



the institute for  
advanced studies



## Complex Networks across the Natural and Technological Sciences

The Complex Networks Programme consists of three seminars taking place in January, April and May 2009 at the Institute of Advanced Studies. Details of the second of these events are provided below.

### Dynamic Properties of Complex Networks: March 30<sup>th</sup>-April 3rd 2009

Complex networks have become a focus of research exploring the emergent phenomena that characterise the structure of real systems modelled as graph structures. Amongst these are dynamic properties that arise from study of time-dependent behaviours of large and semi-regular networks.

Complex systems are assemblages of many components, also exhibiting semi-regular structure and emergent properties arising from both static and dynamic behaviours. They arise in the modelling of a large variety of natural phenomena such as ant colonies, biological processes, communication systems and human social and economic systems. They are subject to time-dependent processes and their structure and dynamics evolve over time. They might have chaotic, stochastic or non-deterministic dynamics. Their aggregate behaviour tends to be non-linear, making them difficult to model and analyse.

Complex systems are often modelled as networks of components and in this workshop we seek to examine more closely the nature of the relationship between the dynamics of complex networks and the behaviours of complex systems. We intend to work towards a synthetic view of this relationship, establishing the role of complex networks in underpinning the behaviours of complex systems.

Invited participants include: **Brian Williams** (MIT), **Boudewijn Haverkort** (Twente), **George Coghill** (Aberdeen), **Cees Witteveen** (Delft), **Youssef Hamadi** (Microsoft), **Jane Hillston** (Edinburgh), **Greg Michaelson** (Heriot-Watt), **Jorg Hoffmann** (SAP), **Eiko Yoneki** (Cambridge), **Alessandro Moura** (Aberdeen) and **Anne Smith** (St Andrews).

As well as a number of invited participants, the programme organisers welcome applications to attend and participate from those with an interest in this area. There is no registration fee for the workshop and we are able to cover some travel and accommodation costs of the attendees. If you wish to participate, please contact: Maria Fox ([maria.fox@cis.strath.ac.uk](mailto:maria.fox@cis.strath.ac.uk)).

The **Institute for Advanced Studies** is a place for unconstrained thinking, where ground-breaking concepts can be developed and explored, with the aim of enhancing the culture and society of Scotland and the UK, and their future scientific and technological capabilities. The Institute funds programmes of research that bring together key participants from around the world to a physical location in central Glasgow. By crossing disciplinary boundaries, and with knowledge exchange with the public at their heart, research programmes aim to inform public policy and practice. Research programmes in the Institute are free to all participants.

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