Abstract no. : FYT1

TOPOLOGICAL STRUCTURES OF TYPE-2 FUZZY SOFT SETS

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Purpose of this paper is to introduce the concept of type-2 fuzzy soft sets which is a generalization of type-2 soft sets. Various operations on type-2 fuzzy soft sets are defined, type-2 fuzzy soft topology is introduced and many properties based on that is proved.

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SOME RESULTS ON SMOOTH INTUITIONISTIC FUZZY TOPOLOGICAL SPACES

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Let I be the closed unit interval [0 , 1] of the real line and $\Delta = \{(a,b) \in I \times I \,/\, a + b \leq 1\}$. Let X be a non empty set. An intuitionistic fuzzyset (IFS) of X is a map $A{:}X \rightarrow \Delta$.For each $x \in X$,the first coordinate of $A(x)$ is denoted by $\mu_A(x)$ and the second is denoted by γ_A x).Thus $A(x) = (\mu_A(x)\ ,\gamma_A\ (x))$. (x) and $\gamma_A\ (x)$ are called the degree of membership and the degree of non membership of $x \in X$ respectively. The set of all IFS of X is denoted by ζ^X ,(also denoted by IFS(X)).

For every $(a$,b) $\in \Delta, C_{a,b}$ denotes the IFS defined by $C_{a,b} = (a\ ,b\ )$ for $x \in X$.

Sostak introduced the notion of smooth topology as an extension of Chang and Lowen’s fuzzy topology and developed the theory of smooth topological spaces .Coker (in 1996) introduced the notion of intuitionistic fuzzy topological spaces in Chang’s sense using intuitionistic fuzzy sets.

An IFS ξ on the set ζ^X is called an intuitionistic fuzzy family (IFF) on X.We denote ξ in the form $\xi = (\mu_{\xi}, \gamma_{\xi})$ and write $\xi = (\mu_{\xi}(A), \gamma_{\xi}(A))$ for all $A \in \zeta^X$.

Coker defined Smooth intuitionistic fuzzy topology (SIFT) in Sostak's sense on X as follows. An IFF τ on X satisfying the conditions

1) $\tau(0_{\sim}) = \tau(1_{\sim}) = (1\ ,\ 0\ )$
2) $\tau(A \wedge B) \geq \tau(A) \wedge \tau(B)$ for all $A, B \in \zeta^X$
3) $(\vee\ Aj) \geq \wedge\ (Aj)$ for every $A = \{Aj/j \in J\ \} \subseteq$ X ζ is called an SIFT in Sostak's sense on X . We follow this definition (due to Coker) for SIFT ,with the additional condition: $(ca,b) = (1\ ,\ 0\ )$ for all $(a,\ b) \in \triangle$.

In this paper we give some non trivial examples for SIFTS and introduce co-finite smooth intuitionistic fuzzy topology. Let X be an infinite set.Define $\tau_1$andτ_2 : $\zeta^X \rightarrow$ I as follows :

If Supp(A)= φ,then

$$\tau_1\ (A) = \left(\frac{E\ inf\mu_A}{sup\mu_A}, \frac{sup\mu_A - E\ inf\mu_A}{sup\mu_A}\right)$$

$$\tau_1(A) = \left(\frac{1-Esup\mu_A}{1-E\ inf\mu_A}, \frac{Esup\mu_A - inf\mu_A}{1-\ inf\mu_A}\right)$$

where $E\ inf\mu_A = ess.\ \inf(\mu_A) = \vee\ \{\lambda{:}\{x \epsilon\ X/\mu_A\ (x) < \lambda\} is\ a\ finite\ set\}$ and $E\ \sup(\mu_A) = ess.\ \sup(\mu_A) = \wedge\ \{\lambda{:}\{x \epsilon\ X/\mu_A\ (x) > \lambda\} is\ a\ finite\ set\}$.

We show that both (X , τ1) and (X , τ2) are SIFT-spaces on X.We call the SIFT $\frac{1}{2}\tau_1 + \frac{1}{2}\tau_2$as co-finite – smooth intuitionistic topology on X. W.K.Min and C.K .Park (in 2005) defined the closure $\bar{A}$and the interior A 0 of an IFS (X , τ).We modified their definitions ,as we expect the degree of openness of A 0 is at least the degree of openness of A ,and the degree of closeness of $\bar{A}$is at least the degree of closeness of A.Using these modified closure and interior operators ,we obtain some results. W.K.Min and C.K.Park also introduced the concepts of intuitionistic fuzzy compactness ,nearly intuitionistic fuzzy compactness and almost intuitionistic fuzzy compactness in SIFTspaces.We modify their definitions and obtain certain properties of IF-compact IFSs in a SIFT space (X , τ).We also study various types of IF-compactness.We conclude this paper with a section on connectedness in SIFT-space.

Abstract no. : FYT3

ON FUZZY (B,Θ)-SEPARATION AXIOMS

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The aim of this paper is to introduce fuzzy (b,θ)-separation axioms with the help of fuzzy (b,θ)-open sets and to establish some properties by defining the concept of fuzzy (b,θ) neighbourhood and fuzzy (b,θ)-quasi neighbourhood of a fuzzy point.