology, robustness and function of complex networks. We will show how ideas and tools from statistical physics lead to novel results on the robustness, immunization strategies, optimal paths and minimum spanning trees. These results are relevant to many real world systems ranging from the Internet to social systems and climate.

A novel percolation process which is characterized by fragmenting the network by removing a minimal number of nodes will be also discussed.

This result is useful for efficient immunization strategies. We will also discuss how one can synthesize novel materials in which light can be localized by modifying the network topology.

Sandwiches and drinks will be provided

For further information contact info.cabdyn@sbs.ox.ac.uk
Seminar webpage: http://sbs-xnet.sbs.ox.ac.uk/complexity/complexity_seminars.asp