



复旦大学数学科学学院 数学综合报告会

报告题目: The Truncated Euler-Maruyama Method for Singular Stochastic Differential Equations with Jumps

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地点: 光华楼东主楼 2001

报告摘要:

We consider an explicit tamed Euler-Maruyama scheme for multidimensional stochastic differential equations with jump coefficients. The diffusion coefficient is assumed to be uniformly elliptic, Hölder continuous, and weakly differentiable with respect to the spatial variables. Meanwhile, the drift term satisfies the strict Ladyzhenskaya–Prodi–Serrin condition, as studied by Krylov and Röckner. Furthermore, the jump coefficients and their derivatives with respect to spatial variables fulfill the condition that the integral of their squares is uniformly bounded, along with meeting other integrability conditions. In the discrete scheme, the drift is tamed by substituting it with an approximation. First, we obtain a Schauder estimate for parabolic integro-differential equations with distributional forcing. From this Schauder estimate, we derive a strong rate of convergence for the scheme in terms of the approximation error of the drift, measured in a suitable and potentially very weak topology. Several examples of approximating drifts are discussed in detail.

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