

ω -TOPOLOGY AND α -TOPOLOGY

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Abstract: The aim of this paper is to introduce and investigate the new notions called $b\text{-}\omega_\alpha$ -open sets, $\alpha\text{-}\omega_\alpha$ -open sets and pre- ω_α -open sets which are weaker than ω -open sets. Moreover decompositions of continuity are obtained by using these new notions.

Keywords and Phrases: $\alpha\text{-}\omega_\alpha$ -open set, ω -closed set, semi-open set, ω -open set.

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1. Introduction

By a space (X, τ) , it means a topological space (X, τ) with no separation properties assumed. If $H \subset X$, $cl(H)$ and $int(H)$ will, respectively, denote the closure and interior of H in (X, τ) .

Definition 1.1. [11] A subset H of a space (X, τ) is called

1. α -closed if $cl(int(cl(H))) \subset H$,
2. α -open if $X \setminus H$ is α -closed, or equivalently, if $H \subset int(cl(int(H)))$.

For a subset H of (X, τ) , the intersection of all α -closed subsets of X containing H is called the α -closure of H and is denoted by $cl_\alpha(H)$. It is known that $cl_\alpha(H) = H \cup cl(int(cl(H)))$ and $cl_\alpha(H) \subset cl(H)$. The union of all α -open subsets of X contained in H is called the α -interior of H and is denoted by $int_\alpha(H)$

In 1982, the notions of ω -closed sets and ω -open sets were introduced and studied by Hdeib [6]. In 2009, Noiri et al [12] introduced some generalizations of