

# Robust Expansiveness and entropy-expansiveness Implications at the infinitesimal level.

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## **Abstract**

Let  $f : M \rightarrow M$  be a  $C^r$ -diffeomorphism,  $r \geq 1$ , defined on a compact boundaryless  $d$ -dimensional manifold  $M$ ,  $d \geq 2$ , and let  $H(p, f)$  be the homoclinic class associated to the hyperbolic periodic point  $p$ . We relate the properties of expansiveness and  $h$ -expansiveness with those of hyperbolicity and the existence of dominated splittings.