

**Title:** On Finsler geometry of tangent Lie groups

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This paper is divided into two main parts. In the first part, we study left-invariant Randers metrics on Lie groups. We characterize the class of left-invariant Randers metrics with isotropic mean Berwald and isotropic Berwald curvatures on Lie groups. This yields an extension of Deng's well-known theorem for left-invariant Randers metrics with isotropic  $S$ -curvature. In the second part, we consider the left-invariant Randers metrics on tangent Lie groups. Let  $G$  be a Lie group equipped with a left-invariant Randers metric  $F$ . Suppose that  $F^v$  and  $F^c$  denote the vertical and complete lift of  $F$  on  $TG$ , respectively. First, we find the necessary and sufficient condition under which these metrics are weakly Berwaldian. Then, we prove that these lifting Randers metrics are isotropic Berwald metrics if and only if  $F$  reduces to a Berwald metric. Finally, we give the necessary and sufficient conditions under which these metrics are of Douglas-type metrics.

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