On the pointwise rotation set of C^0-generic homeomorphisms

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0.1 Abstract

Rotation numbers play a key role in the description of circle homeomorphisms. In the case of homeomorphisms of the torus homotopic to identity, Misiurewicz and Ziemian in [4] introduced several concepts of rotation sets in an attempt to extend the rotation theory for higher dimensional dynamics. We will study the pointwise rotation set. We prove that there exists a Baire residual subset of volume preserving homeomorphisms homotopic to identity, so that the set of points with non-trivial pointwise rotation set is a Baire residual subset in $\mathbb{T}^2$ with full metric mean dimension. Similar results hold for chain recurrent classes of C^0-generic homeomorphisms homotopic to identity. As main tool is that C^0-generic homeomorphisms satisfy the gluing orbit property, introduced by Bomfim and Varandas in [1], on the chain recurrent classes. Moreover, we prove that if the dynamics satisfies the gluing orbit property then the set of points for which Birkhoff sums diverge is either empty or is a Baire generic set with full metric mean dimension. This is a joint work with P. Varandas (UFBA).

References

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