

Scheda di progetto

Titolo

Characterized subgroups of topological abelian groups

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Abstract

A subgroup H of a topological abelian group X is said to be characterized by a sequence $\mathbf{v} = (v_n)$ of characters of X if $H = \{x \in X : v_n(x) \rightarrow 0 \text{ in } \mathbb{T}\}$. We study the basic properties of characterized subgroups in the general setting, extending results known in the compact case. For a better description, we isolate various types of characterized subgroups. Moreover, we introduce the relevant class of autocharacterized groups (namely, the groups that are characterized subgroups of themselves by means of a sequence of non-null characters); in the case of locally compact abelian groups, these are proved to be exactly the non-compact ones. As a by-product of our results, we find a complete description of the characterized subgroups of discrete abelian groups.