The local principle of large deviations for compound Poisson process with catastrophes

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Abstract:
The continuous time Markov process considered in this paper belongs to a class of population models with linear growth and catastrophes. There, the catastrophes happen at the arrival times of a Poisson process, and at each catastrophe time, a randomly selected portion of the population is eliminated. For this population process, we derive an asymptotic upper bound for the maximum value and prove the local large deviation principle.

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