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The central problem that originally motivated this paper is related to the characterization and construction of all extremal solutions of a linear inclusion $y \in M(x)$, where $M$ is a linear manifold in $X \times Y$ ($X$ and $Y$ are Banach spaces). The main result of the paper concerns the characterization of the set of all extremal or least extremal solutions in terms of metric operator parts and metric generalized inverses of linear manifolds in Banach spaces. The proofs rely essentially on the generalized orthogonal decomposition theorem in Banach spaces.

Reviewer: Teodora-Liliana Rădulescu (Craiova)

MSC:

47A05 General (adjoints, conjugates, products, inverses, domains, ranges, etc.)
41A50 Best approximation, Chebyshev systems
41A52 Uniqueness of best approximation

Keywords:
linear manifold; metric generalized inverse; linear inclusion; least extremal solution; best approximation

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References:
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