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Ip-Connectedness and Ip-compactness in ideal topological spaces

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In ideal topological spaces, we introduce a new class of generalized closed sets known as Ip-closed sets. A subset A of an ideal topological space (X, τ, I) is said to be Ip-closed set if $A^* \subseteq U$ whenever $A \subseteq U$ and U is preopen. The complement of a Ip-closed set is said to be an Ip-open set. Using these Ip-open sets, we introduced a new class of connectedness and compactness called Ip-connectedness and Ip-compactness in ideal topological spaces. In this context, Ip-connectedness is defined as an ideal topological space (X, τ, I) is said to be Ip-connected if X cannot be written as the disjoint union of two non-empty Ip-open sets. If X is not Ip-connected, it is said to be Ip-disconnected. We concentrated on some of their most important characteristics. The combination of the Ip-irresolute surjective map established one of the features in the Ip-connectedness. They were also related to other types of connectedness, such as Ig-connectedness, Irg-connectedness, and αIg-connectedness, which have definitions similar to Ip-connectedness in ideal topological spaces. Comparatively, we examine compactness: an ideal topological space is said to be Ip-compact if it has a finite subcover for every Ip-open cover of X. We concluded that by similarly investigating the properties of Ip-compactness, which are the same as Ip-connectedness.

Keywords: Ideals, Ip-Connectedness, Ip-Compactness.