

SOME FIXED POINT THEOREMS FOR NONSELF GENERALIZED CONTRACTION IN GAUGE SPACES

MARCEL-ADRIAN ȘERBAN

Babeș-Bolyai University of Cluj-Napoca, Department of Mathematics
M. Kogălniceanu Street, No. 1, 400084 Cluj-Napoca, Romania
E-mail: mserban@math.ubbcluj.ro

Abstract. In this paper we extend the result from [18] to the case of for nonself operators on gauge spaces. Some new fixed point theorems for nonself generalized contractions are also given.

Key Words and Phrases: functional with intersection property, fixed point, nonself φ -contraction, maximal displacement functional.

2010 Mathematics Subject Classification: 47H10, 54H25.

Acknowledgment. This work was supported by a grant of the Romanian National Authority for Scientific Research, CNCS - UEFISCDI, project number PN-II-ID-PCE-2011-3-0094.

REFERENCES

- [1] A. Chiș-Novac, R. Precup, I.A. Rus, *Data dependence of fixed points for nonself generalized contractions*, *Fixed Point Theory*, **10**(2009), no. 1, 73-87.
- [2] J. Dugundji, *Topology*, Allyn and Bacon Boston, 1966.
- [3] A. Granas, J. Dugundji, *Fixed Point Theory*, Springer, 2003.
- [4] J. Jachymski, I. Jóźwik, *Nonlinear contractive conditions: a comparison and related problems*, *Banach Center Publications*, **77**(2007), 123-146.
- [5] W.A. Kirk, B. Sims (eds.), *Handbook of Metric Fixed Point Theory*, Kluwer, 2001.
- [6] R.D. Nussbaum, *The fixed point index and asymptotic fixed point theorems for K -set-contractions*, *Bull. Amer. Math. Soc.*, **75**(1969), no. 3, 490-495.
- [7] J.M. Ortega, W.C. Rheinboldt, *Iterative Solution of Nonlinear Equations in Several Variables*, Academic Press, New York, 1970.
- [8] D. Reem, S. Reich, A.J. Zaslavski, *Two results in metric fixed point theory*, *J. Fixed Point Theory and Applications*, **1**(2007), 149-157.
- [9] D. O'Regan, R. Precup, *Theorems of Leray-Schauder Type and Applications*, Gordon and Breach Sc. Publ., Amsterdam, 2001.
- [10] A. Petrușel, I.A. Rus, M.-A. Șerban, *Fixed points, fixed sets and iterated multifunction systems for nonself multivalued operators*, *Set-Valued and Variational Anal.*, DOI 10.1007/s11228-014-0291-6, to appear.
- [11] S. Reich, A.J. Zaslavski, *A fixed point theorem for Matkowski contractions*, *Fixed Point Theory*, **8**(2007), no. 2, 303-307.
- [12] S. Reich, A.J. Zaslavski, *A note on Rakotch contractions*, *Fixed Point Theory*, **9**(2008), no. 1, 267-273.
- [13] I.A. Rus, *Generalized Contractions and Applications*, Cluj University Press, Cluj-Napoca, 2001.

- [14] I.A. Rus, *The theory of a metrical fixed point theorem: theoretical and applicative relevances*, Fixed Point Theory, **9**(2008), no. 2, 541-559.
- [15] I.A. Rus, *Five open problems in the fixed point theory in terms of fixed point structures (I): singled valued operators*, Fixed Point Theory and Its Applications, (R. Espinola, A. Petrușel, S. Prus-Eds.), House of the Book of Science, Cluj-Napoca, 2013, 39-60.
- [16] I.A. Rus, A. Petrușel, G. Petrușel, *Fixed Point Theory*, Cluj University Press, 2008.
- [17] I.A. Rus, M.A. Șerban, *Extensions of a Cauchy lemma and applications*, Topics in Mathematics, Computer Science and Philosophy, Cluj University Press, 2008, 173-181.
- [18] I.A. Rus, M.A. Șerban, *Some fixed point theorems for nonself generalized contractions*, to appear.
- [19] M.A. Șerban, *Fixed point theorems on cartesian product*, Fixed Point Theory, **9**(2008), no. 1, 331-350.

Received: March 10, 2014; Accepted: April 29, 2014.