

COINCIDENCE AND COMMON FIXED POINT OF F-CONTRACTIONS VIA CLR_{ST} PROPERTY

Anita Tomar, Giniswamy, C. Jeyanthi, P. G. Maheshwari

Abstract. The aim of this paper is to establish the existence of coincidence and common fixed point of F-contractions via CLR_{ST} property. Our results generalize, extend and improve the results of Wardowski [D. Wardowski, Fixed points of a new type of contractive mappings in complete metric spaces, Fixed Point Theory and Applications (2012) 2012:94, 6 pages, doi: [10.1186/1687-1812-2012-94](https://doi.org/10.1186/1687-1812-2012-94)], Batra et al. [Coincidence Point Theorem for a New Type of Contraction on Metric Spaces, Int. Journal of Math. Analysis, Vol. 8(27) 2014, 1315-1320] and others existing in literature. Examples are also given in support of our results.

[Full text](#)

References

- [1] S. Banach, *Sur les opérations dans les ensembles abstraits et leur application aux équations intégrales*, Fundamenta Mathematicae, **3** (1922), 133-181. [JFM 48.0201.01](#).
- [2] S. K. Chatterjea, *Fixed point theorems*, Comptes Rendus de l'Academie Bulgare des Sciences, **25**(1972), 727-730. [MR0324493](#). [Zbl 0274.54033](#).
- [3] L. B. Ćirić, *A generalization of Banach's contraction principle*, Proc. Am. Math. Soc. **45**(2)(1974), 267-273. [MR0356011](#). [Zbl 0291.54056](#).
- [4] M. Imdad, B. O. Pant, S. Chauhan, *Fixed point theorems in Menger spaces using the (CLR_{ST}) property and applications*, J. Nonlinear Anal. Optim., **3**(2) (2012), 225-237. [MR2982410](#).
- [5] Monica Cosentino and Pasquale Vetro, *Fixed point results for F-contractive mappings of Hardy-Rogers-type*, Filomat, **28**:4 (2014), 715-722, DOI 10.2298/FIL1404715C. [MR3360064](#).

2010 Mathematics Subject Classification: 47H10; 54H25

Keywords: Common fixed point, common limit range property, F-contraction, weakly compatible maps.

<http://www.utgjiu.ro/math/sma>

- [6] G. E. Hardy and T. D. Rogers, *A generalization of a fixed point theorem of Reich*, *Canad. Math. Bull.*, **16**(1973), 201-206. [MR0324495](#). [Zbl 0266.54015](#).
- [7] G. Jungck, *Compatible mappings and common fixed points*, *Inter. J. Math. Math. Sci.*, **9** (1986), 771-779. [MR0870534](#). [Zbl 0613.54029](#).
- [8] G. Jungck and B. E. Rhoades, *Fixed point for set valued functions without continuity*, *Indian J. Pure Appl. Math.*, **29** (1998), 227-238. [MR1617919](#). [Zbl 0904.54034](#).
- [9] R. Kannan, *Some results on fixed points*, *Bull. Cal. Math. Soc.*, **60**(1968), 71-76. [MR0257837](#). [Zbl 0209.27104](#).
- [10] S.K. Malhotra, Stojan Radenovic and Satish Shukla, *Some fixed point results without monotone property in partially ordered metric-like spaces*, *J. Egyptian Math. Soc.*, **22** (2014), 83-89. [MR3168597](#). [Zbl 1293.54029](#).
- [11] G. Minak, A. Helvac, and I. Altun, *Ćirić type generalized F- contractions on complete metric spaces and fixed point results*, *Filomat* **28**:6 (2014), 1143-1151, DOI.10.2298/FIL1406143M. [MR3360088](#).
- [12] Hossein Piri and Poom Kumam, *Some fixed point theorems concerning F-contraction in complete metric spaces*, *Fixed Point Theory and Appl.* 2014, (2014) 210. [MR3357360](#).
- [13] Rakesh Batra, Sachin Vashistha and Rajesh Kumar, *Coincidence Point Theorem for a New Type of Contraction on Metric Spaces*, *Int. J. Math. Anal.*, **8**(2014) no. 27, 1315-1320 <http://dx.doi.org/10.12988/ijma.2014.45147>.
- [14] S. Reich, *Some remarks concerning contraction mappings*, *Canad. Math. Bull.* **14**(1) (1971), 121-124. 878730. [MR0292057](#). [Zbl 0211.26002](#).
- [15] Satish Shukla and Stojan Radenovic, *Some common fixed point theorems for F-contraction type mappings in 0-complete partial metric spaces*, *J. Math.*, 2013(2013), Article ID 878730, 7 pages, doi: 10.1155/ 2013/ 878730. [MR3100741](#). [Zbl 1268.54035](#).
- [16] W. Sintunavarat and P. Kumam, *Common fixed point theorems for a pair of weakly compatible mappings in fuzzy metric spaces*, *J. Appl. Math.*, (2011), 1-14. [MR2822403](#). [Zbl 1226.54061](#).
- [17] D. Wardowski, *Fixed points of a new type of contractive mappings in complete metric spaces*, *Fixed Point Theory and Appl.*, **94**(2012), 6 pages, doi: 10.1186/1687-1812-2012-94. [MR2949666](#). [Zbl 1310.54074](#).

- [18] D. Wardowski and N. Van Dung, *Fixed points of F-weak contractions on complete metric spaces*, *Demons. Math.*, **47**(1) (2014), 146-155. [MR3200192](#). [Zbl 1287.54046](#).

Anita Tomar,
Government P.G. College, Dakpathar(Dehradun), India.
e-mail: anitatmr@yahoo.com

Ginismwamy,
P. E. S College of Science, Arts and Commerce, Mandya, India.
e-mail: gswamypes@gmail.com

C. Jeyanthi,
Teresian College, Mysore.
e-mail: jaiprab@yahoo.co.in

P. G. Maheshwari,
Government First Grade College, Vijayanagara, Bangalore.
e-mail: maheshwari616@yahoo.com

License

This work is licensed under a [Creative Commons Attribution 4.0 International License](#). 
