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Hurder, Steven (1-ILCC)

A survey of rigidity theory for Anosov actions. (English summary)

Differential topology, foliations, and group actions (*Rio de Janeiro*, 1992), 143–173, *Contemp. Math.*, 161, *Amer. Math. Soc.*, *Providence, RI*, 1994.

58F15 (20H05 22E40 57S20)

A smooth action of a group Γ on a manifold M is said to be Anosov if there is an element $\gamma \in \Gamma$ which acts by an Anosov diffeomorphism of M. This article is a survey of recent activity in the study of such actions. The focus is on algebraic actions of higher rank lattices on nilmanifolds, typified by the natural action of $\mathrm{SL}(n, \mathbf{Z})$ on the n-torus by linear automorphisms. The author of the article, along with A. Katok, J. Lewis, R. Spatzier, and R. Zimmer, is responsible for much of the recent work in this area. The first half of the article is devoted to results on topological and smooth rigidity of this special class of Anosov actions. The second half is a lengthy discussion of standard and "nonstandard" examples.

{For the entire collection see 94j:57003}

Reviewed by *Garrett Stuck*