# SOME COMMON FIXED POINT THEOREMS USING IMPLICIT RELATION IN 2-BANACH SPACES

M. Pitchaimani and D. Ramesh Kumar

**Abstract**. In this article, we study the existence and uniqueness of a common fixed point of family of self mappings satisfying implicit relation on a 2-Banach space. We also prove well-posedness of a common fixed point problem.

Full text

## References

[1] M. Abbas, H. Aydi, *On common fixed point of generalized contractive mappings in metric spaces*, Surveys in Mathematics and its Applications, **7** (2012) 39-47. MR2981738.

[2] M. A. Ahmed, *A common fixed point theorem for expansive mappings in 2-metric spaces and its application*, Chaos, Solitons and Fractals, **42**(5) (2009) 2914-2920. MR2560004. Zbl 1198.54068.

[3] M. Akkouchi, *Well-posedness of the fixed point problem for certain asymptotically regular mappings*, Annalas Mathematicae Silesianae, **23** (2009) 43-52. MR2741844 . Zbl 1234.54049.

[4] M. Akkouchi, V. Popa, *Well-posedness of the fixed point problem for mappings satisfying an implicit relations*, Demonstratio Mathematica, **43**(4) (2010) 923-929. MR2761650 . Zbl 1238.54018.

[5] Lj. B. Ćirić, *Generalized contractions and fixed point theorems*, Publ. Inst. Math. (Beograd), **12**(26) (1971) 19-26. MR0309092 (46#8203). Zbl 0234.54029.

[6] S. Gähler, *2-metric Raume and ihre topologische strucktur*, Math. Nachr., **26** (1963) 115-148. MR0162224 (28#5423). Zbl 0117.16003.

[7] S. Gähler, *Uber die unifromisieberkeit 2-metrischer Raume*, Math. Nachr., **28** (1965) 235-244. MR0178452 (31#2709). Zbl 0142.39804.

[8] K. Iseki, *Fixed point theorems in 2-metric space*, Math. Seminar. Notes, Kobe Univ., **3** (1975) 133-136. MR0405395 (53#9189).

[9] B. K. Lahiri, *Well-posedness and certain classes of operators*, Demonstratio Mathematica, **38** (2005) 169-176. MR2123731 (2005k:47121). Zbl 1159.47305.

[10] S. N. Lal, A. K. Singh, *An analogue of Banach's contraction principle for 2-metric spaces*, Bull. Austral. Math. Soc., **18**(1) (1978) 137-143. MR0645161 (58#31029). Zbl 0385.54028.

[11] S. V. R. Naidu, J. R. Prasad, *Fixed point theorems in 2-metric spaces*, Indian J. Pure. Appl. Math., **17**(8) (1986) 974-993. MR0856334 (87i:54096).

[12] W. G. Park, *Approximate additive mapping in 2-Banach spaces and related topics*, J. Math. Anal. Appl., **376**(1) (2011) 193-202. MR2745399. Zbl 1213.39028.

[13] M. Pitchaimani, D. Ramesh kumar, *Common and coincidence fixed point theorems for asymptotically regular mappings in 2-Banach Space*, Nonlinear Func. Anal. Appl., (Accepted).

[14] S. Reich, A. T. Zaslawski, *Well-posedness of fixed point problems*, Far East J. Math. sci, Special volume, part **III** (2001) 393-401. MR1888108 (2003d:54058).

[15] B. E. Rhoades, *Contraction type mappings on a 2-metric space*, Math. Nachr., **91** (1979) 151-155. MR0563606 (81b:54047). Zbl 0424.54038.

[16] M. Saha, D. Dey, *Fixed point of expansive mappings in a 2-Banach space*, Int. J. Math. Sci. Eng. Appl., **4**(4) (2010) 355-362. MR2768749.

[17] G. S. Saluja, *On common fixed point theorems under implicit relation in 2-Banach spaces*, Nonlinear Func. Anal. Appl., **20**(2) (2015) 215-221. Zbl 1321.47121.

[18] G. S. Saluja, *Existence results of unique fixed point in 2-Banach spaces*, Int. J. Math. Combin., **1** (2014) 13-18. Zbl 1325.47130.

[19] G. S. Saluja, *On common fixed point theorems satisfying implicit relation in 2-Banach spaces*, Bull. Kerala Math. Assoc., **12**(1) (2015) 77-85.

[20] T. Veerapandi, S. Anil Kumar, *Common fixed point theorems of a sequence of mappings on Hilbert space*, Bull. Cal. Math. Soc., **91(4)** (1999) 299-308. MR1748540 (2000k:47089). Zbl 0956.54023.

[21] A. White, *2-Banach spaces*, Math. Nachr., **42** (1969) 43-60. MR0257716(41#2365). Zbl 0185.20003.

M. Pitchaimani
University of Madras,
Chepauk, Chennai - 600005,
Tamil Nadu, India.
E-mail: mpitchaimani@yahoo.com

D. Ramesh Kumar
University of Madras,
Chepauk, Chennai - 600005,
Tamil Nadu, India.
E-mail: rameshkumard14@gmail.com

## License