All topological groups in the paper under this review are Hausdorff. Chatyrko and Shakhmatov introduced the notion of \( g \)-reversible topological group and the notion of hereditarily \( g \)-reversible topological group [V. Chatyrko et al., Topology Appl. 275, Article ID 107051, 18 p. (2020; Zbl 1437.22001)]. A topological group \( G \) is called \( g \)-reversible if each continuous automorphism of \( G \) is open. A topological group with all subgroups \( g \)-reversible is called hereditarily \( g \)-reversible. The authors of the paper under review give the full solution of some problems which were formulated by Chatyrko and Shakhmatov. It is proved that a \( g \)-reversible locally compact abelian group may have a non-\( g \)-reversible closed subgroup. The authors prove that if \( D \) is a discrete group with \( |D| < \varepsilon \) then for any compact group \( K \), \( D \times K \) is \( g \)-reversible. It is proved that for every non-trivial topological abelian group \( G \), the product group \( G^\omega \) is not hereditarily \( g \)-reversible. The authors give the full description of compact connected abelian groups and compact totally disconnected abelian groups which are hereditarily \( g \)-reversible. For example, a compact connected abelian group \( G \) is hereditarily \( g \)-reversible if and only if \( G \cong \mathbb{Q}^n \) where \( n \) is a natural number.

Finally they give an algebraic description of abelian groups which admit hereditarily \( g \)-reversible compact topological group topologies. An abelian group \( G \) admits hereditarily \( g \)-reversible compact group topology if and only if \( G \cong \mathbb{R}^m \times \prod_{p \in P} (\mathbb{Z}_p^{m_p} \times F_p) \) where \( m = 0 \) or \( 1 \), \( m_p \) is a non-negative integer and \( F_p \) is a finite \( p \)-group.

Reviewer: Nikolay I. Kryuchkov (Ryazan)

MSC:

22A05 Structure of general topological groups
22C05 Compact groups
22D05 General properties and structure of locally compact groups
54H11 Topological groups (topological aspects)

Keywords:

automorphisms; \( g \)-reversible topological groups; hereditarily \( g \)-reversible topological group; locally compact groups; Pontryagin duality

Full Text: DOI

References:


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.