DERIVED FROM ANOSOV DIFFEOMORPHISMS WITH PATHOLOGICAL CENTER FOLIATION BY PLANES.

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We focused this work on derived from Anosov (DA) diffeomorphisms on $\mathbb{T}^4$, it means, the class of partially hyperbolic diffeorphisms $f : \mathbb{T}^4 \to \mathbb{T}^4$, such that the induced linear $f_* : \mathbb{T}^4 \to \mathbb{T}^4$ is Anosov. Let m be a finite volume form on $\mathbb{T}^4$ and suppose that $f : \mathbb{T}^4 \to \mathbb{T}^4$ is an $m-$preserving DA diffeomorphism. If

(1) all center Lyapunov exponents of f and f_* are positive,
(2) $\dim E^*_f = \dim E^*_A, * \in \{s, c, u\},\ \dim E^c_f = 2$,
(3) $\angle(E^*_f, E^*_A)$ is enough small,

then E^c_f is foliated by a quasi isometric foliation by planes. Moreover, if the center foliation is absolutely continuous, then the center Lyapunov exponentes satisfy $\lambda^c_1(f, x) + \lambda^c_2(f, x) \leq \lambda^c_1(f_*) + \lambda^c_2(f_*)$ for $m-$ almost everywhere $x \in \mathbb{T}^4$.

Also we can find open sets $\mathcal{U} \subset PH^r_m(\mathbb{T}^4), r \geq 2$, of DA diffeomorphisms far form Anosov diffeomorphisms, such that each $f \in \mathcal{U}$ satisfies the above hypothesis (1), (2) and (3), but $\lambda^c_1(f, x) + \lambda^c_2(f, x) > \lambda^c_1(f_*) + \lambda^c_2(f_*)$ for $m-$ almost everywhere $x \in \mathbb{T}^4$. Particularly, for each $f \in \mathcal{U}$, the center foliation $\mathcal{F}^c_f$ is a non absolutely continuous foliation by planes.

This is a joint work with José Santana Costa.

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