Wiemeler, Michael
On moduli spaces of positive scalar curvature metrics on highly connected manifolds.
(English) Zbl 07398556

Summary: Let $M$ be a simply connected spin manifold of dimension at least six, which admits a metric of positive scalar curvature. We show that the observer moduli space of positive scalar curvature metrics on $M$ has non-trivial higher homotopy groups. Moreover, denote by $\mathcal{M}_0^+ (M)$ the moduli space of positive scalar curvature metrics on $M$ associated to the group of orientation-preserving diffeomorphisms of $M$. We show that if $M$ belongs to a certain class of manifolds that includes $(2n - 2)$-connected $(4n - 2)$-dimensional manifolds, then the fundamental group of $\mathcal{M}_0^+ (M)$ is non-trivial.

MSC:
53C20 Global Riemannian geometry, including pinching
58D27 Moduli problems for differential geometric structures

Keywords:
spin manifold; positive scalar curvature; fundamental group

Full Text: DOI