Q-Fuzzy version of (λ,μ)-Fuzzy ideals via near ring

Dr. P. Sarangapani[1], Dr. P.Muruganantham[2]

[1]Assistant Professor, Department of Computer Science, Kurinji College of Arts & Science, Tiruchirappalli-02, Tamilnadu, India
[2]Assistant Professor, PG & Research Department of Mathematics, Jamal Mohamed College, Triuchirappalli-20, Tamilnadu, India

Abstract: *In this paper, we introduced the notions of a (λ, μ) Q-fuzzy sub near rings which is a generalization of fuzzy sub near ring on an* $(\in,\in,V_q)$*-fuzzy sub near ring. We give example which are (λ,μ) Q-fuzzy ideals but not fuzzy ideals and* $(\in,\in,V_q)$ *Q-fuzzy ideals. Finally we have characterized (λ,μ) Q-fuzzy ideals via near –rings.*

Section 1: Introduction: Zadeh in 1965[14] introduced fuzzy sets after which several researchers explored on the generalizations of the notion of fuzzy sets and its applications to many mathematical branches. The notions of fuzzy near rings and ideals were introduced by Abou Zaid in 1991[1]. Bhakat and Das introduced the concepts of $(\in,\in,V_q)$-fuzzy sub rings and ideals in 1996[2]. Naraynan and Manikandan[4] have extended these results to near rings. Dheena and Coumarsane have introduced $(\in,\in,V_q)$-fuzzy bi-ideals of near rings in 2008 [3]. Osman Kazarnci et. al in [7] have introduced the notion of intuitionistic Q- fuzzy R- subgroups of near rings and investigated some related properties. A.Solairaju et.al discussed the idea of various algebraic structures in [9][10].

Section 2: Preliminaries: We would like to reproduce some definitions and results proposed by the pioneers in this field earlier for the sake of completeness.

Definition 2.1: A near-ring N is a system with two binary operations + and . such that

(i) (N, +) is a group not necessarily abelian.

(ii) (N, .) is a semi group.

(iii) (x+y)z = xz+yz for all x,y,z ∈ N.

We will use the word "near-ring" to mean "right distributive near ring". We denote xy instead of x•y. Note that 0.x=0 and (-x)y=-xy but in general x.0≠0 for some x∈N.

Definition 2.2: Let (N,+,.) be a near-ring. A subset I of N is said to be an ideal of N if

(i) (I, +) is a normal subgroup of (N,+).

(ii) I N ⊆ I

(iii) $n_1(n_2+i) - n_1n_2 \in I$ for i ∈ I and $n_1,n_2 \in N$.

From now on, throughout this paper N will denote right distributive near-ring, until otherwise specified.

Definition 2.3: Let 'S' be any Set. A Mapping μ : S X Q→[0,1] is called a Q-Fuzzy subset of S. A Q-Fuzzy subset μ : S X Q → [0,1] is non empty if μ is not the constant map which assume the value 0. For any two Q-Fuzzy subsets λ and μ of S. λ ≤ μ means λ(a,q) ≤ μ(a,q) for all a ∈ S.

Definition 2.4: Let μ be any Q-Fuzzy subset of N. For $t \in [0,1]$, the set $\mu_t = \{x \in N / \mu(x,q) \geq t\}$ is called level subset of μ.

Definition 2.5: Let μ be a nonempty Q-fuzzy subset of N. μ is a (λ,μ) Q-fuzzy ideal of N if for all x,y,z in N,

(QFI1) $\max\{\mu(x-y,q),\lambda\} \geq \min\{\mu(x,q), \mu(y,q), \mu\}$

(QFI2) $\max\{\mu(x,q),\lambda\} \geq \min\{\mu(y+x-y,q), \mu\}$

(QFI3) $\max\{\mu(xy,q),\lambda\} \geq \min\{\mu(x,q), \mu\}$

(QFI4) $\max\{\mu(x(y+z)-xy,q), \lambda\} \geq \min\{\mu(z,q), \mu\}$

Definition 2.6: A Q-fuzzy set μ of a near ring N is called (λ, μ) Q-fuzzy sub near ring of N if

(QFSNR1) $\max\{\mu(x-y,q),\lambda\} \geq \min\{\mu(x,q),\mu(y,q),\mu\}$

(QFSNR2) $\max\{\mu(xy,q),\lambda\} \geq \min\{\mu(x,q), \mu(y,q), \mu\}$ for all $x,y \in N$, $q \in Q$

