

## The Landsberg equation of a Finsler space

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**Abstract.** Given a Finsler space, we introduce a system of partial differential equations, called the Landsberg equation. Based on a careful analysis of the Landsberg equation and the observation that the solution space is invariant under the linear isometries of the tangent Minkowski spaces, we prove that an  $(\alpha_1, \alpha_2)$ -metric of the Landsberg type must be a Berwald metric. This shows that the hunting for a unicorn, one of the longest standing open problem in Finsler geometry, cannot be successful even in the very broad class of  $(\alpha_1, \alpha_2)$ -metrics.

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