

THE SPEED OF A BRANCHING SYSTEM OF $(L, 1)$ RANDOM WALKS IN RANDOM ENVIRONMENT

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Abstract: Consider a branching system of $(L, 1)$ random walks in random environment, for which extinction is possible. We study the speed of the rightmost particle, conditionally on the survival of the branching process. Suppose the branching process is supercritical, that is, $m > 1$. With the help of the rate function of large deviation principle for $(L, 1)$ random walks in random environment, we find out the critical number m_c . We obtain that if $m < m_c$, the rightmost particle goes to $-\infty$ with a negative speed; if $m > m_c$, the rightmost particle goes to $+\infty$ with a positive speed, by constructing a new Galton-Watson tree. . . .

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