Random attractors for stochastic lattice dynamical systems in weighted spaces

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Abstract: In this paper, we first provide some sufficient conditions for the existence of a global compact random attractor for general random dynamical systems in a weighted space l^p_ρ $(p \geq 1)$ of infinite sequences. Then we consider the existence of a global compact random attractor in weighted space l^2_ρ for stochastic lattice dynamical systems with random coupled coefficients and multiplicative/additive white noises. Our results recover many existing ones on the existence of global random attractors for stochastic lattice dynamical systems with multiplicative/additive white noises in regular l^2 space of infinite sequences.

Keywords: Random attractor, stochastic lattice dynamical system, random coupled coefficient, multiplicative/additive white noise.

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