On the principal curvatures of a class of Finsler metrics

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Abstract. In this paper, we study an important Finslerian quantity, namely, principal curvatures. By establishing an explicit expression of principal curvatures of a Finsler metric with orthogonal invariance, we show that such Finsler metrics have at most two distinct principal curvatures in all directions. Furthermore, one of these principal curvatures is simple when such Finsler metrics have two distinct principal curvatures. As application, we completely determine all principal curvatures of a two-parameter family of Finsler metrics. We show that for these metrics, the simple principal curvature is simpler than another principal curvature.

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