

REVIEW OF LITERATURE

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Continuous functions and irresolute functions play an important role in topology. The study of irresolute functions and fuzzy irresolute functions has attracted the attention of many famous researchers – Noiri .T., Gene Crossly.S., Hildebrand. S.K., Ganster. M., Reilly. I.L., Mukherjee. M.N., Sinha. S.P., Malakar. S., Bhaumik. S.K., Abbas. S.E., and many authors.

Today it is obvious that fuzzy topology and many related theories have and will have a fundamental play in applied sciences.

Ever since the introduction of fuzzy sets by Zadeh. L.A., [46], several authors have worked on this concept and the theory of fuzzy sets has developed in many directions and is finding applications in a wide variety of fields. Using the concept of fuzzy sets Chang .C.L., [16] has developed the theory of fuzzy topological spaces.

In 1972, Gene Crossly. S., and Hildebrand .S.K., [22] introduced the concept of irresolute functions. In 1989 , Mukherjee. M.N., Sinha. S.P., [29] introduced the concept of fuzzy irresolute functions. Since then various generalizations of irresolute functions and fuzzy irresolute functions have been introduced and studied by many researchers.

In this Review of literature, a brief survey of some of the articles published on the generalizations of fuzzy continuous and fuzzy irresolute functions are given.

1) **“A note on fuzzy semi-irresolute and strongly irresolute functions”.**

Seong Hoon Cho and Jae Keun Park, (2003) [38] .

In this paper some characterizations of fuzzy semi-irresolute and strongly irresolute functions are studied.

2) **“On some near-fuzzy continuous functions between fuzzy topological spaces ”.**

Mukherjee, M.N., and Sinha ,S.P., (1990) [31] .

In this paper the concept of fuzzy almost strongly θ -continuous, fuzzy θ -continuous, fuzzy weakly δ -continuous and fuzzy weakly θ - continuous functions are introduced and studied in the light of the concept of q - coincidence in a fuzzy setting. Together with the concept of q -neighbourhoods , the notions of fuzzy θ -neighbourhoods and fuzzy δ - neighborhoods are defined to investigate the characterizations and properties of these functions. Finally a comparative study regarding the mutual interrelations among these maps along with fuzzy continuous maps is made.

3) **“Fuzzy β - irresolute functions”.**

Abbas , S.E., (2004) [2].

The author introduced r -fuzzy β -open (closed) sets in Sostak’s fuzzy topological spaces and investigated some properties of them. Moreover he introduced and studied fuzzy β -irresolute function , fuzzy β -irresolute open(closed) function and fuzzy strongly β -irresolute function in

Sostak's fuzzy topological spaces. Some of their characteristic properties are considered.

4) **“Fuzzy strongly semi β -irresolute functions”.**

Anjan Mukherjee and Shymal Debnath , (2006) [7].

The purpose of the present paper is to introduce and investigate the notions of new class of function namely fuzzy strongly semi β -irresolute function. In this paper the author represents some characterization theorems and its properties. Relations between this type of function and other classes of known functions are examined. Lastly some applications of this functions are studied.

5) **“Slightly β -continuous functions”.**

Takashi Noiri, (2001) [40].

A function $f : X \rightarrow Y$ is said to be slightly β -continuous if for every clopen set V of Y , $f^{-1}(V) \subset \text{cl} (\text{int} (\text{cl} (f^{-1}(V))))$. Several properties of such functions is proved. The notion of ultra-regularizations of a topology is defined and interesting characterizations of slightly β -continuous functions functions by using it are obtained.

6) **“ θ -generalized closed sets in fuzzy topological spaces”.**

M.E.El-Shafei and A. Zakari ., (2005) [17].

In this paper the concepts of θ -generalized closed fuzzy sets and generalized Λ -fuzzy sets in fuzzy topological spaces are introduced.

Furthermore, generalized Λ -fuzzy sets are extended to θ -generalized

Λ -fuzzy sets. Also the concepts of fuzzy θ -generalized continuous and fuzzy θ -generalized irresolute mappings are introduced and studied.

7) **“On fuzzy generalized α -closed set and its applications”**

Bayaz Daraby and S.B. Nimse (2007), 99- 108 [12].

In this paper , fuzzy generalized α -closed sets, fuzzy r-open sets, fuzzy α -continuous functions and their applications are studied. Fuzzy $g\alpha c$ -irresolute maps are introduced and their properties are studied.

8) **“Fuzzy super irresolute functions”.**

S.E. Abbas (2002) [1].

In this paper, some counter examples and characterizations of fuzzy super irresolute functions are examined. It is proved that fuzzy super irresolute function implies each of fuzzy irresolute and fuzzy continuity , but not conversely. Also, properties preserved by fuzzy super irresolute functions are examined. Finally , he defines a fuzzy S^* - closed space in fuzzy topological spaces in Sostak’s sense and characterize such a space from different angles.

9) **“Faa-irresolute mappings”.**

R.K. Saraf , M. Caldas and S. Mishra , (2001) 193-199 [34].

A new class of mappings called Faa-irresolute mappings is introduced and several characterizations of this class are obtained. Relation between this class and other classes of functions are obtained.

10) **“A class of strong forms of fuzzy complete continuity”.**

I .M. Hanafy, (1997) [23].

In this paper the operations on I^X of a fuzzy topological space X are used to unify and generalize classes of strong forms of fuzzy complete continuity. A composition between these types of functions is analyzed. Preservations of some fuzzy aspects under these functions are studied.

11) **“On some types of continuous fuzzy functions”.**

Erdal Ekici , (2004) [19].

In this paper , by using operations, some characterization and some properties of fuzzy continuous functions and its weaker and stronger forms including fuzzy weakly continuous, fuzzy θ - continuous, fuzzy strongly θ - continuous, fuzzy almost strongly θ -continuous, fuzzy weakly θ -continuous , fuzzy almost continuous , fuzzy super continuous , fuzzy δ -continuous are presented.

12) **“On fuzzy almost completely semi-continuous functions”**

Anjan Mukherjee , (2000) [5].

The aim of this paper is to introduce the concepts of fuzzy almost completely semi-continuous functions as a generalization of fuzzy completely semi- continuous functions introduced by the author in an earlier paper . A comparative study regarding the interrelations among the fuzzy completely semi- continuous F_{csc} , fuzzy almost continuous F_{ac} and fuzzy continuous F_c functions along with fuzzy almost

completely semi-continuous Facsc functions is made . Presentation of some fuzzy topological structures are examined under these functions. Finally , a few situations are mentioned where these functions may be applied.

13) **“On regular generalized fuzzy closed sets and generalizations of fuzzy continuous functions”.**

Jin Han park and Jin Keun Park, 2003 [24].

In this paper, various generalizations of fuzzy continuous functions are studied by using the concept of regular generalized fuzzy closed sets. The notions of rgf- connectedness, rgf – extremely disconnectedness and rgf- compactness are introduced and studied.