LARGE DEVIATIONS OF THE FRONT IN A ONE DIMENSIONAL MODEL OF $X + Y \to 2X$

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ABSTRACT. We investigate the probabilities of large deviations for the position of the front in a stochastic model of the reaction $X + Y \to 2X$ on the integer lattice. For a wide class of initial conditions, we prove that a large deviations principle holds and we show that the zero set of the rate function is the interval $[0, v]$, where v is the velocity of the front given by the law of large numbers. We discuss the validity of this result when more general initial conditions are considered. We also give more precise estimates for the rate of decay of the slowdown probabilities. This is a joint work with A. Ramírez.

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