The isoperimetric problem in Randers plane

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Abstract. In 1947, Busemann observed that a Minkowski circle need not be a solution of the isoperimetric problem in a Minkowski plane. Li and Mo recently showed that the Euclidean circles centred at the origin in a unit ball with the Funk metric are solutions of the isoperimetric problem [9]. In this paper, we construct a class of Randers planes in which *any* Euclidean circle, centered at the origin in $\mathbb{R}^2$, turns out to be a local minimum of the isoperimetric problem with respect to the various well-known volume forms in Finsler geometry. As a consequence, it turns out that the Euclidean circles centred at the origin are solutions of the isoperimetric problem in a Randers-type Minkowski plane.

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