

## THE EQUIVALENCE AMONG THE MODIFIED MANN-ISHIKAWA AND NOOR ITERATIONS FOR UNIFORMLY L-LIPSCHITZIAN MAPPINGS IN BANACH SPACES

ZHIQUN XUE

**Abstract.** In this paper, the equivalence of the convergence among Mann-Ishikawa and Noor iterations is obtained for uniformly L-Lipschitzian mappings in real Banach spaces. Our results extend and improve the corresponding results in Chang [3] and Ofoedu [4].

*Mathematics subject classification (2010):* 47H10, 47H09, 46B20..

*Keywords and phrases:* uniformly L-Lipschitzian mapping, the modified Mann and Ishikawa iterations, the modified Noor iteration, real Banach space..

### REFERENCES

- [1] K. GOBEL AND W. A. KIRK, *A fixed point theorem for asymptotically nonexpansive mappings*, Proc.Amer.Math.Soc., **35**, 1 (1972), 171–174.
- [2] J. SCHU, *Iterative construction of fixed points of asymptotically nonexpansive mappings*, J. Math. Anal. Appl., **158** (1991), 407–413.
- [3] S. S. CHANG, Y. J. CHO, J. K. KIM, *Some results for uniformly L-Lipschitzian mappings in Banach spaces*, Applied Mathematics Letters., **22**, 1 (2009), 121–125.
- [4] E. U. OFOEDU, *Strong convergence theorem for uniformly L-Lipschitzian asymptotically pseudocontractive mapping in real Banach space*, J. Math. Anal. Appl., **321** (2006), 722–728.
- [5] X. WENG, *Fixed point iteration for local strictly pseudocontractive mapping*, Proc. Amer. Math. Soc., **113** (1991), 727–731.
- [6] M. A. NOOR, *New approximation schemes for general variational inequalities*, J. Math. Anal. Appl., **251** (2000), 217–229.
- [7] M. A. NOOR, *Three-step iterative algorithms for multivalued quasi variational inclusions*, J. Math. Anal. Appl., **255** (2001).
- [8] M. A. NOOR, T. M. RASSIAS, Z. Y. HUANG, *Three-step iterations for nonlinear accretive operator equations*, J. Math. Anal. Appl., **274** (2002), 59–68.
- [9] M. A. NOOR, *Some developments in general variational inequalities*, Appl. Math. Computation, **152** (2004), 199–277.
- [10] R. ARIF, *Modified Noor iterations for nonlinear equations in Banach spaces*, Appl. Math. Computation, **182** (2006), 589–595.
- [11] M. A. NOOR, Z. Y. HUANG, *Three-step methods for nonexpansive mappings and variational inequalities*, Appl. Math. Computation, **187** (2007), 680–685.
- [12] XUE Z. Q., FAN R. Q., *Some comments on Noor's iterations in Banach spaces*, Appl. Math. Computation, **206**, 1 (2008), 12–15.