Fixed Point Theory, 15(2014), No. 1, 59-66 http://www.math.ubbcluj.ro/~nodeacj/sfptcj.html

PICARD OPERATORS ON ORDERED METRIC SPACES

M. DERAFSHPOUR AND SH. REZAPOUR

Department of Mathematics Azarbaijan Shahid Madani University Azarshahr, Tabriz, Iran E-mail: sh.rezapour@azaruniv.edu, rezapourshahram@yahoo.ca

Abstract. In this paper, we shall give some results about Picard operators on ordered metric spaces.
In fact, we shall prove that some contractive-like mappings satisfying some conditions on ordered metric spaces are Picard operators. We shall also present an application of our results.
Key Words and Phrases: Fixed point, Picard operator, orbitally continuous.
2010 Mathematics Subject Classification: 47H10, 54H25.

Acknowledgment. The authors express their gratitude to the referees for their helpful suggestions which improved final version of this paper.

References

- [1] R.P. Agarwal, M.A. El-Gebiely, D. O'Regan, Generalized contractions in partially ordered metric spaces, Appl. Analysis, 87(2008), 109-116.
- [2] A. Amini-Harandi, H. Emami, A fixed point theorem for contractions in partially ordered metric spaces and application to ordinary differential equations, Nonlinear Anal., 72(2010), 2238–2242.
- [3] T.G. Bhashkar, V. Lakshmikantham, Fixed point theorems in partially ordered metric spaces and applications, Nonlinear Anal., 65(2006), 1379–1393.
- [4] D. Burgec, S. Kalabusic, M.R.S. Kulanovic, Global attractivity results for mixed monotone mappings in partially ordered copmlete metric spaces, Fixed Point Theory and Appl., 2009, Article ID 762478.
- [5] J. Caballero, J. Harjani, K. Sadarngani, Contractive-like mapping principles in ordered metric spaces and application to ordinary differential equations, Fixed Point Theory and Appl., 2010, Article ID 916064.
- [6] L. Ciric, N. Cakid, M. Rjovi, J.S. Ume, Monotone generalized nonlinear contractions in partially ordered metric spaces, Fixed Point Theory and Appl., 2008, Article ID 131294.
- [7] M. Edelstein, On fixed and periodic points under contractive mappings, J. London Math. Soc., 37(1962), 74–79.
- [8] J. Harjani, K. Sadarangani, Fixed point theorems for weakly contractive mappings in partially ordered sets, Nonlinear Anal., 71(2009), 3403–3410.
- J. Harjani, K. Sadarangani, Generalized contractions in partially ordered metric spaces and applications to ordinary differential equations, Nonlinear Anal., 72(2010), 1188–1197.
- J. Jachymski, Equivalent conditions for generalized contractions on (ordered) metric spaces, Nonlinear Analysis, 74(2011), 768–774.
- [11] Z. Kadelburg, M. Pavlovic, S. Radenovic, Common fixed point theorems for ordered contractions and quasi-contractions in ordered cone metric spaces, Comput. Math. Appl., 59(2010), No. 9, 3148–3159.

59

- [12] V. Lakshmikantham, L. Ciric, Coupled fixed point theorems for nonlinear contractions in partially ordered metric spaces, Nonlinear Anal., 70(2009), 4341–4349.
- [13] J.J. Nieto, R. Rodriguez-Lopez, Contractive mapping theorems in partially ordered sets and applications to ordinary differential equations, Order, 22(2005), 223–239.
- [14] J.J. Nieto, R.L. Pous, R. Rodriguez-Lopez, Fixed point theorems in ordered abstract spaces, Proc. Amer. Math. Soc., 135(2007), 2505–2517.
- [15] J.J. Nieto, R. Rodriguez-Lopez, Existence and uniqueness of fixed point in partially ordered sets and applications to ordinary differential equations, Acta Math. Sinica, 23(2007), 2205–2212.
- [16] D. O'Regan, A. Petrusel, Fixed point theorems for generalized contractions on ordered metric spaces, J. Math. Anal. Appl., 341(2008), 1241–1252.
- [17] A. Petrusel, I.A. Rus, Fixed point theorems in ordered L-spaces, Proc. Amer. Math. Soc., 134(2006), 411–418.
- [18] E. Rakotch, A note on contractive mappings, Proc. Amer. Math. Soc., 13(1962), 459–465.
- [19] 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), 1435–1443.
- [20] Sh. Rezapour, P. Amiri, Fixed point of multivalued operators on ordered generalized metric spaces, Fixed Point Theory, 13(2012), 173–179.
- [21] Sh. Rezapour, M. Derafshpour, N. Shahzad, Best proximity points of cyclic φ-contractions in ordered metric spaces, Topol. Methods Nonlinear Analysis, 37(2011), 193–202.
- [22] B. Runge, On Picard Modular Forms, Math. Nachr., 184(1997), 259-273.
- [23] I.A. Rus, S. Muresan, Data dependence of the fixed points set of weakly Picard operators, Studia Univ. Babes-Bolyai Math., 43(1998), No. 1, 79–83.
- [24] I.A. Rus, Fiber Picard operators theorem and applications, Studia Univ. Babes-Bolyai Math., 44(1999), No. 3, 89–97.
- [25] I.A. Rus, Picard operators and applications, Sci. Math. Jpn., 58(2003), 191–219.
- [26] I.A. Rus, Some nonlinear functional differential and integral equations via weakly Picard operator theory: A survey, Carpathian J. Math., 26(2010), 230–258.
- [27] R. Weikard, Picard operators, Math. Nachr., 195(1998), 251-266.

Received: May 3, 2012; Accepted: June 21, 2012.