Homogeneous geodesics in homogeneous Finsler spaces

Zdeněk Dušek

The present talk is based on the preprint [2], in which homogeneous geodesics in Finsler homogeneous spaces are studied using the affine method, which was developed in papers [1] and [3].

We prove that any homogeneous Finsler space of odd dimension admits a homogeneous geodesic through any point. This statement was proved incorrectly in [5], using the algebraic method developed for the Riemannian situation in [4]. We further prove that any homogeneous Berwald space or homogeneous reversible Finsler space admits a homogeneous geodesic through any point.

References

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

[2] Dušek, Z.: The affine approach to homogeneous geodesics in homogeneous Finsler spaces, arXiv:1703.01199v1 [math.DG], 2017.

[3] Z. Dušek, O. Kowalski and Z. Vlášek, Homogeneous geodesics in homogeneous affine manifolds, *Result. Math.* **54**, 273–288 (2009).

[4] Kowalski, O. and Szenthe, J.: On the existence of homogeneous geodesics in homogeneous Riemannian manifolds, Geom. Dedicata **81**, 209–214 (2000), Erratum: *Geom. Dedicata* **84**, 331–332 (2001).

[5] Yan, Z.: Existence of homogeneous geodesics on homogeneous Finsler spaces of odd dimension, *Monatsh. Math.*, **182**, 1, 165–171 (2017).