

Inn'formal Probability Seminar

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“On the off-critical level sets of smooth Gaussian fields”

Abstract

We study the connectivity properties of level sets of smooth Gaussian fields on the d -dimensional Euclidean space. As the level varies, this defines a percolation model with a certain critical level. In this talk we will discuss the behaviour of these level sets on the off-critical regime, i.e. for all levels other than the critical one. Our main result states that, for fields with positive and sufficiently fast decaying correlations, the size of connected components has exponential tail on the subcritical phase, while on the supercritical phase one sees a unique unbounded connected component, which in turn contains unbounded paths in sufficiently thick 2D slabs. This result, often referred to as (subcritical and supercritical, respectively) sharpness of phase transition, are typically the starting point for the study of finer properties of the off-critical phases of any percolation model.

In this talk, we will introduce the basic concepts in this field of research, give a quick overview on the literature, describe our main result and discuss some of the ideas used in its proof.

Monday | 9.01.2023 | 16:15

SR 609 | civil engineer building