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**Weak convergence theorems for a finite family of strict pseudocontractions**

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**Abstract**

Let  $E$  be a uniformly smooth real Banach space which is also uniformly convex and  $K$  be a nonempty closed convex subset of  $E$ . Let  $T : K \rightarrow K$  be a  $\lambda$ -strict pseudocontraction for some  $0 \leq \lambda < 1$  with  $x^* \in F(T) := \{x \in K : Tx = x\} \neq \emptyset$ . For a fixed  $x_0 \in K$ , define a sequence  $\{x_n\}$  by  $x_{n+1} = (1 - a_n)x_n + a_nTx_n$ , where  $\{a_n\}$  is a sequence in  $[0, 1]$  satisfying the following conditions: (i)  $\sum_{n=0}^{\infty} a_n = \infty$ ; (ii)  $\sum_{n=0}^{\infty} a_n^2 < \infty$ . Then,  $\{x_n\}$  converges weakly to a fixed point of  $T$ . Furthermore, weak convergence theorems are proved for a common fixed point for a finite family of strict pseudocontractions. © 2009 Elsevier Ltd. All rights reserved.

**Author Keywords**

Fixed points; Strict pseudocontractions; Uniformly convex Banach spaces; Uniformly smooth Banach spaces; Weak convergence theorems

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