

ON THE ROBUSTNESS OF INTERMINGLED BASINS

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ABSTRACT. Twenty years ago Kan presented an endomorphism of the cylinder with the following properties:

- their restriction to each boundary circle is expanding
- the absolutely continuous measures supported on the boundaries have one negative exponent
- each of these measures have its basin dense in the cylinder.

Moreover, the construction is robust among the endomorphisms preserving the boundary. Along the same lines one can construct a diffeomorphism of $N = \mathbb{T}^3 \times [0, 1]$ having two hyperbolic SRB measures supported on the boundary torus and having intermingled basins. Again, the intermingled basins phenomenon is robust among the diffeomorphism of N . One can go further and construct, by gluing two of the previous examples, a partially hyperbolic diffeomorphism of the 3-torus with two SRB measures with intermingled basins supported on two embedded tori with Anosov dynamics. It is well-known that these last examples are no longer robust and then, the question of the existence of robust examples of diffeomorphisms on boundaryless manifolds having SRB measures with intermingled basins remains open. In this talk we will show that in the 3-torus the only partially hyperbolic examples having hyperbolic SRB measures with intermingled basins are like Kan's and thus, not robust.

This is a joint work with Carlos Vásquez.

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