

Niu, Yingxuan; Su, Shoubao

On strong ergodicity and chaoticity of systems with the asymptotic average shadowing property. (English) [Zbl 1225.37031](#)

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Summary: Let X be a compact metric space and $f : X \rightarrow X$ be a continuous map. In this paper, we investigate the relationships between the asymptotic average shadowing property (AASP) and other notions known from topological dynamics. We prove that if f has the AASP and the minimal points of f are dense in X , then for any $n \geq 1$, $f \times f \times \cdots \times f$ (n times) is totally strongly ergodic. As a corollary, it is shown that if f is surjective and equicontinuous, then f does not have the AASP. Moreover, we prove that if f is point distal, then f does not have the AASP. For $f : [0, 1] \rightarrow [0, 1]$ being surjective and continuous, it is obtained that if f has two periodic points and the AASP, then f is Li-Yorke chaotic.

MSC:

- 37C50** Approximate trajectories (pseudotrajectories, shadowing, etc.) in smooth dynamics Cited in 5 Documents
- 37B05** Dynamical systems involving transformations and group actions with special properties (minimality, distality, proximality, expansivity, etc.)
- 37A25** Ergodicity, mixing, rates of mixing

Keywords:

asymptotic average shadowing property (AASP); ergodicity; equicontinuity; distality; Li-Yorke chaos

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