The zero-one law for planar random walks in i.i.d. random environments revisited

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Abstract

In this note we present a simplified proof of the zero-one law by Merkl and Zerner (2001) for directional transience of random walks in i.i.d. random environments (RWRE) on the square lattice. Also, we indicate how to construct a two-dimensional counterexample in a non-uniformly elliptic and stationary environment which has better ergodic properties than the example given by Merkl and Zerner.

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