

Lebesgue-essential exponent and positive entropy of C^1 diffeomorphisms with dominated splitting.

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Abstract

We consider a C^1 diffeomorphism f on a compact manifold with dominated splitting. From an example of Gourmelon and Potrie, it is known that the topological entropy of f may be zero. Here, we will show sufficient conditions for the topological entropy be positive. We define the Lebesgue-essential exponent taking the asymptotic exponential rate of local variation of the Lebesgue measure, either to the future or to the past. We prove that if the Lebesgue-essential exponent is not very negative, then the topological entropy is positive. As a corollary, if the Lebesgue measure is f -invariant, or if it is non invariant but recurrent” (we will define this concept), then the topological entropy is positive.

This is a joint work with Xueting Tian.

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