Michaelmas Term 2008

CABDyN SEMINAR SERIES
Saïd Business School, University of Oxford

Convenors:
Felix Reed-Tsochas, *James Martin Institute*, *Saïd Business School*
Eduardo López, S*aïd 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 CABDyN Seminar Series is one of the activities of the CABDyN Complexity Centre (http://sbs-xnet.sbs.ox.ac.uk/complexity/).

Tuesday 21st October, 12.30 – 2.00 pm

Seminar Room 13, Saïd Business School
(Seminar Room 13 is located in the corridor between Seminar Room A and Seminar Room B)

Prof Henrik Jeldtoft Jensen
Institute for Mathematical Sciences, Imperial College London

'The Tangled Nature Model of biological emergence:
How far can one go by using a minimalist model of co-evolution?'

ABSTRACT

Starting from reproduction, mutation and interaction at the level of individuals, the Tangled Nature model attempts to describe ecological and evolutionary observables at the community level. The dynamics consist of mutation prone reproduction in a type space with prescribed (in potentia) interactions between the possible types of individuals. Species are defined in the model as clusters of genetically similar individuals.

We focus on the relation between the interaction structure in genotype space and the resulting Species Abundance Distribution (SAD). Ecological relevant SADs are only obtained if the genotype space allows for a potential high connectivity between species. We also discuss the relation between the degree of genotype interaction and species diversity. Furthermore we include spatial degrees of freedom to investigate the Species Area Relation, i.e. the number of species per unit area, from an evolutionary perspective.

The model has been generalized to include correlations in genotype (or phenotype) space. This allows us to study, from an evolutionary perspective, the relation between community structure and the characteristics of underlying type space.

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