

The existence of homogeneous geodesics in homogeneous pseudo-Riemannian and affine manifolds

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It is well known that any homogeneous Riemannian manifold admits at least one homogeneous geodesic through each point. For the pseudo-Riemannian case, even if we assume reductivity, this existence problem was open. We shall use a purely affine method to the existence problem. As the main result we prove that any homogeneous affine manifold admits at least one homogeneous geodesic through each point. As an immediate corollary, we have the same result for the subclass of all homogeneous pseudo-Riemannian manifolds.

References

- [1] Z. Dušek, *The existence of homogeneous geodesics in homogeneous pseudo-Riemannian and affine manifolds*, J. Geom. Phys **60** (2010), 687–689.