

1125-60-1953

Ram Sharan Adhikari* (radhikari@rsu.edu), Rogers state University, Claremore, OK 74017.

A weak modified Euler-Maruyama method based on trapezoidal rule for a class of stochastic differential equations and mean square stability results.

In this work we introduce a new class of weak numerical scheme for solving systems of Itô stochastic differential equations(SDEs). We call it Modified Euler-Maruyama scheme based on trapezoidal rule. Weak order of convergence one is established under the suitable conditions. We also discuss about the numerical performance of our method with some examples. This work also aims to determine the mean-square stability region of the weak modified Euler method for linear stochastic differential equations with multiplicative noises. (Received September 19, 2016)