

Interacting diffusions on random graphs

Guilherme Henrique Reis

UFBA

Abstract:

We consider systems of diffusion processes whose interactions are described by a graph. For example, traditional mean-field interacting diffusions correspond to a complete interaction graph. In recent years some effort has been directed to understanding more general interactions. When the interaction graph is random, in the particular case of the Erdős-Rényi random graph, we show how the behavior of this particle system changes whether the mean degree of the Erdős-Rényi graph diverges to infinity or converges to a constant. When the mean degree converges to a constant we exploit a locality property of this system. Loosely speaking, the locality property states that information does not propagate too fast over the graph for this kind of particle system.