

Intermittency for stochastic partial differential equations driven by inhomogeneous space-time noises

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Abstract: In this talk, we will mainly investigate some properties to one-dimensional stochastic partial differential equation driven by an inhomogeneous Gaussian space-time noise, which is also called the inhomogeneous Brownian sheet. Such noise is closely connected to the density field of the catalytic super-Brownian motion. Under some conditions on the catalytic measure of the inhomogeneous Brownian sheet, we first study the weak full intermittent property for the solution by giving concrete estimates of the upper and lower Lyapunov exponents of the solution. In particular, we show that the second moment of the solution grows at least with an exponential rate. We also consider the noise excitation, which is the index relative to the solution as the noise intensity goes to infinity. The novelty is that we will not require the catalytic measure of the inhomogeneous noise to be absolutely continuous with respect to the Lebesgue measure.