

Balanced Milstein Methods for Ordinary SDEs

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ABSTRACT: Convergence, consistency, stability and pathwise positivity of balanced Milstein methods for numerical integration of ordinary stochastic differential equations (SDEs) are discussed. This family of numerical methods represents a class of highly efficient linear-implicit schemes which generate mean square converging numerical approximations with qualitative improvements and global rate 1.0 of mean square convergence, compared to commonly known numerical methods for SDEs.