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Derivative Formulae and Harnack Inequalities for SDEs Driven by Fractional Brownian Motions

Abstract

Derivative formulae and Harnack type inequalities are established for SDEs driven by fractional Brownian motions with Hurst parameter $H > 1/2$ by means of coupling argument and Malliavin calculus, respectively. As applications, we investigate the strong Feller property and study the existence and uniqueness of invariant measure for a discrete Markov semigroup constructed in terms of the distribution of the solution. Furthermore, we show that entropy-cost inequality holds for the invariant measure.