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Geodesic orbit Finsler spaces with $K \geq 0$ and the (FP) condition. (English) Zbl 07417819
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Summary: We study the interaction between the g.o. property and certain flag curvature conditions. A Finsler manifold is called g.o. if each constant speed geodesic is the orbit of a one-parameter subgroup. Besides the non-negatively curved condition, we also consider the condition (FP) for the flag curvature, i.e. in any flag we find a flag pole such that the flag curvature is positive. By our main theorem, if a g.o. Finsler space $(M, F)$ has non-negative flag curvature and satisfies (FP), then $M$ is compact. If $M = G/H$ where $G$ has a compact Lie algebra, then the rank inequality $rk \mathfrak{g} \leq rk \mathfrak{h} + 1$ holds. As an application we prove that any even-dimensional g.o. Finsler space which has non-negative flag curvature and satisfies (FP) is a smooth coset space admitting a positively curved homogeneous Riemannian or Finsler metric.

MSC:
22E46 Semisimple Lie groups and their representations
53C22 Geodesics in global differential geometry
53C60 Global differential geometry of Finsler spaces and generalizations (areal metrics)

Keywords:
flag curvature; geodesic orbit Finsler space; homogeneous Finsler space; homogeneous geodesic; non-negatively curved condition; (FP) condition

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References: