
MR1618409 (99d:58105)

Froyland, Gary (5-WA)

Approximating physical invariant measures of mixing dynamical systems in higher dimensions.

Nonlinear Anal. **32** (1998), *no. 7,* 831–860.
58F11 (28D99)

Early results of J. Ding and A. H. Zhou [J. Statist. Phys. **77** (1994), no. 3-4, 899–908; MR1301467 (95i:58108); Nonlinear Anal. **25** (1995), no. 4, 399–408; MR1336980 (96c:58101)] show that for piecewise C^2 expanding mappings $T\colon M \to M$, where $M \subset \mathbf{R}^n$ is some smooth manifold, the fixed points of finite approximations of the Frobenius-Perron operator associated with T do indeed tend to the unique absolutely continuous invariant measure of T. The paper under review seeks an extension of this result to the class of mixing hyperbolic mappings on M that possess a unique invariant measure equivalent to Lebesgue. For two-dimensional Anosov systems, this result has been shown to be true in the author's earlier work [Random Comput. Dynam. **3** (1995), no. 4, 251–263; MR1362773 (96k:58133)] using techniques such as symbolic dynamics and equilibrium states, provided that a special partition, known as a Markov partition, is used. Here, a completely different approach is employed by using arbitrary (connected, measurable and regular) partitions.

Reviewed by *T. Y. Li*