SEPARETIONS IN INTUITIONISTIC FUZZY SUPRA TOPOLOGICAL SPACES

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Abstract: In this paper, we present some new classes of separation axioms such as, intuitionistic fuzzy supra T_{oi} (i=1,2,3,4) spaces and intuitionistic fuzzy supra α T_{oi} (i=1,2,3) spaces in intuitionistic fuzzy supra topological spaces. By means of suitable examples, it has been shown that all they are independent spaces. Moreover, it is derived that product of two intuitionstic fuzzy supra T01 spaces is an intuitionistic fuzzy supra T01 spaces.

Keywords: Intuitionistic fuzzy supra open set, intuitionistic fuzzy supra T_{oi} (i=1,2,3,4) spaces, intuitionistic fuzzy supra α T_{oi} (i=1,2,3) spaces.

Introduction: Zadeh introduced the fuzzy sets[4] in 1965. Chang introduce the concept of fuzzy topology[1] in 1968.The concept of the intuitionistic fuzzy set[3] introduced by Atanassov in 1986.Later, the concept extended to intuitionistic fuzzy spaces[2] by Coker in 1997. In 1999, Necla Turanh[5] developed the structure of intuitionistic fuzzy supra topological spaces. In this paper, we introduce and investigate some new classes of separation axioms on intuitionistic fuzzy supra topological spaces.

Preliminaries:

Definition 1.1: Let X be a non-empty set and I be the unit interval [0,1]. An intuitionistic fuzzy set A (IFS,in short) in X is an object having the form A={(x, μ_A (x), γ_A (x)),x $\in$ X}, where μ_A : X $\in$ I and γ_A: X $\in$ I denote the degree of membership and the degree of non-membership, respectively and $0 \le \mu_A(x) + \gamma_A(x) \le 1$. Let I(X) denote the set of all intuitionistic fuzzy sets in X. Obviously every fuzzy set μ_A in X is an intuitionistic fuzzy set of the form (μ_A ,- μ_A).

Throughout this paper, simpler notation A=(μ_A , γ_A) instead of A={(x, μ_A (x), γ_A (x)),x $\in$ X} has been used.

Definition 1.2: A family τ of intuitionistic fuzzy sets on X is called intuitionistic fuzzy supra topological space (IFST in short) on X if $0^{\sim} \in \tau$, $1^{\sim} \in \tau$ and τ is closed under arbitrary suprema.

We call the pair (X,τ) is an intuitionistic fuzzy supra topological set (IFSTS in short).

Each member of τ is called intuitionistic fuzzy supra open set (IFSO in short) and the complement of an intuitionistic fuzzy supra open set is called an intuitionistic fuzzy supra closed set.

Separation Axioms:

Intuitionistic Fuzzy Supra T_{oi} (i=1,2,3,4)-space:

Definition 2.1.1: An intuitionistic fuzzy topological space (X, τ) is said to be intuitionstic fuzzy supra T_{01} space if for every distinct point x , y $\in$ X, there exists A=(μ_A , γ_A) $\in$ τ such that μ_A (x) = 1, γ_A (x) = 0; μ_A (y) = 0, γ_A (y) = 1 or μ_A (x) = 0, γ_A (x) = 1; μ_A (y) = 1, γ_A (y) = 0.

Example 2.1.2: Let X = {x , y}, A = {< x , 1 , 0 >, < y , 0 ,1 >}, B = { < x , 0.5 , 0 >, < y , 0, 0.6 >}, C = {< x , 1 , 0 >, < y , 0 , 0.6 >, τ = { $0^{\sim}$, A , B , C , $1^{\sim}$}. Then (X, τ) is an intuitionistic fuzzy supra T_{01}-spaces.

Definition 2.1.3: An intuitionistic fuzzy topological space (X, τ) is said to be intuitionstic fuzzy supra T_{02} space if for every distinct point x , y $\in$ X, there exists A=(μ_A , γ_A) $\in$ τ such that μ_A (x) = 1, γ_A (x) = 0; μ_A (y) = 0, γ_A (y) $\ge$ 1 or μ_A (x) = 0, γ_A (x) > 0; μ_A (y) = 1, γ_A (y) = 0.

Example 2.1.4: Let X = {x , y}, A = {< x , 0 , 0.7 >, < y , 1 ,0 >}, B = { < x , 0 , 0.5 >, < y , 0, 1 >}, C = {< x , 0 , 0.5 >, < y , 1 , 0 >, τ = { $0^{\sim}$, A , B , C , $1^{\sim}$}. Then (X, τ) is an intuitionistic fuzzy supra T_{02}-spaces.