Definition 2.7: A Q-fuzzy set μ in a near ring N is called (λ, μ) Q-fuzzy N subgroup of N near ring of N if

(QFNSG1) $\max\{\mu(x-y,q),\lambda\} \geq \min\{\mu(x,q),\mu(y,q), \mu\}$

(QFNSG2) $\max\{\mu(nx,q),\lambda\} \geq \min\{\mu(x,q), \mu\}$

(QFNSG3) $\max\{\mu(xn,q),\lambda\} \geq \min\{\mu(x,q), \mu\}$ for all $x,n \in N$, $q \in Q$

Definition 2.8: A Q-Fuzzy subset μ of N is called an $(\in, \in, V_q)$. Q- sub near ring of N if for all $x, y \in N$,

(QFSNR1) $\mu(x - y, q) \geq \min\{\mu(x, q), \mu(y, q), 0.5\}$

(QFSNR1) $\mu(xy, q) \geq \min\{\mu(x, q), \mu(y, q), 0.5\}$

Definition 2.9: A Q–Fuzzy subset μ of N is called an $(\in,\in,V_q)$. Q–fuzzy ideal of N if for all $x, y, z \in N$

(QFEI1) $\mu(x - y, q) \geq \min\{\mu(x, q), \mu(y, q), 0.5\}$

(QFEI2) $\mu(x,q) \geq \min\{\mu(y + x - y, q), 0.5\}$

(QFEI3) $\mu(xy,q) \geq \min\{\mu(x, q), 0.5\}$

(QFEI4) $\mu(x(y + z) - xy, q) \geq \min\{\mu(z,q), 0.5\}$

Example 2: Let N = {0, a, b, c} be the Kleins four group. Define multiplication in N as follows

.	0	a	b	c
0	0	0	0	0
a	a	a	a	a
b	0	0	0	b
c	a	a	a	c

+	0	a	b	c
0	0	a	b	c
a	a	0	c	b
b	b	c	0	a
c	c	b	a	0

Then (N, +, .) is a near ring

Let μ be a Q-fuzzy subset of N, define μ: $N \times Q \to [0,1]$ by $\mu(0, q) = 0.7$, $\mu(a,q) = \mu(c,q) = 0.4$, $\mu(b,q)= 0.8$ .Then μ is on $(\in,\in,V_q)$ Q-fuzzy sub near ring of N.

But since $0.7 = \mu(0, q) = \mu(b - b, q) \ngtr \min\{\mu(b, q), \mu(b, q)\} = 0.8$

∴ μ is not a fuzzy sub near ring of N. Further μ is an $(\in,\in,V_q)$ Q–fuzzy ideal of N.

However since $0.7=\mu(0,q)= \mu(b,0)$ not $> \mu(b, q)= 0.8$

∴ μ is not an Q-fuzzy ideal of N.

Remark 2.10: A Q fuzzy ideal and an $(\in,\in,V_q)$ Q-Fuzzy ideal of N are a (λ,μ) Q-fuzzy ideal of N but converse is not true.

Example: Consider the near ring (N,+, .) as defined in previous example. Define a Q-fuzzy subset μ = N X Q $\rightarrow$ [0,1] by $\mu(0, q)$= 0.42, $\mu(a, q) = \mu(c, q)$= 0.4. $\mu(b, q)$= 0.44. Then μ is a (0.1, 0.4) Q-fuzzy ideal of N. Since $\mu(b0,q)=\mu(0,q)\not\geq\mu(b)$ and $\mu(b0) = \mu(0, q) \not\geq \min\{ \mu(b, q), 0.5\}$

$\therefore\mu$ is neither a Q–fuzzy ideal nor an $(\in,\in,V_q)$ Q–fuzzy ideal of N.

Section 3: Properties of (λ, μ) Q-fuzzy Version of ideals

Proposition 3.1: Let $\{\mu_i\}$ be any family of (λ,μ) Q-fuzzy sub near rings of N. Then $\mu = \cap\mu_i$, is a (λ,μ) Q-fuzzy sub near rings of N.

