

Recurrence and transience of excited random walks on \mathbb{Z}^d and strips

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Abstract

We investigate excited random walks on \mathbb{Z}^d , $d \geq 1$, and on planar strips $\mathbb{Z} \times \{0, 1, \dots, L-1\}$ which have a drift in a given direction. The strength of the drift may depend on a random i.i.d. environment and on the local time of the walk. We give exact criteria for recurrence and transience, thus generalizing results by Benjamini and Wilson for once-excited random walk on \mathbb{Z}^d and by the author for multi-excited random walk on \mathbb{Z}^d .

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