Maximum principle for non-uniformly parabolic equations and applications

XICHENG ZHANG

Abstract. In this paper we study the global boundedness for the solutions to a class of possibly degenerate parabolic equations by De-Giorgi's iteration. As applications, we show the existence of weak solutions for possibly degenerate stochastic differential equations with singular diffusion and drift coefficients. Moreover, by the Markov selection theorem of Krylov [8], we also establish the existence of the associated strong Markov family.

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