Department of Decision Sciences

Statistics Seminars

Interacting Reinforced Stochastic Processes

Irene Crimaldi

IMT School for Advanced Studies Lucca

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Webinar online – **link Zoom**

Abstract

Randomly evolving systems composed by elements which interact among each other have always been of great interest in several scientific fields. We will present some studies about models of interacting stochastic processes with reinforcement. Generally speaking, by reinforcement in a stochastic dynamics we mean any mechanism for which the probability that a given event occurs has an increasing dependence on the number of times the same event occurred in the past. In particular, we will focus on the asymptotic synchronization phenomenon that could be roughly defined as the tendency of different components to adopt a common behavior. Moreover, we will deal with the relationship between the topology of the interaction network and the long-time synchronization. Indeed, the obtained results lead to the construction of asymptotic confidence intervals for the common limit random variable and of statistical tests to make inference on the topology of the network. Finally, we will discuss the question when, even if interaction among agents is present, absence of synchronization may happen.