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A note on paratopological groups

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Abstract: In this paper, it is proved that a first-countable paratopological group has a regular G_δ -diagonal, which gives an affirmative answer to Arhangel'skii and Burke's question [Spaces with a regular G_δ -diagonal, Topology Appl. 153 (2006), 1917–1929]. If G is a symmetrizable paratopological group, then G is a developable space. We also discuss copies of S_ω and of S_2 in paratopological groups and generalize some Nyikos [Metrizability and the Fréchet-Urysohn property in topological groups, Proc. Amer. Math. Soc. 83 (1981), no. 4, 793–801] and Svetlichnyi [Intersection of topologies and metrizability in topological groups, Vestnik Moskov. Univ. Ser. I Mat. Mekh. 4 (1989), 79–81] results.

Keywords: paratopological group, symmetrizable spaces, regular G_δ -diagonal, weak bases, Arens space

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