Definition 2.1.5: An intuitionistic fuzzy topological space (X, τ) is said to be intuitionstic fuzzy supra T_{03} space if for every distinct point x , y c X, there exists A=(μ_A , γ_A) $\in$ τ such that μ_A (x) = 0, γ_A (x) = 0; μ_A (y) = 0, γ_A (y) = 1 or μ_A (x) = 0, γ_A (x) = 1; μ_A (y) > 0, γ_A (y) = 0.

Example 2.1.6: Let X = {x , y}, A = {< x , 0 , 0.5 >, < y , 0 ,0.7 >}, B = { < x , 0 , 0 >, < y , 0, 1 >}, C = {< x , 0 , 0 >, < y , 0 , 0.7 >, τ = { $0^{\sim}$, A , B , C , $1^{\sim}$}. Then (X, τ) is an intuitionistic fuzzy supra T_{03}-spaces.

Definition 2.1.7: An intuitionistic fuzzy topological space (X, τ) is said to be intuitionstic fuzzy supra T_{04} space if for every distinct point x , y $\in$ X, there exists A=(μ_A , γ_A) $\in$ τ such that μ_A (x) = 0, γ_A (x) = 0; μ_A (y) = 0, γ_A (y) > 0 or μ_A (x) = 0, γ_A (x) = 0; μ_A (y) > 0, γ_A (y) = 0.

Example 2.1.8: Let X = {x , y}, A = {< x , 0 ,0.5 >, < y , 0 ,0.7 >}, B = { < x , 0 , 0 >, < y , 0, 1 >}, C = {< x , 0 , 0 >, < y , 0 , 0.7 >, τ = { $0^{\sim}$, A , B , C , $1^{\sim}$}. Then (X, τ) is an intuitionistic fuzzy supra T_{04}-spaces.

Non-Relationships of T_{oi} (i=1,2,3,4)- Spaces:

Remark 2.2.1: Every intuitionstic fuzzy supra T_{01}-spaces and intuitionistic fuzzy supra T_{02}-spaces are independent.

Example 2.2.2: Let X = {x , y}, A = {< x , 1 , 0 >, < y , 0 ,1 >}, B = { < x , 0.5 , 0.3 >, < y , 0.3 , 0.4 >}, C = {< x , 1 , 0 >, < y , 0.3 , 0.4 >, τ = { $0^{\sim}$, A , B , C , $1^{\sim}$}. Then (X, τ) is an intuitionistic fuzzy supra T_{01}-spaces but not intuitionistic fuzzy supra T_{02}-spaces.

Example 2.2.3: Let X = {x , y}, A = {< x , 0 , 0.2 >, < y , 1 ,0 >}, B = { < x , 0.5 , 0.4 >, < y , 0.7 , 0.3 >}, C = {< x , 0.5 , 0.2 >, < y , 1 , 0 >, τ = { $0^{\sim}$, A , B , C , $1^{\sim}$}. Then (X, τ) is an intuitionistic fuzzy supra T_{02}-spaces but not intuitionistic fuzzy supra T_{01}-spaces.

Remark 2.2.4: Every intuitionstic fuzzy supra T_{01}-spaces and intuitionistic fuzzy supra T_{03}-spaces are independent.

Example 2.2.5: Let X = {x , y}, A = {< x , 0.5 , 0.3 >, < y , 0.7 ,0.2 >}, B = { < x , 1 , 0 >, < y , 0, 1 >}, C = {< x , 1 , 0 >, < y , 0.7 , 0.2 >, τ = { $0^{\sim}$, A , B , C , $1^{\sim}$}. Then (X, τ) is an intuitionistic fuzzy supra T_{01}spaces but not intuitionistic fuzzy supra T_{03}-spaces.

Example 2.2.6: Let X = {x , y}, A = {< x , 0 , 1 >, < y , 0.4 ,0 >}, B = { < x , 0.5 , 0.4 >, < y , 0.3 , 0.5 >}, C = {< x , 0.5 , 0.4 >, < y , 0.4 , 0 >, τ = { $0^{\sim}$, A , B , C , $1^{\sim}$}. Then (X, τ) is an intuitionistic fuzzy supra T_{03}-spaces but not intuitionistic fuzzy supra T_{01}-spaces.

Remark 2.2.7: Every intuitionstic fuzzy supra T_{01}-spaces and intuitionistic fuzzy supra T_{04}-spaces are independent.

