ABSTRACT

In this thesis, the author introduced and studied the concepts of intuitionistic fuzzy $S^*$ structure spaces, intuitionistic fuzzy $S^*$ Hausdorff spaces, maximal intuitionistic fuzzy $S^*$ centred system, extension of an intuitionistic fuzzy $S^*$ Hausdroff space $\delta$, intuitionistic fuzzy $S^*$ completely regular spaces, intuitionistic fuzzy Čech extension $\beta(\delta)$, Aleksandrov-Urysohn compactness criterion in intuitionistic fuzzy $S^*$ structure space.

Intuitionistic fuzzy presemi open sets, Tietze extension theorem for intuitionistic fuzzy presemi extremally disconnected spaces, intuitionistic fuzzy presemi basically disconnected spaces, ordered intuitionistic fuzzy presemi extremally disconnected spaces, ordered intuitionistic fuzzy presemi basically disconnected spaces, and pairwise ordered intuitionistic fuzzy presemi extremally disconnected spaces are introduced and their properties are studied.

Also, various types of intuitionistic fuzzy presemi connectedness, intuitionistic fuzzy pre-compactness, intuitionistic fuzzy pre-normal spaces, intuitionistic fuzzy pre-$T_{\frac{1}{2}}$ spaces, intuitionistic fuzzy semipre-$T_{\frac{1}{2}}$ spaces, intuitionistic fuzzy presemi-$T_{\frac{1}{2}}$ spaces and intuitionistic fuzzy semipre-$T_{\frac{1}{3}}$ spaces are introduced and their characterizations are studied. Interrelations are also discussed in some of the chapters. Counter examples are provided wherever necessary in the thesis.