A survey on volume-preserving diffeomorphisms

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January 4, 2023

Abstract

Given a compact connected oriented manifold (M, Ω), we study some C^0-aspects of the action of the identity component (w.r.t the $C^\infty-$compact open topology) $G_\Omega(M)$ in the group of all volume-preserving diffeomorphisms on the space $\mathcal{Z}^1(M)$ of all closed $1-$forms of (M, Ω): This is used to study the geometry of the group $G_\Omega(M)$. Herein, when M is closed, we recover that the group $G_\Omega(M)$ is C^0-closed in the identity component of the group $Diff^\infty(M)$ of all diffeomorphisms of M. In the context of C^0-symplectic geometry, when M is Lefschetz, we prove the C^0-flux conjecture.

2010 MSC : 53C24, 53D05, 57R17.

Key Words : Rigidity, Continuum theory, Oriented manifolds, Norm, Homeomorphisms; Geodesics.

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