Regularly Ideal Convergence and Regularly Ideal Cauchy Double Sequences in 2-Normed Spaces

Yurdal Sever [1], Erdinç Dündar [2]

Department of Mathematics, Afyon Kocatepe University, 03200 Afyonkarahisar, Turkey
[1] *E-mail: yurdalsever@hotmail.com, ysever@aku.edu.tr*
[2] *E-mail: erdincdundar79@gmail.com, edundar@aku.edu.tr*

Abstract: In this paper, we introduce the notions of $(\mathcal{I}_2, \mathcal{I})$, $(\mathcal{I}_2^*, \mathcal{I}^*)$-convergence and $(\mathcal{I}_2, \mathcal{I})$, $(\mathcal{I}_2^*, \mathcal{I}^*)$-Cauchy double sequence in regular sense in 2-normed spaces. Also, we study some properties of these concepts.

Keywords: Ideal; Double Sequences; $\mathcal{I}$, $\mathcal{I}_2$-Convergence; $\mathcal{I}$, $\mathcal{I}_2$-Cauchy; 2-normed space.

2010 Mathematics Subject Classification: 40A35, 40B05, 46A705.

On the strong and $\triangle$-convergence for total asymptotically nonexpansive mappings on a CAT(0) space

Aynur Şahin, Metin Başarır

Department of Mathematics, Faculty of Sciences and Arts, Sakarya University, Sakarya, 54187, Turkey.
E-mail: ayuce@sakarya.edu.tr, basarir@sakarya.edu.tr

Abstract: In this study, we give the strong and $\triangle$-convergence theorems of the modified S-iteration and the modified two-step iteration processes for total asymptotically nonexpansive mappings on a CAT(0) space. Our results extend and improve the corresponding recent results announced by many authors in the literature.

Keywords: CAT(0) space, Total asymptotically nonexpansive mapping, Strong convergence, $\triangle$-convergence, Iterative process, Fixed point.

2010 Mathematics Subject Classification: 47H09, 47H10, 54H25, 58C30.

References:

[1] Dhompongsa, S. & Panyanak, B. (2008). On $\triangle$-convergence theorems in CAT(0) spaces, Comput. Math. Appl., 56, 2572–2579.
[2] Şahin, A. & Başarır, M. (2013). On the strong convergence of a modified S-iteration process for asymptotically quasi-nonexpansive mappings in a CAT(0) space, Fixed Point Theo. Appl., 2013:12, doi:10.1186/1687-1812-2013-12.
[3] Chang, S. S., Wang, L., Joesph Lee, H. W., Chan, C.K. & Yang, L. (2012). Demiclosed principle and $\triangle$-convergence theorems for total asymptotically nonexpansive mappings in CAT(0) spaces, Appl. Math. Comput., 219, 2611-1617.
[4] Bridson, M. & Haefliger, A. (1999). Metric spaces of non-positive curvature, Springer, Berlin.
[5] Agarwal, R. P., O'Regan, D. & Sahu, D.R. (2007). Iterative construction of fixed points of nearly asymptotically nonexpansive mappings, J. Nonlinear Convex. Anal., 8 (1), 61–79.
[6] Thianwan, S. (2009). Common fixed points of new iterations for two asymptotically nonexpansive nonself mappings in a Banach space, J. Comput. Appl. Math., 224, 688-695.