

BEST PROXIMITY POINT THEOREMS FOR KT -TYPES CYCLIC ORBITAL CONTRACTION MAPPINGS

ERDAL KARAPINAR*, GABRIELA PETRUȘEL**,¹ AND KENAN TAS***

*Department of Mathematics, Atilim University 06836,
Incek, Ankara, Turkey
E-mail: erdalkarapinar@yahoo.com

**Babes-Bolyai University Cluj-Napoca, Department of Business,
400174, Cluj-Napoca, Romania
E-mail: gabi.petrusel@tbs.ubbcluj.ro

***Department of Mathematics and Computer Science,
Cankaya University 06530, Yuzuncuyil, Ankara, Turkey
E-mail: kenan@cankaya.edu.tr

Abstract. In this manuscript, three new KT -types cyclic orbital contractions are defined and some related best proximity point theorems are given. Also, the notion of KT -type cyclic orbital Meir-Keeler contraction is defined and some fixed point theorems for this class of mappings are proved. The results of this manuscript generalize some theorems, on the same subject, of several authors, such as Kirk-Srinivasan-Veeramani, Eldered-Veeramani and Karpagam-Agrawal.

Key Words and Phrases: Cyclic contraction, best proximity points, KT -types cyclic orbital contractions, cyclic orbital Meir-Keeler contraction.

2010 Mathematics Subject Classification: 47H10, 46T99, 54H25.

REFERENCES

- [1] M. A. Al-Thafai and N. Shahzad, *Convergence and existence for best proximity points*, *Nonlinear Anal.*, **70**(2009), 3665-3671.
- [2] A.A. Eldered and P. Veeramani, *Convergence and existence for best proximity points*, *J. Math. Anal. Appl.*, **323**(2006), 1001-1006.
- [3] A.A. Eldered and P. Veeramani, *Proximal pointwise contraction*, *Topology Appl.*, **156**(2009), 2942-2948.
- [4] S. Karpagam and S. Agrawal, *Best proximity points theorems for cyclic Meir-Keeler contraction maps*, *Nonlinear Anal.*, **74**(2011), 1040-1046.
- [5] E. Karapinar, *Fixed point theory for cyclic weak ϕ -contraction*, *Appl. Math. Lett.*, **24**(2011), 822-825.
- [6] W.A. Kirk, P.S. Srinivasan and P. Veeramani, *Fixed points for mapping satisfying cyclical contractive conditions*, *Fixed Point Theory*, **4**(2003), 79-89.
- [7] G.S.R. Kosuru and P. Veeramani, *Cyclic contractions and best proximity pair theorems*, [arXiv:1012.1434v2 \[math.FA\]](https://arxiv.org/abs/1012.1434v2) 29 May 2011, 14 pag.
- [8] G. Petrușel, *Cyclic representations and periodic points*, *Studia Univ. Babes-Bolyai Math.*, **50**(2005), 107-112.

¹Corresponding author.

- [9] Sh. Rezapour, M. Derafshpour and N. Shahzad, *Best proximity point of cyclic φ -contractions in ordered metric spaces*, Topol. Meth. Nonlinear Anal., **37**(2011) 193-202.
- [10] I.A. Rus, *Cyclic representations and fixed points*, Annals T. Popoviciu Sem. Funct. Eq. Approx. Convexity, **3**(2005), 171-178.

Received: October 12, 2011; Accepted: December 11, 2011.

