Rao, T. S. R. K.
Two results on strong proximinality. (English) Zbl 07376441

Summary: Let \( Y \subseteq X \) be a closed subspace. By a simple argument, we show that \( Y^{\perp\perp} \subseteq X^{**} \) is strongly proximinal at points of \( X \) if and only if \( Y \) is a strongly proximinal subspace of \( X \). This substantially improves the main result of Jayanarayanan and Paul (J. Math. Anal. Appl. 426 (2015) 1217-1231). As a consequence we get an easy proof of a classical result of Alfsen and Effros (Ann. Math. 98 (1972) 98-173), that \( M \)-ideals are proximinal subspaces and a result of Dutta and Narayana (Function Spaces, Contemporary Mathematics, vol. 435, American Mathematical Society, Providence (2007) pp. 143-152), that \( M \)-ideals are strongly proximinal subspaces.

MSC:
46B28\ Spaces of operators; tensor products; approximation properties
41A50\ Best approximation, Chebyshev systems
46B25\ Classical Banach spaces in the general theory

Keywords:
proximinal subspaces; strongly proximinal subspaces; strong subdifferentiability

Full Text: DOI

References:

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.