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Stability of solutions of Caputo fractional stochastic differential equations. (English)

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Summary: In this paper, we study the stability of Caputo-type fractional stochastic differential equations. Stochastic stability and stochastic asymptotical stability are shown by stopping time technique. Almost surely exponential stability and $p$th moment exponentially stability are derived by a new established Itô's formula of Caputo version. Numerical examples are given to illustrate the main results.

MSC:

60H10 Stochastic ordinary differential equations (aspects of stochastic analysis)
34A08 Fractional ordinary differential equations

Keywords:
Caputo fractional derivative; stochastic differential equations; stability

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