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Research progress of the best approximation problems based on Banach space geometry.
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Summary: From the perspective of the application of Banach space geometry in approximation theory, this paper systematically introduces and summarizes the research progress of the following four aspects – the existence and almost existence of the best approximation element, the well-posedness of the best approximation problem and the continuity of the metric projection operator in recent years. Some open problems are also put forward in this paper.

MSC:
41A50 Best approximation, Chebyshev systems
41A65 Abstract approximation theory (approximation in normed linear spaces and other abstract spaces)

Keywords:
strict convexity; strong convexity; reflexivity; best approximation element; approximation compactness; metric projection

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