

Evolutionary Games on Complex Networks

Location; Trondheim, May 18-21, 2009.

Submission deadline; Nov. 1st 2009.

Submission format; Please submit via the [online](#) system for CEC 2009 indicating that your paper is for the Evolutionary Games on Complex Networks special session.

Accepted papers must be formatted in accordance with CEC2009 requirements.

Organizer

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Aim & Scope

The aim of this session is to bring together researchers working in the area of evolutionary games with relation to network effects.

The emergence of cooperation in overcoming a dilemma can be explained by several theories such as kin selection, direct reciprocity, indirect reciprocity, network reciprocity, and group selection. Network reciprocity is one of the most important ideas among them, since the network reciprocity can make altruism emerge, even though requiring that agents use only the simplest strategy—either cooperation (C) or defection (D). Thus, the network reciprocity may explain why a number of animal species, unsophisticated in terms of information processing, have evolved cooperative social systems. Observing ourselves, the network reciprocity might be able to give a plausible answer of why human society evolves complex networks to solve conflicting problems that are often accompanied by a heavy social dilemma. Thus, evolutionary games on complex networks shed a clear light on those unsolved inquiries in evolutionary biology, sociobiology and other social sciences. Moreover, recently, the evolutionary games on complex networks also call particular interests from interdisciplinary areas of nonlinear science, because physicists have observed that there are several analogies between

emergence of cooperation on evolutionary network games and phase transition of crystal lattice structures.

Currently, many studies have dealt with those themes concerned on both “*evolutionary game*” and “*complex network*”. Games on time constant networks including various heterogeneous networks such as small-world, scale-free topologies have also been proposed and games on evolutionary networks (which implies a co-evolution model for both strategy and network topology) attract a great deal of interest. A question why we can observe *Assortative Mixing* tendency in human social networks, while finding negative assortative degree correlations in many bio-system networks is becoming a hot issue. From a physicochemical point of view, payoff matrix noise observed in network games is of great importance as noise may well enhance the phase change from a defector dominant state to a cooperator dominant state, which occurs in a resonance-like fashion.

This special session will act as a focus for all of these topics, bringing together researchers from computer science, mathematics, physics and evolutionary computation.

This session is accepting papers in the following areas:

- Evolutionary games with emerging cooperation
- Evolutionary games on complex networks
- Co-evolutionary games for strategy and networks
- Evolutionary games and social dilemmas
- Network reciprocity in evolutionary dilemma games
- Analysis on both various human social networks and bio-system networks.
- etc...

Post-conference publication

Some of the most excellent papers of this special session will be invited, in an extended version, for a submission to a special issue of **International Journal of Bio-Inspired Computation**.