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Every 2-dimensional Banach space has the Mazur-Ulam property. (English) Zbl 07425716
Linear Algebra Appl. 632, 268-280 (2022)

Summary: We prove that every isometry between the unit spheres of 2-dimensional Banach spaces extends to a linear isometry of the Banach spaces. This resolves the famous Tingley’s problem in the class of 2-dimensional Banach spaces.

MSC:
46B04 Isometric theory of Banach spaces
46B20 Geometry and structure of normed linear spaces
52A21 Convexity and finite-dimensional Banach spaces (including special norms, zonoids, etc.) (aspects of convex geometry)
52A10 Convex sets in 2 dimensions (including convex curves)
53A04 Curves in Euclidean and related spaces
54E35 Metric spaces, metrizability
54E40 Special maps on metric spaces

Keywords:
Tingley’s problem; Mazur-Ulam property; smooth Banach space; isometry

Full Text: DOI

References:


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