

# Burnside problem on diffeomorphism groups

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Abstract: Suppose  $G$  is a finitely generated group such that every element has finite order. Must  $G$  be a finite group?

This is known as the Burnside problem, it was formulated around 1902 by Burnside himself and it was central in the development of group theory during the 20th century. The answer in general turned out to be negative,  $G$  might be infinite. Nonetheless, if one restricts  $G$  to be a linear group (group of matrices), the answer is positive (Schur, 1911).

The problem remains open if we assume  $G$  is a group of homeomorphisms of a surface or a manifold in general. I will talk about the case where  $G$  is a group of diffeomorphisms of a surface.