

Sunder Sethuraman

Iowa State

Large deviations for a tagged particle in one dimensional symmetric simple exclusion

The exclusion process follows a collection of random walks on a lattice which interact in that jumps to already occupied vertices are suppressed. Of interest is the behavior of a distinguished, or tagged particle in this system.

Recently, starting from certain non-equilibrium initial distributions, a law of large numbers and a central limit theorem, has been proved for a tagged particle in the exclusion model on \mathbb{Z} with symmetric nearest-neighbor jump probabilities (Jara-Landim '06). In this talk, we discuss a corresponding large deviation principle, and evaluate the rate function in certain regimes, showing a phase transition. Joint work with SRS Varadhan.