

Markov partitions for groups of circle diffeomorphisms

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This work in progress of the "Coletivo carioca" (Alvarez, Barrientos, Filimonov, Kleptsyn, Malicet, Meniño, Navas, and myself) has the ultimate purpose of understanding finitely generated groups of circle diffeomorphism (which are at least C^2 in order to use control of distortion). There is a class of such groups that can be (conjecturally) fully described, up to topological semi-conjugacy, constructing a Markov partition that encodes both the dynamics and the algebraic structure. These are the groups which are locally discrete and whose non-trivial elements have only finitely many fixed points (property that is verified in real-analytic regularity). Among various consequences of this combinatorial description, we find two surprising results: there are many free groups which are not of Fuchsian type (i.e. associated to discrete subgroups of $PSL(2, \mathbb{R})$), however all groups isomorphic to $PSL(2, \mathbb{Z})$ can only be Fuchsian.