Horbaczewska, Grażyna; Lindner, Sebastian


Let \((X; +)\) be an abelian group equipped with a topology \(\tau\). The structure \((X; +; \tau)\) is called a semi-topological group if \(\tau\) is invariant with respect to the group operations (and it is called a topological group if the group operations are continuous with respect to \(\tau\)). Let \((X, +, \tau)\) be a semi-topological group, \(\tau^* = \tau \setminus \{\emptyset\}\), \(D(\tau)\) and \(NWD(\tau)\) denote the families of dense sets and nowhere dense sets, respectively. The authors show that the following conditions are equivalent:

1. The operation \(+ : X \times X \to X\) is quasi-continuous in the sense of Kempisty;
2. the families \(\tau^*\) and \(\tau^* - \tau^* = \{U - V : U, V \in \tau^*\}\) are mutually coinitial;
3. \(X \setminus (U + D) \in NWD(\tau)\) for any \(D \in D(\tau)\) and \(U \in \tau^*\).

Recall that two families of sets \(A\) and \(B\) are mutually coinitial if every \(A \in A\) includes some \(B \in B\), and each \(B \in B\) includes some \(A \in A\).

Reviewer: Tomasz Natkaniec (Gdańsk)

MSC:

22A05 Structure of general topological groups
28A05 Classes of sets (Borel fields, \(\sigma\)-rings, etc.), measurable sets, Suslin sets, analytic sets
54H11 Topological groups (topological aspects)

Keywords:
quasicontinuity; Smital lemma; semitopological groups

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.