

Session 66 - Large Deviations of the Neighborhood Empirical Measure of Heterogeneous Marked Sparse Random Graphs

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Heterogeneous marked sparse random graphs naturally arise in the description of many static and dynamic interacting particle systems. In this talk, I will first present a large deviations principle (LDP) for the neighborhood empirical measures of Erdos-Renyi and configuration model graph sequences with an explicit and tractable rate function. While several forms of the rate function can be shown to be equivalent in the case of a finite mark space, this is no longer true in the setting of general marks, which gives rise to substantial additional subtleties. I will also discuss several applications of our LDP, including to models from statistical physics. This is based on joint works with Ivan Lee, Kavita Ramanan and Sarath Yasodharan.

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