

ON β -LIKE COMPACTIFICATIONS AND INVERSION-CLOSED RINGS OF UNIFORM SPACES

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In [3] for uniform space uX by a normal base $\mathcal{Z} = \{\mathbf{Z}(f) = f^{-1}(0) : f \in U(uX)\}$, where $U(uX)$ is a set of all uniformly continuous functions on uX Wallman compactification $\beta_u X$ [1, 8] and Wallman realcompactification $v_u X$ [11] had been constructed and their uniformities had been described. The compactification $\beta_u X$ is a β -like compactification [10], and it is connected with an algebra $C_u(X)(C_u^*(X))$ of all (bounded) u -continuous functions on uX in sense [2, 4]. We note, that $C_u(X)$ is an algebra with inversion in sense [6, 7, 9]. Now for the rings $C_u(X)$ and $C_u^*(X)$ a uniform analogues of Gelfand–Kolmogoroff and Stone Theorems have been proved, which are established a homeomorphism between $\beta_u X$ and a space of maximal ideals of the rings $C_u(X)$ and $C_u^*(X)$ with Stone topology. Due to Wallman realcompactification $v_u X$ z_u -complete uniform spaces are determined and a uniform analogue of Hewitt Theorem [5, 3.12.21(g)] have been proved.

REFERENCES

- [1] Aarts J. M., Nishiura T., *Dimension and Extensions*, North-Holland, 1993. 331 p.
- [2] Charalambous M. G., *A new covering dimension function for uniform spaces*, J. London Math. Soc. 2(11) (1975), p. 137–143.
- [3] Chekeev A. A., *Uniformities for Wallman compactifications and realcompactifications*, Topology Appl., V.201., (2016), p.145–156
- [4] Frolik Z., *A note on metric-fine spaces*, Proc. Amer. Math.Soc.,V. 46, n.1, (1974), p.111–119.
- [5] Engelking R., *General Topology*, Berlin: Heldermann, 1989. 515 p.
- [6] Hager A. W., Johnson D. J., *A note on certain subalgebras of $C(X)$* , Canad. J. Math. 20(1968), p. 389–393.
- [7] Hager A.W., *On inverse-closed subalgebra of $C(X)$* , Proc. Lond. Math. Soc. 19(3)(1969), p. 233–257.
- [8] Iliadis S. D., *Universal spaces and mappings*, North-Holland Mathematics Studies, 198. Elsevier Science B.V., 2005, Amsterdam. 559 p.
- [9] Isbell J . R., *Algebras of uniformly continuous functions*, Ann. of Math., 68 (1958), p. 96–125.
- [10] Mrówka S., *β -like compactifications*, Acta Math. Acad. Sci. Hungaricae, 24 (3-4)(1973), p. 279–287.
- [11] Steiner A. K., Steiner E. F., *Nest generated intersection rings in Tychonoff spaces*, Trans. Amer. Math. Soc. 148 (1970), p. 589–601.