

*Numerical integration of a class of multiplicative-noise Stochastic Differential Equations via a RDE approach*

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Many important Stochastic Differential Equations (SDEs) used to model noisy dynamical systems are driven by linear multiplicative noise diffusion-coefficients. In this work we consider an approach, based on the conjugacy between this type of SDEs and an appropriate Random Differential Equation, for constructing new integrators for the underlying system. In addition, we discuss the possibility of devising numerical methods without assuming restrictive assumptions that typically are not satisfied by many SDEs in significant applications. Details on the efficient implementation of the proposed methods are discussed and their performance is illustrated through computer simulations.