Abstract. Let $K$ be a nonempty closed convex subset of a real Banach space $E$, $T : K \to K$ a uniformly continuous asymptotically pseudocontractive mapping having $T(K)$ bounded with sequence $(k_n)_{n \geq 0} \subset [1, \infty)$, $\lim_{n \to \infty} k_n = 1$ such that $p \in F(T) = \{ x \in K : Tx = x \}$. Let $(\alpha_n)_{n \geq 0}, (\beta_n)_{n \geq 0} \subset [0, 1]$ be such that $\sum_{n \geq 0} \alpha_n^2 = \infty$ and $\lim_{n \to \infty} \alpha_n = 0 = \lim_{n \to \infty} \beta_n$. For arbitrary $x_0 \in K$ let $\{ x_n \}_{n \geq 0}$ be iteratively defined by

$$
x_{n+1} = (1 - \alpha_n) x_n + \alpha_n T^n y_n,
$$
$$
y_n = (1 - \beta_n) x_n + \beta_n T^n x_n, \quad n \geq 0.
$$

Then $\{ x_n \}_{n \geq 0}$ converges strongly to $p \in F(T)$.

Key Words and Phrases: Modified two-step iterative scheme, uniformly continuous mappings, uniformly $L$-Lipschitzian mappings, asymptotically pseudocontractive mappings, Banach spaces.

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REFERENCES


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