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SOME COMMON AND COINCIDENCE FIXED POINTS OF WEAKLY COMPATIBLE MAPPINGS IN CONE METRIC SPACES

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Abstract. The purpose of this work is to prove the existence and uniqueness of common and coincidence fixed points for a family of self mappings satisfying different generalized contractive conditions with the property of weakly compatible in the context of cone metric spaces. Some examples are provided to illustrate the obtained results. These results generalize several well-known comparable results in the literature.

REFERENCES

[1] M. Abbas and G. Jungck: *Common fixed point results for noncommuting mappings without continuity in cone metric spaces*, J. Math. Anal. Appl., **341**(2008), 416-420.

[2] A. Azam, M. Arshad and I. Beg: *Common fixed points of two maps in cone metric spaces*, Rend. Circ. Mat. Palermo (2), **57**(2008), 433-441.

[3] Lj. B. Ćirić: *Generalized contractions and fixed point theorems*, Publ. Inst. Math. (Beograd) (N.S.), **12**(1971), 19-26.

[4] A. P. Farajzadeh, A. Amini-Harandi and D. Baleanu: *Fixed point theory for generalized contractions in cone metric spaces*, Commun. Nonlinear Sci. Numer. Simul., **17**(2012), No. 2, 708-712.

[5] LG. Huang and X. Zhang: *Cone metric spaces and fixed point theorems of contractive mappings*, J. Math. Anal. Appl., **332**(2007), No. 2, 1468-1476.

[6] G. Jungck: *Commuting maps and fixed points*, Amer. Math. Monthly, **83**(1976), 261-263.

[7] M. Pitchaimani and D. Ramesh Kumar: *Some common fixed point theorems using implicit relation in 2-Banach spaces*, Surv. Math. Appl., **10**(2015), 159-168.

[8] M. Pitchaimani and D. Ramesh Kumar: *On Nadler type results in ultrametric spaces with application to well-posedness*, Asian-Eur. J. Math., **10**(2017), No. 4, 1-15.

[9] M. Pitchaimani and D. Ramesh Kumar: *Common and coincidence fixed point theorems for asymptotically regular mappings in 2-Banach Space*, Nonlinear Funct. Anal. Appl., **21**(2016), No. 1, 131-144.

[10] M. Pitchaimani and D. Ramesh Kumar: *On construction of fixed point theory under implicit relation in Hilbert spaces*, Nonlinear Funct. Anal. Appl., **21**(2016), No. 3, 513-522.

[11] M. Pitchaimani and D. Ramesh Kumar: *Generalized Nadler type results in ultrametric spaces with application to well-posedness*, Afr. Mat., **28**(2017), 957-970.

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[12] S. Radenović: *Common fixed points under contractive conditions in cone metric spaces*, Comput. Math. Appl., **58**(2009), No. 6, 1273-1278.
[13] D. Ramesh Kumar and M. Pitchaimani: *Set-valued contraction mappings of Prešić-Reich type in ultrametric spaces*, Asian-Eur. J. Math., **10**(2017), No. 4, 1-15.
[14] D. Ramesh Kumar and M. Pitchaimani: *A generalization of set-valued Prešić-Reich type contractions in ultrametric spaces with applications*, J. Fixed Point Theory Appl., **19**(2017), No. 3, 1871-1887.
[15] D. Ramesh Kumar and M. Pitchaimani: *Approximation and stability of common fixed points of Prešić type mappings in ultrametric spaces*, J. Fixed Point Theory Appl., **20**(2018), No. 4, 1-21.
[16] D. Ramesh Kumar and M. Pitchaimani: *New coupled fixed point theorems in cone metric spaces with applications to integral equations and Markov process*, Trans. A. Razmadze Math. Inst., **172**(2018), No. 3, 409-419.
[17] S. Rezapour and R. Hamlbarani: *Some notes on the paper: Cone metric spaces and fixed point theorems of contractive mappings*, J. Math. Anal. Appl., **345**(2008), 719-724.
[18] G. Song, X. Sun, Y. Zhao and G. Wang: *New common fixed point theorems for maps on cone metric spaces*, Appl. Math. Lett., **23**(2010), 1033-1037.
[19] G. Wu and L. Yang: *Some fixed point theorems on cone* 2*-metric spaces over Banach algebras*, J. Fixed Point Theory Appl., **20**(2018), 1-19.

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