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ON MONOTONE NONEXPANSIVE MAPPING AND THEIR APPROXIMATION FIXED POINT RESULTS

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Abstract Suppose that C is a nonempty closed bounded and convex subset of a metric space X . Let T be a monotone nonexpansive mapping on C . During this talk we will present some existence fixed point result of this mapping. Furthermore, we will describe the behavior of its fixed point by using some constructive iteration.

Keywords: fixed point, nonexpansive mapping approximation, constructive iteration.

AMS Classification: 46B20, 45D05.

BIBLIOGRAPHY

- [1] M. R. Alfuraidan, M. A. Khamsi, *A fixed point theorem for monotone asymptotic nonexpansive mappings*, to appear in the Proc. AMS.
- [2] M. Bridson and A. Haefliger, *Metric spaces of non-positive curvature*, Springer-Verlag, Berlin, Heidelberg, New York, 1999.
- [3] F. E. Browder, *Nonexpansive nonlinear operators in a Banach space*, Proc. Nat. Acad. Sci. U.S.A., **54** (1965), 1041-1044.
- [4] H. Busemann, *Spaces with non-positive curvature*, Acta. Math. 80(1948), 259-310.
- [5] S. M. El-Sayed, A. C. M. Ran, *On an iteration method for solving a class of nonlinear matrix equations*, SIAM Journal on Matrix Analysis and Applications 23: 3 (2002), 632-645.
- [6] K. Goebel, and S. Reich *Uniform Convexity, Hyperbolic Geometry, and Nonexpansive Mappings*, Series of Monographs and Textbooks in Pure and Applied Mathematics, Vol.83, Dekker, New York, 1984.
- [7] D. Göhde, *Zum Prinzip der kontraktiven Abbildung*, Math. Nachr. **30** (1965), 251-258.

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- [8] N. Hussain, and M. A. Khamsi, *On asymptotic pointwise contractions in metric spaces*, Nonlinear Analysis, 71.10 (2009), 4423 - 4429.
- [9] M. A. Khamsi, *On metric spaces with uniform normal structure*, Proc. AMS. 106(1989), 723–726.
- [10] M. A. Khamsi, and A. R. Khan, *Inequalities in metric spaces with applications*, Nonlinear Anal. 74 (2011) 4036-4045.
- [11] M. A. Khamsi, and W. A. Kirk, *An Introduction to Metric Spaces and Fixed Point Theory*, John Wiley, New York, 2001.
- [12] W. A. Kirk, *A fixed point theorem for mappings which do not increase distances*, Amer. Math. Monthly 72(1965), 1004–1006.
- [13] W. A. Kirk, *Fixed point theory for nonexpansive mappings, I and II*, Lecture Notes in Mathematics, Springer, Berlin, **886** (1981), 485-505.
- [14] W. A. Kirk, *Fixed points of asymptotic contractions*, J. Math. Anal. Appl. 277 (2003), 645–650.
- [15] W. A. Kirk, *Asymptotic pointwise contractions*, Plenary Lecture, the 8th International Conference on Fixed Point Theory and Its Applications, Chiang Mai University, Thailand, July 16-22, 2007.
- [16] W. A. Kirk, and H. K. Xu, *Asymptotic pointwise contractions*, Nonlinear Anal. 69 (2008), 4706-4712.
- [17] K. Menger, *Untersuchungen über allgemeine Metrik*, Math. Ann. 100 (1928), 75-163.
- [18] A. C. M. Ran, M. C. B. Reurings, *A fixed point theorem in partially ordered sets and some applications to matrix equations*, Proc. Amer. Math. Soc. 132 (2004), no. 5, 1435–1443.
- [19] M. Turinici, *Fixed points for monotone iteratively local contractions*, Dem. Math., 19 (1986), 171-180.

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