

**Zerner, Martin P. W.**

**Recurrence and transience of excited random walks on  $\mathbb{Z}^d$  and strips.** (English)

Zbl 1112.60086

Electron. Commun. Probab. 11, 118-128 (2006).

Summary: 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 *I. Benjamini* and *D. B. Wilson* [Electron. Commun. Probab. 8, 86–92 (2003; Zbl 1060.60043)] for once-excited random walk on  $\mathbb{Z}^d$  and by the author [Probab. Theory Relat. Fields 133, No. 1, 98–122 (2005; Zbl 1076.60088)] for multi-excited random walk on  $\mathbb{Z}$ .

**MSC:**

- 60K35 Interacting random processes; statistical mechanics type models; percolation theory
- 60G50 Sums of independent random variables; random walks
- 60K37 Processes in random environments

Cited in **10** Documents

**Full Text:** [DOI](#) [arXiv](#) [EuDML](#)