SAID BUSINESS SCHOOL, University of Oxford

SEMINAR SERIES / HILARY 2011

Convenors: Felix Reed-Tsochas, Institute for Science, Innovation and Society, Saïd Business School
Eduardo López, Saïd Business School

Sandwiches and drinks will be provided

Please note: although the seminar programme detailed was correct at time of printing, seminar arrangements are subject to change – for the latest information, please check the seminar webpage.

Tuesday 18th January
(12.30pm – 2.00pm) James Martin Seminar Room

Guido Caldarelli
Associate Professor in the Centre for Statistical Mechanics in the University of Rome "Sapienza" Italy

'Random Hypergraphs and their applications'

ABSTRACT

In the last few years we have witnessed the emergence, primarily in on-line communities, of new types of social networks that require for their representation more complex graph structures than have been employed in the past. One example is the folksonomy, a tripartite structure of users, resources, and tags - labels collaboratively applied by the users to the resources in order to impart meaningful structure on an otherwise undifferentiated database. Here we propose a mathematical model of such tripartite structures which represents them as random hypergraphs. We show that it is possible to calculate many properties of this model exactly in the limit of large network size and we compare the results against observations of a real folksonomy that of the on-line photography web site Flickr. We show that in some cases the model matches the properties of the observed network well, while in others there are significant differences, which we find to be attributable to the practice of multiple tagging, i.e., the application by a single user of many tags to one resource, or one tag to many resources.