Gleeson, James		in CS 8
Thursday, July 29	18:00 – 18:20	Hindemith

Systemic risk in models of inter-bank networks

Gleeson, James

University of Limerick, Republic of Ireland

Network models may be applied to many complex systems, e.g. the Internet, the World Wide Web, inter-bank lending/borrowing networks, etc. Cascade dynamics can occur when the (binary) state of a node is affected by the states of its neighbours in the network, for example when the default of a bank causes some of its creditors to default in turn. I will review the techniques used to study these dynamics (e.g. Gleeson 2008) and examine their applicability for the modelling of contagion and systemic risk within banking network models (Nier et al. 2007, Gai and Kapadia 2007).

Gommes, Cedric		in MS 168
Friday, July 30	11:30 – 12:00	Offenbach

3D Image analysis of heterogeneous catalysts: electron tomography insights into active site dispersion and pore connectivity

Gommes, Cedric

University of Liege, Belgium

A heterogeneous catalyst typically consists in a nanoporous solid containing chemically active sites. The questions of the spatial distribution of the active sites, and of their accessibility to reactants through the porous network, are central to the development of any new catalyst. The present contribution discusses the quantitative insights that can be obtained into these issues using image analysis of electron tomography reconstructions, in particular using the tools of mathematical morphology. The presentation focuses on two catalysts, namely a palladium catalyst supported on silica and a mesoporous HY zeolite.

Gorski, Jochen		in MS 232
Tuesday, July 27	11:36 – 12:00	Majolika Ost

Finding Mines in a Line

Gorski, Jochen[1]; Jaschob, Mathias[1]; Klamroth, Kathrin[1]; Paquete, Luis[2]

[1] *University of Wuppertal, Germany*
[2] *Universidade de Coimbra, Portugal*

We discuss solution approaches for the following problem: Given a line partitioned into segments, each segment is assigned the time taken to either search in or travel through it, as well as a score value representing the probability to find a mine there. The goal is to choose the segments to visit such that the sum of the scores is maximized while the total time spent is minimized.

We compare different dynamic programming approaches to determine the non-dominated set of the problem that are based on the modeling of the problem as a knapsack as well as a shortest-path problem.