

*Pathwise methods for a class of SDEs with non-globally
Lipschitz coefficients*

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We propose an approach for the numerical integration of a class of multiplicative-noise SDEs with non-globally Lipschitz coefficients. For this, we devise an appropriate invertible continuous transformation, that allows to conjugate the flow of the SDE to the flow of a non-autonomous random differential equation which has the stationary Ornstein-Uhlenbeck process as the only input parameter of the system. In this way, based on this explicit conjugacy between both equations, new discrete-time approximations are constructed. Convergence results are presented, and some simulation studies are carried out to illustrate the practical performance of the introduced approach.

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