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Nguyen, Dinh Cong, Hanoi Institute of Mathematics, Vietnam

Structural stability of linear random dynamical systems

Investigation of dynamical systems which are influenced by noise leads to a new branch of the theory of dynamical systems. A *random dynamical system* is a cocycle over a deterministic metric dynamical system which models the noise.

A random dynamical system is *structurally stable with respect to a random norm* if it is topologically conjugate to any system which is sufficiently close to it in this norm. We prove that a linear random dynamical system is structurally stable with respect to its Lyapunov norms if and only if it is hyperbolic.

Reference: 1. Nguyen Dinh Cong, Structural stability of linear random dynamical systems, *Ergodic Theory and Dynamical Systems*, **16**(1996), 1207–1220.

2. Nguyen Dinh Cong, *Topological Dynamics of Random Dynamical Systems*, Oxford Mathematical Monographs, Clarendon Press, Oxford, 1997.