

Some remarks concerning Ćirić-Reich-Rus operators

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ABSTRACT.

We consider a self map T on union of p subsets ($p \geq 1$), $\{A_i\}_{i=1}^p$ of a metric space into itself, such that $T(A_i) \subset A_{i+1}$, $i = 1, 2, \dots, p$ ($A_{p+1} = A_1$), where the contractive assumptions are restricted to pairs $(x, y) \in A_i \times A_{i+1}$. We give fixed point theorems for Ćirić-Reich-Rus mappings under cyclical considerations and fixed point results for some generalizations of this contractive type mappings.

REFERENCES

- [1] Banach, S., *Sur les opérations dans les ensembles abstraits et leur application aux équations intégrales*, Fundamenta Mathematicae, Vol. 3, 1922, 133-181
- [2] Berinde, V., *Iterative Approximation of Fixed Points*, 2nd Ed., Springer Verlag, Berlin Heidelberg New York, 2007
- [3] Bianchini, R.M.T., *Su un problema di S. Reich riguardante la teoria dei punti fissi*, Bollettino U.M.I. (4) 5 (1972), 103-108
- [4] Chatterjea, S.K., *Fixed-point theorems*, C.A. Acad. Bulgare Sci. 25(1972), 727-730
- [5] Kannan, R., *Some results on fixed points. II*, American Mathematical Monthly, Vol. 76, 1969, 405-408
- [6] Kirk, W.A., Srinivasan, P.S., and Veeramany, P., *Fixed points for mappings satisfying cyclical contractive conditions*, Fixed Point Theory, 4(1) (2003), 79-89
- [7] Meszaros, J., *A comparison of various definitions of contractive type mappings*, Bull. Calcutta Math. Soc. 84(2)(1992), 167-194
- [8] Petric, M.A., *On Some Cyclical Contractive Conditions*, (submitted)
- [9] Petric, M.A., *Some results concerning cyclical contractive mappings*, (submitted)
- [10] Rhoades, B.E., *A comparison of various definitions of contractive mappings*, Trans. Amer. Math. Soc. 226(1977), 257-290
- [11] Rhoades, B.E., *Contractive definitions revisited*, Contemporary Mathematics 21(1983), 189-205
- [12] Rus, I.A., *Cyclic representations and fixed points*, Annals of the Tiberiu Popoviciu Seminar of Functional Equations, Approximation and Convexity, ISSN 1584-4536, Vol. 3, 2005, 171-178
- [13] Rus, I. A., Petrușel, A. and Petrușel, G., *Fixed Point Theory*, Cluj University Press, Cluj-Napoca, 2008

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