Chuan Liu

Paratopological (topological) groups with certain networks

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Abstract: In this paper, we discuss certain networks on paratopological (or topological) groups and give positive or negative answers to the questions in [13]. We also prove that a non-locally compact, k-gentle paratopological group is metrizable if its remainder (in the Hausdorff compactification) is a Fréchet-Urysohn space with a point-countable cs*-network, which improves some theorems in [Liu C., *Metrizability of paratopological (semitopological) groups*, Topology Appl. **159** (2012), 1415–1420], [Liu C., Lin S., *Generalized metric spaces with algebraic structures*, Topology Appl. **157** (2010), 1966–1974].

Keywords: paratopological groups; topological groups; sequential neighborhood; networks; metrizable; compactifications; remainders
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References

[1] Arhangel'skiĭ A.V., *Mappings and spaces*, Russian Math. Surveys **21** (1966), 115–162.
[2] Arhangel'skii A.V., *More on remainders close to metrizable spaces*, Topology Appl. **154** (2007), 1084–1088.
[3] Arhangel'skii A.V., *Components of first-countablity and various kinds of pseudoopen mappings*, Topology Appl. **158** (2011), 215–222.
[4] Arhangel'skii A.V., Choban M.M., *On remainders of rectifiable spaces*, Topology Appl. **157** (2010), 789–799.
[5] Arhangel'skiĭ A.V., Okunev O.G., Pestov V.G., *Free topological groups over metrizable spaces*, Topology Appl. **33** (1989), 63–76.
[6] Arhangel'skii A.V., Tkachenko M., *Topological Groups and Related Structures*, Atlantis Press and World Sci., Hackensack, NJ, 2008.
[7] Engelking R., *General Topology*, PWN, Polish Scientific Pub., Warszawa, 1977.
[8] Franklin S., *Spaces in which sequences suffice*, Fund. Math. **57** (1965), 107–115.
[9] Gruenhage G., *k-spaces and products of closed images of metric spaces*, Proc. Amer. Math. Soc. **80** (1980), 478–482.
[10] Gruenhage G., *Generalized metric spaces*, K. Kunen, J.E. Vaughan, eds., Handbook of Set-Theoretic Topology, North-Holland, 1984, pp. 423–501.
[11] Gruenhage G., Michael E., Tanaka Y., *Spaces determined by point-countable covers*, Pacific J. Math. **113** (1984), no. 2, 303–332.
[12] Lin S., *On sequence-covering s-maps*, Math. Adv. (China) **25** (1996), 548–551.
[13] Lin F., *A note on paratopological groups with countable networks of sequential neighborhoods*, Topology Proc. **41** (2013), 9–16.
[14] Liu C., *A note on paratopological groups*, Comment. Math. Univ. Carolin. **47** (2006), no. 4, 633–640.
[15] Liu C., *Metrizability of paratopological (semitopological) groups*, Topology Appl. **159** (2012), 1415–1420.
[16] Liu C., Lin S., *Generalized metric spaces with algebraic structures*, Topology Appl. **157** (2010), 1966–1974.
[17] Michael E., *A quintuple quotient quest*, General Topology Appl. **2** (1972), 91–138.
[18] Ordman E., Smith-Thomas B., *Sequential conditions and free topological groups*, Proc. Amer. Math. Soc. **79** (1980), no. 2, 319–326.
[19] Simon P., *Divergent sequences in compact Hausdorff spaces*, Topology, Vol. II (Proc. Fourth Colloq., Budapest, 1978), pp. 1087–1094, Colloq. Math. Soc. János Bolyai, 23, North-Holland, Amsterdam-New York, 1980.
[20] Shiraki T., *M-spaces, their generalization and metrization theorems*, Sci. Rep. Tokyo Kyoiku Daigaku A, 11 (1971), 57–67.
[21] Tanaka Y., *Point-countable covers and k-networks*, Topology Proc. **12** (1987), 327–349.