

# DISCRETIZATION OF JUMP STOCHASTIC DIFFERENTIAL EQUATIONS IN TERMS OF MULTIPLE STOCHASTIC INTEGRALS

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摘要

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# DISCRETIZATION OF JUMP STOCHASTIC DIFFERENTIAL EQUATIONS IN TERMS OF MULTIPLE STOCHASTIC INTEGRALS

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**Abstract** In the Stratonovich-Taylor and Stratonovich-Taylor-Hall discretization schemes for stochastic differential equations (SDEs), there appear two types of multiple stochastic integrals respectively. The present work is to approximate these multiple stochastic integrals by converting them into systems of simple SDEs and solving the systems by lower order numerical schemes. The reliability of this approach is clarified in theory and demonstrated in numerical examples. In consequence, the results are applied to the strong discretization of both continuous and jump SDEs.

**Key words** [Brownian motion](#) [Poisson process](#) [stochastic differential equation](#) [multiple stochastic integral](#) [strong discretization](#).

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