Example 2.2.8: Let X = {x , y}, A = {< x , 1 , 0 >, < y , 0 ,1 >}, B = { < x , 0.2 , 0.3 >, < y , 0.7, 0.1 >}, C = {< x , 1 , 0 >, < y , 0.7 , 0.1 >, τ = { $0^{\sim}$, A , B , C , $1^{\sim}$}. Then (X, τ) is an intuitionistic fuzzy supra T_{01}spaces but not intuitionistic fuzzy supra T_{04}-spaces.

Example 2.2.9: Let X = {x , y}, A = {< x , 0.6 , 0.3 >, < y , 0.5 ,0.5 >}, B = { < x , 0 , 0 >, < y , 0 , 0.5 >}, C = {< x , 0.6 , 0 >, < y , 0.5 , 0.5 >, τ = { $0^{\sim}$, A , B , C , $1^{\sim}$}. Then (X, τ) is an intuitionistic fuzzy supra T_{04}-spaces but not intuitionistic fuzzy supra T_{01}-spaces.

Remark 2.2.10: Every intuitionstic fuzzy supra T_{02}-spaces and intuitionistic fuzzy supra T_{03}-spaces are independent.

Example 2.2.11: Let X = {x , y}, A = {< x , 0.4 , 0.3 >, < y , 0.7 ,0.2 >}, B = { < x , 0 , 0.2 >, < y , 1 , 0 >}, C = {< x , 0.4 , 0.2 >, < y , 1 , 0 >, τ = { $0^{\sim}$, A , B , C , $1^{\sim}$}. Then (X, τ) is an intuitionistic fuzzy supra T_{02}spaces but not intuitionistic fuzzy supra T_{03}-spaces.

Example 2.2.12: Let X = {x , y}, A = {< x , 0 , 0.5 >, < y , 0 ,0.7 >}, B = { < x , 0 , 0 >, < y , 0 , 1 >}, C = {< x , 0 , 0 >, < y , 0 , 0.7 >, τ = { $0^{\sim}$, A , B , C , $1^{\sim}$}. Then (X, τ) is an intuitionistic fuzzy supra T_{03}-spaces but not intuitionistic fuzzy supra T_{02}-spaces.

Remark 2.2.13: Every intuitionstic fuzzy supra T_{02}-spaces and intuitionistic fuzzy supra T_{04}-spaces are independent.

Example 2.2.14: Let X = {x , y}, A = {< x , 0 , 0.6 >, < y , 1 ,0 >}, B = { < x , 0.3 , 0.2 >, < y , 0.5 , 0.4 >}, C = {< x , 0.3 , 0.2 >, < y , 1 , 0 >, τ = { $0^{\sim}$, A , B , C , $1^{\sim}$}. Then (X, τ) is an intuitionistic fuzzy supra T_{02}spaces but not intuitionistic fuzzy supra T_{04}-spaces.

Example 2.2.15: Let X = {x , y}, A = {< x , 0 , 0.5 >, < y , 0.3 ,0.4 >}, B = { < x , 0 , 0 >, < y , 0 , 0.5 >}, C = {< x , 0 , 0 >, < y , 0.3 , 0.4 >, τ = { $0^{\sim}$, A , B , C , $1^{\sim}$}. Then (X, τ) is an intuitionistic fuzzy supra T_{04}-spaces but not intuitionistic fuzzy supra T_{02}-spaces.

Remark 2.2.16: Every intuitionstic fuzzy supra T_{03}-spaces and intuitionistic fuzzy supra T_{04}-spaces are independent.

Example 2.2.17: Let X = {x , y}, A = {< x , 0 , 0 >, < y , 0 ,1 >}, B = { < x , 0.4 , 0.3 >, < y , 0.5 , 0.2 >}, C = {< x , 0.4 , 0 >, < y , 0.5 , 0.2 >, τ = { $0^{\sim}$, A , B , C , $1^{\sim}$}. Then (X, τ) is an intuitionistic fuzzy supra T_{03}spaces but not intuitionistic fuzzy supra T_{04}-spaces.

Example 2.2.18: Let X = {x , y}, A = {< x , 0 , 0 >, < y , 0 ,0.5 >}, B = { < x , 0.5 , 0.3 >, < y , 0 , 0.5 >}, C = {< x , 0.5 , 0 >, < y , 0 , 0.5 >, τ = { $0^{\sim}$, A , B , C , $1^{\sim}$}. Then (X, τ) is an intuitionistic fuzzy supra T_{04}-spaces but not intuitionistic fuzzy supra T_{03}-spaces.

