

Abstract. The model I consider is a random walk X_t , $t = 0, 1, \dots$ on the square lattice Z^ν , $\nu = 1, 2, \dots$, with transition probabilities depending on a field $\xi_t := \{\xi(t, x) : x \in Z^\nu\}$ with Markov evolution in time. Space independence is assumed: at each $x \in Z^\nu$ the sequence $\xi(t, x), t = 0, 1, \dots$ is an independent copy of an ergodic Markov chain with a two-value state space $\{-1, +1\}$ and symmetric stochastic matrix. I present an overview of the existing results, both for the annealed and the quenched case, with a discussion of some recent results and of further perspectives, in particular on the possibility of removing the low-stochasticity condition and on quenched low-dimensional ($\nu = 1, 2$) case. References.

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