Proof: Let x,y $\in$ N and q$\in$Q

(QFSNR1) $\max\{\mu(x\text{-}y),q\},\lambda\}$

$= \max \{(\cap\mu_i, i=1...n)(x\text{-}y,q), \lambda\}$

$\geq \min_{0\leq i\leq n}\{ \min \{(\mu_i(x,q), \mu_i(y,q), \mu \}\}$

$\geq \min \{\min_{0\leq i\leq n}\{(\mu_i(x,q)\}, \min_{0\leq i\leq n} \{\mu_i(y,q), \mu \}\}$

$= \min \{(\cap\mu_i, i=1...n)(x,q), \cap\mu_i, i=1...n)(y,q), \mu \}$

$= \min \{(\mu(x,q), \mu(y,q), \mu \}$

(QFSNR2)

$\max\{\mu(xy),q\},\lambda\}=\max\{(\cap\mu_i, i=1...n)(xy,q), \lambda\}$

$\geq \min_{0\leq i\leq n}\{ \min \{(\mu_i(x,q), \mu_i(y,q), \mu \}\}$

$\geq \min \{\min_{0\leq i\leq n}\{(\mu_i(x,q)\}, \min_{0\leq i\leq n} \{\mu_i(y,q),\} \mu \}$

$= \min \{(\cap\mu_i, i=1...n)(x,q), \cap\mu_i, i=1...n)(y,q), \mu \}$

$= \min \{(\mu(x,q), \mu(y,q), \mu \}$

Thus μ is a (λ,μ) Q-fuzzy sub near rings of N.

Proposition 3.2: A Q-fuzzy subset μ of N is a (λ,μ) Q-fuzzy sub near rings of N iff the level subset μ_t is an ideal of N, for all $t\in(\lambda,\mu]$.

Proof : Let μ be a (λ,μ) Q-fuzzy ideal of N. Let $t\in(\lambda, \mu]$ and x,y,z $\in \mu_{t,}$ then

$\max \{\mu(x\text{-}y),q\},\lambda\} \geq \min \{(\mu(x,q), \mu(y,q), \mu \}$

$\geq \min \{t, \mu \} = t > \lambda$

Hence $\mu(x\text{-}y,q) \geq t$ and x-y $\in \mu_{t.}$ Now

$\max \{\mu(xy),q\},\lambda\} \geq \min \{(\mu(x,q), \mu \}$

$\geq \min \{t, \mu \} = t > \lambda$

So xy $\in \mu_t$ Consider

$\max \{\mu(x+y\text{-}x),q\},\lambda\} \geq \min \{(\mu(y,q), \mu \}$

$\geq \min \{t, \mu \} = t > \lambda$

This implies x+y-x $\in \mu_{t.}$ Now

$\max \{\mu(a(b+z)\text{-}ab,q\},\lambda\} \geq \min \{(\mu(z,q), \mu \}$

$\geq \min \{t, \mu \} = t > \lambda$

For every a,b$\in$N, this implies that a(b+z)-ab $\in \mu_t$ so μ_t is an ideal of N.

Conversely, Let μ_t be an ideal of N for all $t\in(\lambda, \mu]$. Let x,y$\in$N, Suppose

$\max \{\mu(x\text{-}y),q\},\lambda\} < \min \{(\mu(x,q), \mu(y,q), \mu \}$

Choose 't' such that

$\max \{\mu(x-y),q\},\lambda\} < t < \min \{(\mu(x,q), \mu(y,q), \mu \}$

Now $\min \{(\mu(x,q), \mu(y,q), \mu \}> t$. Then $\mu(x,q) \geq t$, $\mu(y,q) \geq t$ and $Q \geq t$. Hence

$x,y \in \mu_t$ and μ_t being an ideal of N, $x-y \in \mu_t$ Thus

$\mu(x-y,q) \geq t \geq \lambda$ and this implies

$\max\{(\mu(x-y,q),\lambda\} \geq t$ is a contradiction thus

$\max \{\mu(x-y),q\},\lambda\} \geq \min \{(\mu(x,q), \mu(y,q), \mu \}$ for all $x,y \in N$. Next suppose

$\max \{\mu(x+y-x),q\},\lambda\} \leq \min \{(\mu(y,q), \mu \}$

Choose 't' such that

$\max \{\mu(x+y-x),q\},\lambda\} < t < \min \{\mu(y,q), \mu \}$ then $y \in \mu_t$ and $\mu \geq t > \lambda$. Since μ_t is a ideal of N, $x+y-x \in \mu_t$ and $\max \{\mu(x+y-x),q\},\lambda\} \geq \min \{\mu(y,q),Q\}$ for all $x,y \in N$, similarly it can be shown that $\max\{\mu(x+(y+z)-xy,q),\lambda\} \geq \min \{\mu(z,q), \mu \}$ for all $x,y \in N$.

