SOE 2: Award Session: Young Scientist Award for Socio- and Econophysics (YSA)

Time: Monday 16:15–17:30 Location: H45

Presentation of the Award to the Awardee

Prize Talk SOE 2.1 Mon 16:30 H45

Higher-order network science — •Federico Battiston — Department of Network & Data Science, Central European University, Vienna, Austria

The complexity of many biological, social and technological systems stems from the richness of the interactions among their units. Over the past decades, a variety of complex systems has been successfully described as networks whose interacting pairs of nodes are connected by links. Yet, from human communications to ecological systems, interactions can often occur in groups of three or more nodes and cannot be described simply in terms of dyads. Until recently little attention has been devoted to the higher-order architecture of real complex systems. However, a mounting body of evidence is showing that taking the higher-order structure of these systems into account can enhance our modeling capacities and help us understand and predict their emergent dynamical behavior. Here I will present an overview of network science beyond pairwise interactions. I will discuss the higher-order organization of real-world complex systems, and characterize new emergent phenomena in dynamical processes beyond pairwise interactions, with a focus on social systems.

After the Award Session, there will be an informal get-together with beer and pretzels at the Poster Session