

Stochastic Transport Equations. Recent results.

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In this talk, we discuss about the important issue of uniqueness of solutions for the linear stochastic transport equations with rough coefficients, that is to say, we consider the following Cauchy problem

$$\begin{cases} \partial_t u + b \cdot \nabla u + \frac{dB_t}{dt} \cdot \nabla u = 0, \\ u|_{t=0} = u_0, \end{cases} \quad (1)$$

where the unknown u is a real valued function, $u_0 : \mathbb{R}^d \rightarrow \mathbb{R}$ is a given initial data, $b = b(t, x) : [0, T] \times \mathbb{R}^d \rightarrow \mathbb{R}^d$ is the drift vector field, $B_t = (B_t^1, \dots, B_t^d)$ is a standard Brownian motion in \mathbb{R}^d , and $T > 0$ is any real fixed number.

This is a joint work with Christian Olivera.