

GROUPS ACTING ON THE CIRCLE

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My talk will be devoted to the study of finitely generated groups acting on the circle.

The world of one-dimensional actions of groups that do not preserve a measure is split into two highly different kingdoms: the actions that are locally discrete and the ones that are not.

The actions that are not locally discrete (that is, for which there exists an interval J , intersecting the minimal set, and a sequence of elements whose restrictions on J are non-identical, but converge to the identity) are already well-understood. Their dynamics is quite rich (by the argument of Loray-Rebelo-Nakai-Scherbakov the local closure of such an action contains a local flow), that allows to establish ergodicity, topological rigidity (a recent work of J. Rebelo and A. Eskif), etc.

On the other hand, the kingdom of locally discrete actions is much less understood. I will speak on recent advances in our common project with B. Deroin, A. Navas, D. Filimonov, M. Triestino, D. Malicet, S. Alvarez, P. G. Barrientos and C. Menio, devoted to the study of such actions.

In particular, in all the cases except for one (the Missing Piece Conjecture), we establish the star property for such actions, allowing to use the dynamics of the action to magnify the small pieces with a bounded distortion. This approach has allowed to establish zero Lebesgue measure for the Cantor minimal set case for the actions by analytic diffeomorphisms, and, except for the Missing Piece case, ergodicity in the case of minimal analytic actions. This also have allowed to the construct of a Markov-like (Maskit) partition, opening a way towards a classification of such actions.