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SOME ANALOGUES OF TOPOLOGICAL GROUPS

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Abstract

Let $(G, *)$ be a group and τ be a topology on G. Let $\tau^{\alpha} = \{A \subseteq G : A \subseteq Int(Cl(Int(A)))\}$, $g * \tau = \{g * A : A \in \tau\}$ for $g \in G$. In this paper, we establish two relations between G and τ under which it follows that $g * \tau \subseteq \tau^{\alpha}$ and $g * \tau^{\alpha} \subseteq \tau^{\alpha}$, designate them by α-topological groups and α-irresolute topological groups, respectively. We indicate that under what conditions an α-topological group is topological group. This paper also covers some general properties and characterizations of α-topological groups and α-irresolute topological groups. In particular, we prove that (1) the product of two α-topological groups is α-topological group, (2) if H is a subgroup of an α-irresolute topological group, then $\alpha Int(H)$ is also subgroup, and (3) if A is an α-open subset of an α-irresolute topological group, then $< A >$ is also $\alpha-$open. In the mid of discourse, we also mention about their relationships with some existing spaces.

Keywords: α-open sets, α-closed sets, α-topological groups, α-irresolute topological group.

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