

CONVERGENCE OF MANN'S ITERATION FOR RELATIVELY NONEXPANSIVE MAPPINGS

A. ANTHONY ELDRED AND A. PRAVEEN

P.G and Research Department of Mathematics
St.Joseph's College, Tiruchirappalli-2
Tamilnadu, India

E-mail: anthonyeldred@yahoo.co.in and prawin4jesus@gmail.com

Abstract. We consider the Mann's iterative process to approximate the fixed points and best proximity points of a relatively non-expansive mapping $T : A \cup B \rightarrow A \cup B$, satisfying $\|Tx - Ty\| \leq \|x - y\| \forall x \in A, y \in B$. These mappings need not be continuous.

Key Words and Phrases: Von Neumann sequences, relatively nonexpansive mappings, best proximity points, fixed points.

2010 Mathematics Subject Classification: 47H10, 54H25.

REFERENCES

- [1] A. Anthony Eldred, W.A. Kirk, P. Veeramani, *Proximal normal structure and relatively non-expansive mappings*, *Studia Math.*, **171**(2005), no. 3, 283-293.
- [2] A. Anthony Eldred, P. Veeramani, *Existence and convergence of best proximity points*, *J. Math. Anal. Appl.*, **323**(2006), 1001-1006.
- [3] H.H. Bauschke, J.M. Borwein, *On the Convergence of von Neumann's alternating projection algorithm for two sets*, *Set-Valued Anal.*, **1**(1993), 185-212.
- [4] C.E. Chidume, *Geometric Properties of Banach Spaces and Nonlinear Iterations*, London, Springer, 2009.
- [5] H.S. Hundal, *An alternating projection that does not converges in norm*, *Nonlinear Anal.*, **57**(2004), 35-61.
- [6] H.F. Senter, W.G. Dotson, *Approximating fixed points of nonexpansive mappings*, *Proc. Amer. Math. Soc.*, **44**(1974), 375-380.
- [7] J. von Neumann, *Functional Operators, Vol. II*, Princeton University Press, 1950.

Received: November 27, 2014; Accepted: October 8, 2015.