Drewitz, Alexander; Scheutzow, Michael; Wilke-Berenguer, Maite
Asymptotics for Lipschitz percolation above tilted planes. (English) [Zbl 1328.60212]

Summary: We consider Lipschitz percolation in $d + 1$ dimensions above planes tilted by an angle $\gamma$ along one or several coordinate axes. In particular, we are interested in the asymptotics of the critical probability as $d \to \infty$ as well as $\gamma \uparrow \pi/4$. Our principal results show that the convergence of the critical probability to 1 is polynomial as $d \to \infty$ and $\gamma \uparrow \pi/4$. In addition, we identify the correct order of this polynomial convergence and in $d = 1$ we also obtain the correct prefactor.

MSC:
60K35 Interacting random processes; statistical mechanics type models; percolation theory
60F99 Limit theorems in probability theory
82B20 Lattice systems (Ising, dimer, Potts, etc.) and systems on graphs arising in equilibrium statistical mechanics
82B41 Random walks, random surfaces, lattice animals, etc. in equilibrium statistical mechanics
82B43 Percolation

Keywords:
Lipschitz percolation; $\rho$-percolation; critical probability; asymptotics; tilted planes; random surface

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