

SOME ANALOGUES OF TOPOLOGICAL GROUPS

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Abstract

Let $(G, *)$ be a group and τ be a topology on G . Let $\tau^\alpha = \{A \subseteq G : A \subseteq \text{Int}(\text{Cl}(\text{Int}(A)))\}$, $g * \tau = \{g * A : A \in \tau\}$ 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 $\alpha\text{Int}(H)$ is also subgroup, and (3) if A is an α -open subset of an α -irresolute topological group, then $\langle A \rangle$ is also α -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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