Title: Homeomorphisms of the circle, rotation numbers, and measures: definitions and results with general discussion.

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Abstract

We explore a structure theory for groups of homeomorphisms of the circle, including a well known result of Margulis in the flavor of the Tit's Alternative, relating the existence of G-invariant measures on the circle to the group structure of G. Along the way, we define rotation numbers, and mention some useful and well known classical results of Poincare, Fricke and Klein, Denjoy, and Solodov.