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Quotient with respect to admissible $L$-subgyrogroups. (English) Zbl 07401478

Topology Appl. 301, Article ID 107492, 11 p. (2021)

Summary: The concept of gyrogroups, with a weaker algebraic structure without associative law, was introduced under the background of $c$-ball of relativistically admissible velocities with the Einstein velocity addition. A topological gyrogroup is just a gyrogroup endowed with a compatible topology such that the multiplication is jointly continuous and the inverse is continuous. This concept generalizes that of topological gyrogroups. In this paper, we are going to establish that for a locally compact admissible $L$-subgyrogroup $H$ of a strongly topological gyrogroup $G$, the natural quotient mapping $\pi$ from $G$ onto the quotient space $G/H$ has some nice local properties, such as, local compactness, local pseudocompactness, and local paracompactness, etc. Finally, we prove that each locally paracompact strongly topological gyrogroup is paracompact.

MSC:

54H11 Topological groups (topological aspects)
54A20 Convergence in general topology (sequences, filters, limits, convergence spaces, nets, etc.)
20N05 Loops, quasigroups
18A32 Factorization systems, substructures, quotient structures, congruences, amalgams
20A05 Axiomatics and elementary properties of groups
20B30 Symmetric groups

Keywords:
topological gyrogroup; strongly topological gyrogroup; perfect mapping; locally compact; admissible subgyrogroup; $L$-subgyrogroup; paracompact space

Full Text:  DOI

References:

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