Random walks in random Dirichlet environment are transient in dimension $d \geq 3$. 

This paper studies a special class of random walks on infinite regular graphs, where the transition probability vectors on each vertex are random. In this particular paper, they follow the Dirichlet distribution. The underlying graph that is considered is $\mathbb{Z}^d$ where $d \geq 3$. The main result of this work is that such a random walk is transient. This result also applies to symmetric graphs of bounded degree, which also include the class of finitely generated Cayley graphs; there, it is known that a simple random walk is transient.

Reviewer: Nikolaos Fountoulakis (Edgbaston)

MSC:
- 60K37 Processes in random environments
- 60K35 Interacting random processes; statistical mechanics type models; percolation theory
- 05C20 Directed graphs (digraphs), tournaments

Keywords:
- random walks in random environment
- transience
- Dirichlet distribution
- Cayley graphs
- reinforced random walks
- max-flow min-cut theorem

Full Text: DOI arXiv

References:
[1] Aharoni, R.; Private communication


This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.