APPROXIMATION OF STOCHASTIC DIFFERENTIAL EQUATION ON DOMAINS DRIVEN BY FRACTIONAL BROWNIAN MOTION

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The aim of this paper is to approximate the solution of a stochastic differential equations

$$dx(t) = f(x(t))dt + g(x(t))dW(t), \;\; t \geq 0, \;\; x(0) = x_0$$

on domain $D \subset \mathbb{R}^d$. We will modify the standard Itô-Taylor schemes, assuming only that the equation has a unique solution whose sample paths are contained in a domain $D \subset \mathbb{R}^n$ a.s.