Theorem 2.2.19: Let (X , τ), (Y , σ) be two intuitionistic fuzzy supra topological spaces and f : (X , τ) $\rightarrow$ (Y , σ) be a bi-jective, bi-continuous mapping. Then (X, τ) is intuitionistic fuzzy supra T_{01}-spaces $\Leftrightarrow$ (Y , σ) is intuitionistic fuzzy supra T_{01}-spaces.

Proof: Assume that (X, τ) is intuitionistic fuzzy supra T_{01}-space. Let y_1, y_2 $\in$ Y such that $y_1 \neq y_2$. Since f is onto, then there exists x_1, x_2 $\in$ X such that $f(x_1) = y_1$ and $f(x_2) = y_2$. Since (X , τ) is T_{01}-space, there exists A=(μ_A, γ_A) $\in$ τ such that $\mu_A(x_1) = 1$, $\gamma_A(x_1) = 0$; $\mu_A(x_2) = 0$, $\gamma_A(x_2) = 1$ or $\mu_A(x_1) = 0$, $\gamma_A(x_1) = 1$; $\mu_A(x_2) = 1$, $\gamma_A(x_2) = 0$. Suppose $\mu_A(x_1) = 1$, $\gamma_A(x_1) = 0$; $\mu_A(x_2) = 0$, $\gamma_A(x_2) = 1$. Now $f(\mu_A)(y_1) = \mu_A(f^{-1}(y_1)) = \mu_A(x_1) = 1$, $f(\gamma_A)(y_1) = \gamma_A(f^{-1}(y_1)) = \gamma_A(x_1) = 0$, $f(\mu_A)(y_2) = \mu_A(f^{-1}(y_2)) = \mu_A(x_2) = 0$, $f(\gamma_A)(y_2) = \gamma_A(f^{-1}(y_2)) = \gamma_A(x_2) = 1$. Since f is intuitionistic fuzzy supra open mapping, f(A) =($\mu_A, \gamma_A \in \sigma$) Therefore, intuitionistic fuzzy topological space (Y , σ) is intuitionistic fuzzy supra T_{01}-space.

Conversely, Assume that (Y,σ) is intuitionistic fuzzy supra T01-space. Let x1, x2 $\in$ X such that $x_1 \neq x_2$. Since f is one-to-one, $x_1 \neq x_2 \Longrightarrow f(x_1) \neq f(x_2)$. Let $y_1 = f(x_1)$ and $y_2 = f(x_2)$. Then y_1, y_2 $\in$ Y such that $y_1 \neq y_2$. Since (Y, σ) is intuitionistic fuzzy supra T_{01}-space, there exists A=(μ_A, γ_A) $\in$ σ such that $\mu_A(y_1) = 1$, $\gamma_A(y_1) = 0$; $\mu_A(y_2) = 0$, $\gamma_A(y_2) = 1$ or $\mu_A(y_1) = 0$, $\gamma_A(y_1) = 1$; $\mu_A(y_2) = 1$, $\gamma_A(y_2) = 0$. Suppose $\mu_A(y_1) =$

1, γ_A(y₁) = 0; μ_A(y₂) = 0, γ_A(y₂) = 1. Now $f^{-1}(\mu_A)(x_1) = \mu_A(f(x_1)) = \mu_A(y_1) = 1$, $f^{-1}(\gamma_A)(x_1) = \gamma_A(f(x_1)) = \gamma_A(y_1) = 0$, $f^{-1}(\mu_A)(x_2) = \mu_A(f(x_2)) = \mu_A(y_2) = 0$, $f^{-1}(\gamma_A)(x_2) = \gamma_A(f(x_2)) = \gamma_A(y_2) = 1$. Since f is intuitionistic fuzzy supra continuous mapping, $f^{-1}(A) = (\mu_A, \gamma_A \in \tau)$.Therefore, intuitionistic fuzzy topological space (X , τ) is intuitionistic fuzzy supra T_{01}-space.

Intuitionistic fuzzy α-supra T_{0i} (i=1,2,3,4) – spaces:

Definition 2.3.1: Let $\alpha \in (0,1)$. An intuitionistic fuzzy supra topological space (X , τ) is called intuitionistic fuzzy supra α-T_{01} space if for every distinct point x , y $\in$ X , there exists A=(μ_A, γ_A) $\in \tau$ such that μ_A(x) = 1, γ_A(x) = 0; μ_A(y) = 0, $\gamma_A(y) \geq \alpha$ or μ_A(x) = 0, $\gamma_A(x) \geq \alpha$; μ_A(y) = 1 , γ_A(y) = 0.

