

Percolation phase transition for the vacant set of random walk

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Abstract

The vacant set of the random walk on the torus undergoes a percolation phase transition at Poissonian timescales in dimensions 3 and higher. The talk will review this phenomenon, the rigorous study of which was initiated by I. Benjamini and A.-S. Sznitman in JEMS, 10 (2008), 1-40.

We will then present recent progress regarding the nature of the transition, both for this model and its infinite-volume limit, the vacant set of random interacements, introduced by Sznitman in Ann. Math., 171 (2010), 2039–2087. The discussion will lead up to recent progress regarding the long purported equality of several critical parameters naturally associated to the transition.

*Punctual, i.e. sine tempore!