On the fundamental group of semi-Riemannian manifolds with positive curvature operator

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ABSTRACT

We consider analogy of Myers theorem in the setting of semi-Riemannian submersion $\pi : (E, g) \to (B, -g_B)$, where (B, g_B) is a complete Riemannian manifold and the fiber is closed Riemannian manifold. Assume that the entire space (E, g) satisfies the curvature condition $R \geq k > 0$ of Andersson–Howard ([1]). Then we prove that the fundamental group of the fibers is finite if the horizontal distribution is integrable ([3]). This is a generalization of the result of my paper ([2]), which is Lorentzian case.

References

[1] L. Andersson and R. Howard, *Comparison and rigidity theorems in semi-Riemannian geometry*, Comm. Anal. Geom. **6** (1998), no. 4, 819–877.

[2] J. Mukuno *On the fundamental group of a complete globally hyperbolic Lorentzian manifold with a lower bound for the curvature tensor*, Differ. Geom. Appl., **41** (2015), 33–38.

[3] J. Mukuno *On the fundamental group of semi-Riemannian manifolds with positive curvature operator*, arXiv:1704.04944.