



Action MP0801 "Physics of Competition and Conflicts"

Call for Papers

Modelling interdependency between Technological and Human Systems under Crisis Scenarios

to be held within the International Workshop

"Coping with Crises in Complex Socio-Economic Systems"

ETH Zurich, June 8-13, 2009

COST Action MP0801 "Physics of Competition and Conflicts" in the frame of its activities, has proposed to dedicate a parallel session of the International Workshop to the modelling of the interdependencies which link social systems to large Critical Infrastructures (CI). CIs are systems from which societies receive relevant and essential services. CIs are known to be strongly interdependent from each other; a failure (or a strong reduction in the quality of functioning) in one of them might have strong (and even amplified) repercussions on the others. Intra- and inter-dependent cascade effects (progressive loss of functionalities) might be the cause of strong reduction, or even the complete loss, of services which are essential to citizen's life.

Under CI crises (blackouts, lack of connectivity for mobiles, internet, traffic jams etc.) social systems do react to attempt to restore life quality, by attempting to ensure, often in a disorganized way, the services they need. This might produce conflicts (i.e. competitions for ensuring services, goods etc.) that, quite often, produce negative feedbacks on the CIs which further reduce their efficiency and the quality of their services (a typical case could be the onset of tlc networks congestions caused by the asymmetric communications establishing toward catastrophe areas or the road contentions of traffic in diverted routes).

Present strategies are often based on analyses that lead to Nash-type equilibria. These may lead to further degradation of services rather than any improvement. In this respect, social behavior should be inserted into the list of CI-interdependent factors.

Proposals covering both technological and social systems within the same framework are welcome. Specific issues could be:

- crisis in the telecommunications systems: traffic congestion, adaptive routing strategies
- vehicular traffic under jamming conditions in disaster areas
- crowds fluidodynamics at high Reynolds numbers
- social behavior under CIs blackouts
- modelling for the design of contingency plans
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Papers will be reviewed by a session committee, with the help of outside referees. Papers will be accepted primarily for their likely interest to and impact on the systems community. Novelty, clarity of



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explanation, thoroughness of evaluation, and bridging gaps between different communities are additional criteria. Acceptance may be provisional, subject to further shepherding by a member of the programme committee before final acceptance.

Papers should be submitted to the following e-mail address

rosato@casaccia.enea.it

and directly to the International Conference website:

<http://www.soms.ethz.ch/workshop2009/Registration>

The final acceptance of the contribution will be related to the Registration to the Conference site at the web site. Authors will receive a notification of acceptance upon presentation of the registration acknowledgment.

Presented papers will be offered the opportunity of being published with a special issue of an international scientific journal.

Invited Speakers

A member of the Italian Dept. of Civil Protection (part of the Prime Ministry Office) has been invited to present current needs and the state of the art of large areas evacuation planning. A further Invited Speaker will be provided to cover the current status of socio-technological modelling.

Important dates

- January 31, 2009: Deadline for abstract submission
- March 15, 2009: Notification to contributors
- April 30, 2009: Deadline for payment of reduced registration fee

Programme committee

- dr. Vittorio Rosato, ENEA, Computing and Modelling Unit, Casaccia Research Center, Roma
- Prof Dirk Helbing, Chair of Sociology, in particular of Modeling and Simulation, ETH Zurich
- Prof Peter Richmond, Dept. Physics, Trinity College, Dublin