

ON A SDE WITH NO POLYNOMIAL CONVERGENCE RATE FOR STRONG APPROXIMATION AT
THE FINAL TIME

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We consider the problem of strong approximation of the solution of a stochastic differential equation (SDE) at the final time based on point evaluations of the driving Brownian motion at a uniform grid. We present an example of a SDE with smooth and bounded coefficients for which no sequence of such approximations can achieve a polynomial rate of convergence. This generalizes a result from [1], which only covers the Euler scheme.

[1] Hairer, M., Hutzenthaler, M., Jentzen, A., Loss of regularity for Kolmogorov equations, *Annals of Probability* (to appear).

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