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Sets Visited by Random Paths

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Abstract

Random fields are the abstract objects for stochastic modeling. By physical motivations, just to mention an example, one could be interested in analyzing the geometric measure properties of deterministic sets which are hit by a particular random field. In this talk, we shall firstly study this question in an abstract setting. More precisely, we will present upper and lower bounds on hitting probabilities of random fields in terms of Hausdorff measure and Bessel-Riesz capacity, respectively. These results will be applied to systems of stochastic wave equations in spatial dimension $k \geq 1$. The specific properties of the probability densities of the solution play a crucial role. We will highlight the suitability of Malliavin calculus techniques for the study of this problem for non Gaussian waves. This is joint work with Robert Dalang (EPFL, Switzerland).

Date: Monday, October 31, 2011
Time: 15:00
Place: IMBM Seminar Room, Boğaziçi University