

HOMOGENEOUS GEODESICS IN HOMOGENEOUS AFFINE MANIFOLDS

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ABSTRACT. For studying homogeneous geodesics in Riemannian and pseudo-Riemannian geometry (on reductive homogeneous spaces) there is a simple algebraic formula which involves the reductive decomposition $\mathfrak{g} = \mathfrak{h} + \mathfrak{m}$ of the Lie algebra \mathfrak{g} of the isometry group G and the scalar product on \mathfrak{m} induced by the metric. In the affine differential geometry, there is not such a universal formula.

In the talk, the new method for studying affine homogeneous geodesics will be presented. As an application, homogeneous geodesics for homogeneous affine connections in dimension 2 will be described and families of affine g.o. spaces in dimension 2 will be found. Some results about homogeneous geodesics in dimension 3 and the main result about the existence of homogeneous geodesic in arbitrary odd dimension will be mentioned.

REFERENCES

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