

学术报告

On weak solutions of stochastic differential equations with sharp irregular drifts

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Time: 9:50-10:40, Jan 5 (Friday) 2018

Venue: Room 111, Center for Applied Mathematics

Abstract: In this talk, we will discuss a Brownian motion driven SDE with drift $b: [0, T] \times \mathbb{R}^d \rightarrow \mathbb{R}^d$. We are aiming to extend Krylov and Roeckner [Strong solutions to stochastic equations with singular time dependent drift. *Probab. Theory Relat. Fields* 131 (2005) 154-196] to the case with a sharp critical b . To be more precise, if $b := b_1 + b_2$ is bounded and Borel measurable, then there exists a unique weak solution to the above equation. Moreover, we derive the strong Feller property of the semigroup and existence of density associated with the above SDE. As an application, we extend classical regularity results for parabolic PDEs with $L^q(0, T; L^p(\mathbb{R}^d))$ coefficients to equations with $L^q_q(0, T; L^p(\mathbb{R}^d))$ coefficients, and further derive the Lipschitz regularity.

This talk is based on joint work [arXiv:1711.05058] with Jinlong Wei (Zhongnan University of Economics and Law, Wuhan, China) and Guangying Lv (Henan University, Kaifeng, China).

欢迎大家参加!