$S_t \circ c(h)(a_s)_{ti} c(s) + \mathfrak{S}_e m^i n(a_r)$

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Potential theory for non-linear stochastic heat equations

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Time and Place: Monday September 11, 2006; 4:15–5:05 p.m.; LCB 215

In this talk we develop potential theory for a system of non-linear stochastic heat equations in spatial dimension one and driven by a space-time white noise. In particular, we prove upper and lower bounds on hitting probabilities of the process which is solution of this system of equations, in terms of respectively Hausdorff measure and Newtonian capacity. These estimates make it possible to discuss polarity for points and to compute the Hausdorff dimension of the range and the level sets of this process. In order to prove the hitting probabilities estimates, we need to establish Gaussian type bounds for the bivariate density of the process in order to quantify its degenerance. For this, we use techniques of Malliavin calculus.