

Weak Approximation of Stochastic Differential Equations

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Weak approximation of an SDE means to approximate the distribution of the solution X of the SDE or of marginals thereof, which is motivated, e.g., by computing expectations $E(f(X))$ of functionals f of X .

In this talk we focus on deterministic algorithms, which yield discrete measures as an approximation and hereby provide quadrature formulas for SDEs. We present fully constructive methods based on finitely many evaluations of the coefficients of the SDE and we study their worst case error on a class of SDEs and their computational cost. We further address the question of lower bounds and optimality.

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