

Theorem: Any diffeo can be C^1 approximated by one that is essentially hyperbolic or it exhibits a homoclinic tangency or heterodim cycle (Crovisier-Pujals). A diffeo is essentially hyp if it has a finite number of hyp attractors such that the union of their basins of attraction is open and dense in the phase space.

The C^1 restriction is due to Pugh's closing lemma or Hayashi's connecting lemma. We advocate that these questions for C^r , $r > 1$, may be more tractable in the context of this program.

Lyubich and Martens are pursuing this worthy line for dissipative Henon family of maps.