Thus μ is a (λ,μ) Q-fuzzy ideal of N.

Proposition 3.3: Let μ is a (λ,μ) Q-fuzzy ideal of N. Then it satisfies $\mu(0,q) \geq \mu(x,q)$ and $\mu(-x,q) = \mu_A(x,q)$ for all $x \in N$ and $q \in Q$.

Proposition 3.4: Let μ is a (λ,μ) Q-fuzzy ideal of N, Then the set $N_\mu = \{ x \in N/\mu(x,q)= \mu(0,q)\}$ is a ideal of N for all $q \in Q$.

Proof: Let $x,y \in N_\mu$ and $q \in Q$ then $\max\{\mu(x,q),\mu \} = \max\{ \mu(0,q), \mu \}$ and

$\max(\mu(y,q) \ \mu,)=\max(\mu(0,q), \mu)$ Since μ is (λ,μ) Q-fuzzy ideal of N , we get

$\max \{\mu(x-y),q\},\lambda\} \geq \min \{(\mu(x,q), \mu(y,q), \mu \}$

$= \max \{\mu(0,q), \mu\}$ by using Proposition 3.3

We get $\max\{\mu(x-y,q),\lambda\}=\min\{ \mu(0,q), \mu \}$. Hence $x,y \in N_\mu$. Similarly we can show the other conditions.

Proposition 3.5: A non empty to be set I of N is an ideal of N if and only if f_I is a (λ,μ) Q-fuzzy ideal of I.

Proof: Let I be on ideal of N. Then f_I is a Q-fuzzy ideal of N and f_I is a (λ,μ) Q-fuzzy ideal of N.

Conversely let f_I be a (λ,μ) Q-fuzzy ideal of N with $0 \leq \lambda < \mu \leq 1$. For any $x, y \in I$, we have

$\max \{f_I(x-y,q), \lambda\} \geq \min\{f_I(x,q), f_I(y, q), \mu \}$

$= \min \{1, 1, \mu \}$ then

$\max \{f_I(x - y, q), \lambda\} \geq \mu$ since $\lambda < \mu$

$f_I (x - y, q) \geq \mu$. Hence $x - y \in I$

Let $x \in I$ and $y \in N$ then

$\max\{ f_I(y + x-y, q), \lambda\} \geq \min\{f_I(x,q), \mu \} = \mu \neq 0$

This implies that $y + x - y \in I$. Now let $a \in N$ and $x \in I$ then

$\max\{f_I(xa, q), \lambda\} \geq \min\{f_I(x, q),\mu\}$

$= \min \{ 1, \mu \} = \mu$ this implies that $xa \in I$

Let $x, y \in N$ and $Z \in I$

$\max \{ f_I (x(y + z) - xy), q), \lambda \} \geq \min \{ f_I(z, q), \mu \}$

$= \min \{1, \mu \} = \mu$

This implies that $x(y + z)-xy \in I$. Thus I is an ideal of N.

Proposition 3.6 : Let N and N^1 be two near- rings and $\varphi : N – N^1$ a homomorphism. If B is a (λ,μ) Q-fuzzy ideal of N^1, then the pre image $\varphi(B)$ of B under φ is a (λ,μ) Q–fuzzy ideal of N.

Proof:

$\max\{ \mu^{-1}_{\varphi(B)}(x – y, q), \lambda\} = \max \{\mu_B\{\varphi(x – y, q), \lambda\}\}$

$= \max\{\mu_B(\varphi x –\varphi y, q), \lambda\}$

$\geq \min\{\mu_B(\varphi(x,q), \mu_B(\varphi(y,q), \mu\}$

$\geq \min \{\mu^{-1}_{\varphi(B)} (x, q), \mu^{-1}_{\varphi(B)}(y, q), \mu \}$

$\max\{ \mu^{-1}_{\varphi(B)} (x , q), \lambda\} = \max\{ \mu_B\varphi(x, q), \lambda\}$ $\geq \min\{ \mu_B\varphi(y + x – y, q), \lambda\}$

