

$$S_t \circ c(h)(a_s)_{ti} c(s) + \mathfrak{S}_e m^i n(a_r)$$

Department of Mathematics, University of Utah



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

Sunder Sethuraman

Iowa State University



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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.