

Summary and Conclusion

SUMMARY AND CONCLUSION

In this dissertation we have concentrated our study on connectedness in fuzzy topological spaces, L-fuzzy topological spaces and intuitionistic fuzzy topological spaces. We have discussed

- (1) Semi-connectedness in fuzzy topological spaces (chapter I)
- (2) P-connectedness and P2-connectedness in L-fuzzy topological spaces (chapter II)
- (3) (r, s) -connectedness in intuitionistic fuzzy topological spaces (chapter III)

Semi-connectedness is defined using fuzzy semi-open sets. P-connectedness and P2-connectedness are defined using preclosed sets in L-fuzzy topological spaces and (r, s) -connectedness is defined using the closure operator associated with an intuitionistic fuzzy topological space.

Properties of semi-connectedness, P-connectedness, P2-connectedness and (r, s) -connectedness which are analogous to the corresponding properties in general topological spaces are discussed. Moreover, some interesting characterization theorems are discussed in each case and K.Fan's theorem has been extended to P-connectedness and P2-connectedness.

Semi-connectedness is preserved under a fuzzy irresolute mapping, P-connectedness and P2-connectedness are preserved under a P-irresolute order homomorphism whereas (r, s) -connectedness is preserved under an intuitionistic continuous mapping.

Relations among connectedness, P-connectedness and P2-connectedness are discussed. It has been proved that P2-connectedness \Rightarrow connectedness and P2-connectedness \Rightarrow P-connectedness. Examples are discussed to show that the converse of the above implications are not true in

general. But for crisp sets and also if $1 \in M(L)$ it has been proved that P -connectedness $\Rightarrow P_2$ -connectedness.

In the case of intuitionistic fuzzy topological spaces, a stratification of an IFTS is obtained and it has been proved that every (r, s) -component in an intuitionistic fuzzy topological space is a (r, s) -component in the stratification of it.