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Ghys, Étienne (F-ENSL Y)

Prolongements des difféomorphismes de la sphère. (French) [Extensions of
diffeomorphisms of the sphere]


For $n \geq 1$ and $0 \leq k \leq \infty$, let $\text{Diff}^k_0(S^n)$ and $\text{Diff}^k_0(B^{n+1})$ denote the groups of $C^k$-diffeomorphisms of the unit sphere $S^n$ and of the unit closed disk $B^{n+1}$ of $\mathbb{R}^{n+1}$ which are $C^k$-isotopic to the identity, respectively. The author proves the following result: There does not exist any group morphism $\sigma$ of $\text{Diff}^\infty_0(S^n)$ to $\text{Diff}^1_0(B^{n+1})$ such that for every $f \in \text{Diff}^\infty_0(S^n)$ the diffeomorphism $\sigma(f)$ is an extension of $f$.

Reviewed by Liliana Maxim-Răileanu

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