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Generalized unicorns problem with a special $(\alpha, \beta)$-metric. (English) Zbl 07399914

Summary: In this paper, we study the generalized unicorns problem on regular $(\alpha, \beta)$-metrics in the form of $F = \alpha \phi(s)$, $s = \beta/\alpha$, where $\alpha$ is a Riemannian metric and $\beta$ is a 1-form on the manifold. We prove that, if $\phi = \phi(s)$ is a special polynomial in $s$, then $F$ is a weak Landsberg metric if and only if $F$ is a Berwald metric. Further, we prove that if $\phi = \phi(s)$ is a polynomial in $s$ and $F$ is not a Randers metric, then $F$ is of relatively isotropic mean Landsberg curvature if and only if it is a Berwald metric.

MSC:
53B40 Local differential geometry of Finsler spaces and generalizations (areal metrics)
53C60 Global differential geometry of Finsler spaces and generalizations (areal metrics)

Keywords:
Finsler space; $(\alpha, \beta)$-metric; Berwald metric; weak Landsberg metric; generalized unicorns problem

Full Text: Link

References:
[7] G. Landsberg, Uber die Totalkrmmung, Jahresbericht. deut. math. verein, 16 (1907), 36-46. - Zbl 38.0405.01

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