

Hitting probabilities for systems of stochastic partial differential equations

Marta Sanz-Solé

University of Barcelona

A basic question in probabilistic potential theory is the following: Consider a random subset $K \subset \mathbb{R}^d$, for what nonrandom sets A is $P\{K \cap A \neq \emptyset\} > 0$? In this lecture we will give some abstract results when K is the range of a random field $\{v(x), x \in I\}$, $I \subset \mathbb{R}^k$. More specifically, we will establish upper and lower bounds of the hitting probabilities in terms of the Hausdorff measure and the Bessel-Riesz capacity of A , respectively, and highlight the role of the dimensions d and k . Application to systems of stochastic wave equations will be discussed.