

عنوان مقاله:

New S-ROCK methods for stochastic differential equations with commutative noise

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خلاصه مقاله:

The class of strong stochastic Runge-Kutta (SRK) methods for stochastic differential equations with a commutative noise proposed by Röβler (2010) is considered. Motivated by Komori and Burrage (2013), we design a class of explicit stochastic orthogonal Runge-Kutta Chebyshev (SROCKC2) methods of strong order one for the approximation of the solution of Itô SDEs with an m-dimensional commutative noise. The mean-square and asymptotic stability analysis of the newly proposed methods applied to a scalar linear test equation with a multiplicative noise is presented. Finally, some numerical experiments for stochastic models arising in applications are given that confirm the theoretical discussion

کلمات کلیدی:

Stochastic differential equations; Runge-Kutta methods; Stochastic mean square stability; Stiff equations; Commutative noise

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