

Abstract

We study the regularity of the conjugacy between an irreducible Anosov automorphism A on torus and its small perturbation f .

We say that f and A have the same periodic data if the derivatives of the return maps of f and A at the corresponding periodic points are conjugate. It is conjectured that f is C^∞ conjugate to A if and only if f and A have the same periodic data. In this paper, we confirm the conjecture.

This completes the characterization of the most elementary C^1 -invariant for local C^∞ rigidity.

We also give the first example of cocycle rigidity over fibers with conjugate periodic data.