

Abstract

We study the regularity of a conjugacy H between a hyperbolic toral automorphism A and its smooth perturbation f . We show that if H is weakly differentiable then it is $C^{1+\text{H\"older}}$ and, if A is also weakly irreducible, then H is C^∞ . As a part of the proof, we establish results of independent interest on H -older continuity of a measurable conjugacy between linear cocycles over a hyperbolic system. As a corollary, we improve regularity of the conjugacy to C^∞ in prior local rigidity results. This is a joint work with Boris Kalinin and Victoria Sadovskaya.