A topological group $G$ is called $\mathbb{R}$-factorizable ($M$-factorizable) if for every continuous real-valued function $f$ on $G$, there exists a continuous homomorphism $\pi$ of $G$ onto a second metrizable (metrizable) group $M$ such that $f = g \circ \pi$, for some continuous real-valued function $g$ on $M$.

The class of $M$-factorizable groups contains the class of metrizable groups and the class of $\mathbb{R}$-factorizable groups. The authors claim that the class of $M$-factorizable groups “...is a kind of unification of the metrizability and compactness concepts in topological groups...”. A topological group is called feathered if it contains a compact subset of countable character.

In the paper are proved several results concerning $M$-factorizable groups and feathered $M$-factorizable groups.

Section 3 contains important results concerning feathered $M$-factorizable groups. It is proved that a feathered topological group $G$ is $M$-factorizable if and only if $G$ is either metrizable or $\mathbb{R}$-factorizable (Theorem 3.3). A feathered topological group $G$ is $\mathbb{R}$-factorizable if and only if $G$ is a Lindelöf $\Sigma$-group (Theorem 3.4).

The authors study in section 4 subgroups of $M$-factorizable group, It is proved that that a Čech-complete $M$-factorizable subgroup $H$ of a topological group $G$ is $C$-embedded in $G$ (Theorem 4.13). Products of $M$-factorizable groups are studied in section 5. Homomorphic images of $M$-factorizable groups are studied in section 6.

Reviewer: Mihail I. Ursul (Oradea)

MSC:

22A05 Structure of general topological groups
54A25 Cardinality properties (cardinal functions and inequalities, discrete sub-sets)
54H11 Topological groups (topological aspects)
54A35 Consistency and independence results in general topology

Keywords:

$M$-factorizable group; $\mathbb{R}$-factorizable group; $PT$-group; feathered group; $d$-open homomorphism

Full Text: DOI

References:


[14] Tkachenko, M., Complete \( \alpha_0 \)-bounded groups need not be \( \mathbb{R} \)-factorizable, Comment. Math. Univ. Carol., 42, 3, 551-559 (2001) · Zbl 1053.54045


This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.