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Convergence theorems for mappings which are asymptotically nonexpansive in the intermediate sense
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Abstract
Suppose K is a nonempty closed convex nonexpansive retract of a real uniformly convex Banach space E with P as a nonexpansive retraction. Let $T : K \to E$ be a non-self mapping which is asymptotically nonexpansive in the intermediate sense with $F(T) := \{x \in K : Tx = x\} \neq \emptyset$. A demiclosed principle for T is proved. Moreover, if T is completely continuous, an iterative sequence $\{x_n\}$ is constructed which converges strongly to some $x^* \in F(T)$. If T is not assumed to be completely continuous but the dual E^* of E is assumed to have the Kadec-Klee property, then $\{x_n\}$ converges weakly to some $x^* \in F(T)$. The operator P which plays a central role in our proofs is, in this case, the Banach space analogue of the proximity map in Hilbert spaces.

Author Keywords
Asymptotically nonexpansive non-self map; Demiclosed map; Kadec-klee property; Modulus of convexity

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