

On equivariant Lipschitz homeomorphisms of G -manifolds with codimension one orbit

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In this talk we shall investigate the group of equivariant Lipschitz homeomorphisms of a smooth G -manifold M with codimension one orbit.

Let $D_G(M)$ denote the group of equivariant diffeomorphisms of M which are isotopic to the identity through equivariant diffeomorphisms, with C^∞ -topology. Then $D_G(M)$ is not perfect and in [A-F] we calculated the the first homology of $D_G(M)$.

Let $\mathcal{L}_G(M)$ denote the group of equivariant Lipschitz homeomorphisms of M . Let $L_G(M)$ ($\mathcal{H}_{LIP,G}(M)$) be the the connected component of the identity of $\mathcal{L}_G(M)$ with compact open topology (with compact open Lipschitz topology). We shall prove that the group $\mathcal{H}_{LIP,G}(M)$ is perfect. In the case of the complex plane \mathbf{C} with the canonical $U(1)$ -action, the first homology $H_1(L_{U(1)}(\mathbf{C}))$ admits continuous moduli ([A-F-M]). Therefore the first homology is quite different between $\mathcal{H}_{LIP,U(1)}(\mathbf{C})$ and $L_{U(1)}(\mathbf{C})$.

References

- [A-F] K. Abe and K. Fukui, *On the structure of the group of equivariant diffeomorphisms of G -manifolds with codimension one orbit*, *Topology*, 40 (2001), 1325-1337.
- [A-F-M] K. Abe, K. Fukui and T. Miura, *On the first homology of the group of equivariant Lipschitz homeomorphisms*, *J. Math. Soc. Japan*, 58 (2006), 1-15.