Example 2.3.2: Let X = {x , y} for $\alpha \in (0,1)$. A = {< x , 1 , 0 >, < y , 0 ,0.4 >}, B = { < x , 0.3 , 0.5 >, < y , 0.6 , 0.2 >}, C = {< x , 1 , 0 >, < y , 0.6 , 0.2 >, τ = { 0~ , A , B , C , 1~}. Then (X, τ) is an intuitionistic fuzzy supra α-T_{01}-spaces.

Definition 2.3.3: Let $\alpha \in (0,1)$. An intuitionistic fuzzy supra topological space (X , τ) is called intuitionistic fuzzy supra α-T_{02} space if for every distinct point x , y $\in$ X , there exists A=(μ_A, γ_A) $\in \tau$ such that $\mu_A(x) \geq \alpha$, γ_A(x) = 0; μ_A(y) = 0, $\gamma_A(y) \geq \alpha$ or μ_A(x) = 0, $\gamma_A(x) \geq \alpha$; $\mu_A(y) \geq \alpha$, γ_A(y) = 0.

Example 2.3.4: Let X = {x , y} for $\alpha \in (0,1)$. A = {< x , 0 , 1 >, < y , 1 ,0 >}, B = { < x , 0.6 , 0 >, < y , 0 , 0.3 >}, C = {< x , 0.6 , 0 >, < y , 1 , 0.3 >, τ = { 0~ , A , B , C , 1~}. Then (X, τ) is an intuitionistic fuzzy supra α-T_{02}-spaces.

Definition 2.3.5: Let $\alpha \in (0,1)$. An intuitionistic fuzzy supra topological space (X , τ) is called intuitionistic fuzzy supra α-T_{01} space if for every distinct point x , y $\in$ X , there exists A=(μ_A, γ_A) $\in \tau$ such that μ_A(x) > 0, γ_A(x) = 0; μ_A(y) = 0, $\gamma_A(y) \geq \alpha$ or μ_A(x) = 0, $\gamma_A(x) \geq \alpha$; μ_A(y) > 0 , γ_A(y) = 0.

Example 2.3.6: Let X = {x , y} for $\alpha \in (0,1)$. A = {< x , 0.7 , 0 >, < y , 0 ,0.5 >}, B = { < x , 0.5 , 0.3 >, < y , 0.4 , 0.3 >}, C = {< x , 0.7 , 0 >, < y , 0.4 , 0.3 >, τ = { 0~ , A , B , C , 1~}. Then (X, τ) is an intuitionistic fuzzy supra α-T_{03}-spaces.

Non-Relationships of supra α-T_{0i} (i=1,2,3,4)-spaces

Remark 2.4.1: Every intuitionstic fuzzy supra α-T_{01}-spaces and intuitionistic fuzzy supra α-T_{02}-spaces are independent.

Example 2.4.2: Let X = {x , y} for $\alpha \in (0,1)$. A = {< x , 0.2 , 0.5 >, < y , 0.6 ,0.3 >}, B = { < x , 0 , 0.7 >, < y , 1 , 0 >}, C = {< x , 0.2 , 0.5 >, < y , 1 , 0 >, τ = { 0~ , A , B , C , 1~}. Then (X, τ) is an intuitionistic fuzzy supra α-T_{01}-spaces but not intuitionistic fuzzy supra α-T_{02}-spaces.

Example 2.4.3: Let X = {x , y} for $\alpha \in (0,1)$. A = {< x , 0 , 0.4 >, < y , 0.3 ,0 >}, B = { < x , 0.7 , 0.3 >, < y , 0.5 , 0.5 >}, C = {< x , 0.7 , 0.3 >, < y , 0.5 , 0 >, τ = { 0~ , A , B , C , 1~}. Then (X, τ) is an intuitionistic fuzzy supra α-T_{02}-spaces but not intuitionistic fuzzy supra α-T_{01}-spaces.

Remark 2.4.4: Every intuitionstic fuzzy supra α-T_{01}-spaces and intuitionistic fuzzy supra α-T_{03}-spaces are independent.

