Analele Universităţii Oradea
Fasc. Matematica, Tom XXIV (2017), Issue No. 2, 29–35

ANTI-SPACES OF STRONGLY $k-$SPACES

SOLEY ERSOY[1], AYSENUR TÜRKOĞLU[2] AND HILAL POLAT[3]

Abstract. In this study, we investigate anti-spaces of supratopological spaces given with the collection of all preopen sets and strongly $k-$spaces. Also, we define $pKC-$space, strongly compact, strongly proper and strongly perfect maps. Therefore, we obtain the relations among maps such as preirresolute, precontinuous, preclosed, strongly compact, strongly proper, strongly perfect maps under the assumption the domain or range of these maps is strongly $k-$space.

References

[1] A.S. Mashhour, M.E. Abd El-Monsef, and S.N. El-Deep, *On precontinuous and weak precontinuous mappings*, Proc. Math. Phys. Soc. Egypt., **53**(1982), 47-53.
[2] A.S. Mashhour, M.E. Abd El-Monsef, I.A. Hasanein, *On pretopological spaces*,Bull. Math. de la Soc. R.S. de Roumanie, **28**(76)(1984), 39-45.
[3] A.S. Mashhour, M.E. Abd El-Monsef, J.A. Hasanein, T. Noiri, *Strongly compact spaces*, Delta J. Sci., **8**(1984), 30-46.
[4] A.S. Mashhour, J.A. Hasanein, S.N. El-Deeb, *A note on semicontinuity and precontinuity*, Indian J. Pure Appl. Math., **13**(1982), 1119–1123.
[5] D. Andrijevic, *On the topology generated by pre-open sets*, Math. Vesnik, **39**(1987), 367–376.
[6] E. Wattle, *The compactness operator in set theory and topology*, Mathematical Centre Tracts, 21 Mathematisch Centrum, Amsterdam, 1968.
[7] I.L. Reilly, M.K. Vamanamurthy, *On some questions concerning preopen sets*, Kyungpook Math. J., **30**(1990), no. 1, 87–93.
[8] J. Cao, M. Ganster, I. Reilly and M. Steiner, *δ-closure, θ-closure and generalized closed sets*, Appl. Gen. Topol., **6**(2005), no. 1, 79–86.
[9] J. de Groot, *An isomorphism principle in general topology*, Bull. Amer. Math. Soc., **73** (1967), 465-467.
[10] J. de Groot, G.E. Strecker, E. Wattel, *The compactness operator in general topology*, Proceedings of the Second Prague Topological Symposium, Prague, 161–163, 1966.
[11] J. Dontchev, *Survey on preopen sets*, The Proceedings of the Yatsushiro Topological Conference, 1–18, 1998.
[12] J.H.C. Whitehead, *Simplicial spaces, nuclei and m-groups*, Proc. London Math. Soc., **45**(1939), 243–327.
[13] N. Liden, *$k-$spaces, their anti-spaces and related maps*, Washington University, PhD. Thesis, 1973.
[14] N. Liden, *$k-$spaces, their anti-spaces and related maps*, Pacific J. of Math., **2**(1975), 505–514.
[15] R.H. Atia, S.N. El-Deeb, and I.A. Hasanein, *A note on strong compactness and S-closedness*, Mat. Vesnik, **6**(19)(34) (1982) 23–28.
[16] R. Arens, *A topology for spaces of transformations*, Ann. of Math., **47**(1946), 480–495.
[17] S. Ersoy, İ. İnce, M. Bilgin, *Strongly $k-$spaces*,Bull. Iran Math. Soc., in Press.
[18] S.N. El-Deeb, I.A. Hasanein, A.S. Mashhour, and T. Noiri, *On $p-$regular spaces*, Bull. Math. Soc. Sci. Math. R.S. Roum., **27**(1983), 311–315.
[19] T. Husain, *Topology and maps*, Plenum Press, New York, 1977.
[20] V. Popa, *Characterization of H-almost continuous functions*, Glasnik Math. Vol., **22**(1987), 157–161.
[21] Y.B. Jun, S. W. Jeong, H.J. Lee, J.W. Lee, *Applications of pre-open sets*, Appl. Gen. Topol., **9**(2008), no. 2, 213–228.

2010 *Mathematics Subject Classification.* 54A05; 54C08; 54D50.
Key words and phrases. Anti-space, strongly $k-$Space.

Received 27 September 2016

[1] Department of Mathematics, Faculty of Arts and Sciences, Sakarya, TURKEY
[2] Department of Mathematics, Faculty of Arts and Sciences, Sakarya, TURKEY
[3] Department of Mathematics, Faculty of Arts and Sciences, Sakarya, TURKEY
E-mail address: [1] sersoy@sakarya.edu.tr, [2] aysenur.turkoglu1@ogr.sakarya.edu.tr, [3] hilal.polat2@ogr.sakarya.edu.tr