

Mean-square stability of numerical schemes for stochastic differential equations

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Stochastic differential equations (SDEs) represent physical phenomena dominated by stochastic processes. As for deterministic ordinary differential equations (ODEs), various numerical schemes are proposed for SDEs. We have proposed the *mean-square* stability of numerical schemes for scalar SDEs that is the numerical stability with respect to the mean-square norm. However we studied *mean-square* stability analysis for only scalar SDEs, but not for vector SDEs, because of their difficulty and complexity. In this talk we will consider some types of a 2-dimensional linear test equation and try to analyze them. Also we will show some numerical results confirming the stability.

This is a joint work with T. Mitsui, Nagoya University.