

First-passage percolation with infinite passage times

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Resumo/Abstract:

In the classical model of first passage percolation on Z^d , edges are assigned iid random lengths taking values in $[0, +\infty)$, which endows the graph Z^d with a random distance. The shape theorem ensures then that the ball of radius n for this random distance asymptotically looks like a ball of radius n for a certain norm on R^d , depending on the distribution of the length of an edge. In this talk, we will study an extension of this model, by allowing the random length to be infinite (with a not too large probability). This is equivalent to study first-passage percolation on the random graph given by an infinite cluster of supercritical Bernoulli percolation. We will discuss the existence of a shape theorem in this context, and the continuity properties of the norm giving the asymptotic shape with respect to the law of the length of an edge. This is a work in collaboration with Olivier Garet and Marie Thret.