

SRB Measures for Infinite Dimensional Dynamical Systems

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Abstract

We study the existence of SRB measures and their properties for a class of infinite dimensional dynamical systems. We show several results including (i) if the system has a partially hyperbolic attractor with nontrivial finite dimensional unstable directions, then it has at least one SRB measure; (ii) if the attractor is uniformly hyperbolic, the system is topological mixing, and the splitting is Hölder continuous, then there exists a unique SRB measure which is mixing; (iii) if the attractor is uniformly hyperbolic, the system is non-wandering, and the splitting is Hölder continuous, then there exists at most finitely many SRB measures; (iv) for a given hyperbolic measure, there exist at most countably many ergodic components whose basin contains an observable set. This is a joint work with Zeng Lian and Peidong Liu.