Example 2.4.5: Let X = {x , y} for $\alpha \in (0,1)$. A = {< x , 1 , 0 >, < y , 0 ,0.3 >}, B = { < x , 0.3 , 0.5 >, < y , 0.4 , 0.6 >}, C = {< x , 1 , 0 >, < y , 0.4 , 0.3 >, τ = { 0~ , A , B , C , 1~}. Then (X, τ) is an intuitionistic fuzzy supra α-T_{01}-spaces but not intuitionistic fuzzy supra α-T_{03}-spaces.

Example 2.4.6: Let X = {x , y} for $\alpha \in (0,1)$. A = {< x , 0 , 0.4 >, < y , 0.6 ,0 >}, B = { < x , 0.5 , 0.1 >, < y , 0.3 , 0.7 >}, C = {< x , 0.5 , 0.1 >, < y , 0.6 , 0 >, τ = { 0~ , A , B , C , 1~}. Then (X, τ) is an intuitionistic fuzzy supra α-T_{03}-spaces but not intuitionistic fuzzy supra α-T_{01}-spaces.

Remark 2.4.7: Every intuitionstic fuzzy supra α-T_{02}-spaces and intuitionistic fuzzy supra α-T_{03}-spaces are independent.

Example 2.4.8: Let X = {x , y} for $\alpha \in (0,1)$. A = {< x , 0.5 , 0 >, < y , 0 ,0.6 >}, B = { < x , 0.3 , 0.4 >, < y , 0.5 , 0.4 >}, C = {< x , 0.5 , 0 >, < y , 0.5 , 0.4 >, τ = { 0~ , A , B , C , 1~}. Then (X, τ) is an intuitionistic fuzzy supra α-T_{02}-spaces but not intuitionistic fuzzy supra α-T_{03}-spaces.

Example 2.4.9: Let X = {x , y} for $\alpha \in (0,1)$. A = {< x , 0 , 0.6 >, < y , 0.5 ,0 >}, B = { < x , 0.3 , 0.2 >, < y , 0.6 , 0.2 >}, C = {< x , 0.3 , 0.2 >, < y , 0.6 , 0 >, τ = { 0~ , A , B , C , 1~}. Then (X, τ) is an intuitionistic fuzzy supra α-T_{03}-spaces but not intuitionistic fuzzy supra α-T_{02}-spaces.

Product of intuitionistic fuzzy supra topological spaces:

Theorem 2.5.1: If (X, τ) and (Y, σ) are two intuitionistic fuzzy supra T_{01}-spaces, then (X $\times$Y, $\tau \times \sigma$) is an intuitionistic fuzzy supra T_{01}-spaces.

Proof: Let x, y $\in$ X $\times$Y such that x $\neq$ y. Then, x = (x_1,y_1) and y = (x_2,y_2), where $x_1,x_2 \in X$ and $y_1,y_2 \in Y$. Since x $\neq$ y, $x_1 \neq x_2$ and $y_1 \neq y_2$. By hypothesis, there exist A=(μ_A, γ_A) $\in \tau$ and B = (μ_B, γ_B) $\in \sigma$ such that μ_A(x₁) = 1, γ_A(x₁) = 0; μ_A(x₂) = 0, γ_A(x₂) = 1 or

μ_A (x_1) = 0, γ_A (x_1) = 1; μ_A (x_2) = 1, γ_A (x_2) = 0; μ_B (y_1) = 1, γ_B (y_1) = 0; μ_B (y_2) = 0, γ_B (y_2) = 1 or μ_B (y_1) = 0, γ_B (y_1) = 1; μ_B (y_2) = 1, γ_B (y_2) = 0.Then, there exists A × B ∈ $\tau \times \sigma$ such that $\mu_{A\times\mathbf{B}}$ (x) = 1, $\gamma_{A\times B}$ (x) = 0; $\mu_{A\times B}$ (y) = 0, $\gamma_{A\times B}$ (y) = 1 or $\mu_{A\times\mathbf{B}}$ (x) = 0, $\gamma_{A\times B}$ (x) = 1; $\mu_{A\times B}$ (y) = 1, $\gamma_{A\times B}$ (y) = 0. Therefore, (X × Y, $\tau \times \sigma$) is an intuitionistic fuzzy supra T_{01}-spaces.

Remark 2.5.2: The above result can be extended to any finite number of intuitionistic fuzzy supra topological spaces (X_i,τ_i) , i= 1,2,…,n.

Conclusion: In this paper, we have shown an interest on product of two intuitionistic fuzzy supra T_{01} spaces. In future, we will try to study the product of any family of intuitionistic fuzzy supra T_{0i}(i=1,2,3,4) spaces.

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