Random Dynamical Systems on Lattices*

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Abstract

We consider a one-dimensional lattice with diffusive nearest neighbor interaction, a dissipative nonlinear reaction term and additive independent white noise at each node. We prove the existence of a compact global random attractor within the set of tempered random bounded sets. An interesting feature of this is that, even though the spatial domain is unbounded and the solution operator is not smoothing or compact, pulled back bounded sets of initial data converge under the forward flow to a random compact invariant set.

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