

1165-60-315

Kavita Ramanan* (kavita_ramanan@brown.edu), Box F, Brown University, 182 George Street, Providence, RI 02912, and **Ankan Ganguly**. *Beyond Mean-field Limits for Generalized Interacting Particle Systems on Random Graphs*. Preliminary report.

We consider locally interacting jump processes, where the infinitesimal evolution of each particle depends on its own history as well as the histories of its neighbors with respect to an underlying (possibly random) sparse interaction graph. We show that when the graphs converge locally to a limit graph, then the dynamics also converge to the corresponding dynamics on the limiting graph. In particular, we establish well-posedness of a large class of dynamics on Galton-Watson trees. Under mild additional conditions, we also establish a correlation decay property and show that the empirical measures converge to a limit, and characterize the marginal dynamics when the limit graph is a tree. This complements mean-field limits of weakly interacting particle systems on dense graphs. (Received January 20, 2021)