O. V. SHVAI

Estimation of the Rate of Convergence for the Euler Approximation of Stochastic Differential Equation with Additional Process-parameter

National T. Shevchenko University of Kyiv, Ukraine
E-mail: ShvajSS@ukr.net

We consider stochastic differential equation with diffusion coefficient, involving process-parameter.

$$dX_t = f(t, X_t)dt + g(t, \sigma_t, X_t)dW_t, \quad X_0 = x_0 \in \mathbb{R}, \ t \in [0, T]. \quad (1)$$

Under certain general condition Euler approximation of (1) converge to the process (1). Take place the following estimation of the rate of convergance: $E|X_u - X_u^\delta|^2 \le C(\delta^{2\alpha} + \delta^{2\beta} + \delta^2 + \delta)\exp(CT)$. Interesting example is considered, where process-parameter is driven by fractional Brownian motion with Hurst index $H \in (1/2, 1)$.

[1] Yu.S. Mishura, O.V. Shvaj, *Evaluation of convergence of difference scheme applied to stochastic differential equation with additional process parameter*, Theory of Probability and Mathematical Statistics, Volume 82, 2010, 34 – 45.