

SOE 16: Award Ceremony: Young Scientist Award for Socio- and Econophysics

Time: Wednesday 18:00–20:00

Location: H 0105

Invited Talk SOE 16.1 Wed 18:00 H 0105
The Role of Agent Based Models in Understanding Human Societies — ●STEFAN THURNER — Medical University of Vienna, Vienna, Austria — Santa Fe Institute, Santa Fe, NM, USA

Humans exhibit a surprising weakness in coping with complex systems in rational and predictive ways. I try to argue that agent based models - the descendants of our spin models in physics - offer a fantastic tool to acquire intuition for mechanisms governing complex adaptive systems, human societies in particular. I try to make this point clear with examples of agent based models in the context of opinion formation, buerocratic inefficiency, and the scientific refereeing system. I will show an example for a novel generation of agent based models where agents are actual humans interacting in an online game. Finally, I will show that in some lucky situations, the understanding gained through agent based models can be distilled into relatively simple relations which then become concrete testable predictions for socio-economic systems.

Presentation of the Young Scientist Award for Socio- and Econophysics to Dr. Arne Traulsen, Max-Planck Institute for Evolutionary Biology.

Prize Talk SOE 16.2 Wed 18:50 H 0105
The evolution of cooperation in simple agent based models —

●ARNE TRAUlsen — Max Planck-Institute for Evolutionary Biology, Plön, Germany

Why would I help someone that I will certainly never see again? Why should I cut down my CO₂ emissions if my neighbor drives an SUV? The evolution of cooperation, one of the most challenging problems in sociobiology, is attracting growing interest from a community of interdisciplinary researchers.

Based on the interaction of agents, evolutionary game theory is a key approach to analyze the dynamics on networks. Methods from theoretical physics, combined with data from economic experiments, can help to shed light on the problem of cooperation in humans. Some cases call for detailed behavioral models with many parameters, but in other cases a coarse grained phenomenological description is more appropriate. Stochastic evolutionary game dynamics based on minimalistic agents bridges between these two approaches and allows analyzing the impact of noise in these systems. This leads to entirely new perspectives on models for the evolution of cooperation and several new dynamical phenomena.

After the awardee's talk, there will be a social gathering with beer and pretzels in front of the lecture hall H 0105 (Audimax).