

A notion of stability in probability of stochastic nonlinear systems

ABSTRACT

The concepts of stability in probability of nontrivial solutions for stochastic nonlinear systems are analyzed in terms of a control Lyapunov function which is smooth except possibly at the origin. We show under certain hypothesis that the neighborhood of the origin is stable in probability. An illustrating example is provided.

Keyword: stochastic system; Lyapunov technique; Stability in probability; Stochastic nonlinear systems.