

# On Weak Convergence Rate of Stochastic Differential Equations with Non-regular Drift

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## Abstract

We consider an Euler-Maruyama type approximation method for a stochastic differential equation (sde) with a discontinuous drift and regular diffusion coefficient. The method regularizes the drift coefficient within a certain class of functions and then the Euler-Maruyama scheme for the regularized scheme is used as an approximation. This methodology gives two errors, the first is the error of regularization of the drift coefficient within a given class of parametrized functions and the second is the error of the regularized Euler-Maruyama scheme. After an optimization procedure with respect to this parameter we obtain various rates.

This is a joint work with A. Kohatsu-Higa (Ritsumeikan University and JST) and A. Lejay (INRIA Project-team TOSCA and Institute Élie Cartan).

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