Stable ergodicity and accessibility for certain partially hyperbolic diffeomorphisms with bidimensional center leaves

Abstract
We consider classes of partially hyperbolic diffeomorphism $f : M \to M$ with splitting $T_M = E_s \oplus E_c \oplus E_u$ and $\dim E_c = 2$. These classes include for instance (perturbations of) the product of Anosov and conservative surface diffeomorphisms, skew products of surface diffeomorphisms over Anosov, partially hyperbolic symplectomorphisms on manifolds of dimension four with bidimensional center foliation whose center leaves are all compact. We prove that accessibility holds in these classes for $C^1$ open and $C^r$ dense subsets and moreover they are stably ergodic. (AU)