

**WEAK CONVERGENCE OF A NUMERICAL SCHEME FOR STOCHASTIC
DIFFERENTIAL EQUATIONS**

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Abstract: In this paper a numerical scheme approximating the solution to a stochastic differential equation is presented. On bounded subsets of time, this scheme has a finite state space, which allows us to decrease the round-off error when the algorithm is implemented. At the same time, the scheme introduced turns out locally consistent for any step size of time. Weak convergence of the scheme to the solution of the stochastic differential equation is shown.

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