$\geq \min\{ \mu^{-1}_{(B)}\varphi(y + x – y, q), \lambda\}$

$\max\{ \mu^{-1}_{\varphi(B)} (x y, q), \lambda\} = \max\{ \mu_B(\varphi(xy,q)), \lambda\}$

$\geq \min\{ \mu_B\varphi(x, q),\mu \}$

$\geq \min\{ \mu^{-1}_{\varphi(B)} (x, q), \mu \}$

$\max \{ \mu^{-1}_{\varphi(B)}(x(y + x) – xy, q), \lambda\}$

$= \max\{ \mu_B(\varphi(x(y + z) – xy, q)), \lambda\}$

$\geq \min\{ \mu_B\varphi(z, q), \mu\}$

$\geq \min\{ \mu^{-1}_{\varphi(B)}(z, q), \mu\}$

$\therefore \varphi^{-1}(B)$ is (λ,μ) Q–fuzzy ideal of N.

Definition 3.7: Let N be a ring. Let $N/A=\{(x+\mu_A)/x \in N\}$ be a quotient ring by μ_A where $A = \{(x, \mu_A(x)) / x \in N\}$ is an (λ,μ) Q-Fuzzy ideal of N. Define $A^{(*)} = \{(x+\mu_A^{(*)}(x,q))/x \in N/A\}$ as follows $\mu_A^{(*)}(x+ \mu_A) = \mu_A(x,q)$ obviously $\mu_A^{(*)}$ is well defined.

Proposition 3.8: Let 'A' is a (λ, μ) Q-Fuzzy ideal of N. Then $A^{(*)}$ is a (λ, μ) Q-Fuzzy ideal of N/A defined by $\mu_A^{(*)}((x,q)+ \mu_A),0)= \mu_A(x,q)$ for all $x\in N$.

Proof: Let $x,y \in N$ and $q \in Q$

$\max \{\mu_A^{(*)}((x-y,q)+\mu_A, \lambda\} = \max \{\mu_A(x-y,q),\lambda\}$

$\geq \min\{\mu_A(x,q),\mu_A(y,q), \mu \}$ ($\therefore$A is $(\lambda,)$ μ Q-Fuzzy ideal)

$\geq \min \{(\mu_A(x,q) + \mu_A),(\mu_A(y,q) + \mu_A), Q\}$

$\max \{\mu_A^{(*)}((x,q) +\mu_A, \lambda\} = \max \{\mu_A(x,q), \lambda\}$

$\geq \min \{\mu_A(y+x-y),q), \mu \}$

$\geq \min \{(\mu_A^{(*)}(y+x-y,q)+\mu_A), \mu \}$

$\max \{(\mu_A^{*}(xy,q) +\mu_A), \lambda\} = \max \{\mu_A(xy,q), \lambda\}$

$\geq \min \{\mu_A(x,q) \mu,\} \geq \min \{\mu_A^{(*)}(x,q)+\mu_A), \mu \}$

$\max\{(\mu_A^{*}(x+y+z)-xy,q)+\mu_A), \lambda\}$

$= \max \{\mu_A((x+y+z)-xy,q), \lambda\}$

$\geq \min \{\mu_A(z,q), \mu \}$

$\geq \min \{\mu_A^{(*)}(z,q)+\mu_A), \mu \}$

Thus A^* is (λ, μ) Q-Fuzzy ideal of N/A.

Proposition 3.9: Let $f: N \rightarrow N^1$ be a ring homomorphism. Let 'A' be (λ, μ) Q-Fuzzy ideal of N. Then

1) $D=\{(x,f^{-1}(\mu_A)(x))/x\in N\}$ is a (λ, μ) Q-fuzzy ideal of N which is a constant on Kerlf.
2) $f^{-1}(\mu_A)_* = (f^{-1}(\mu_A))_*$
3) If f is onto then $(f \circ f^{-1})(\mu_A) = \mu_A$
4) If μ_A is a constant on Kerlf then $(f \circ f^{-1})(\mu_A) = \mu_A$

Proof : Let $x,y \in N$ then

(i)max { $f^{-1}(\mu_A)(x\text{-}y,q)$, λ) } = max { μ_A (f(x-y),q),λ}

≥ max {μ_A((fx)-f(y)),q), λ }

≥ min {μ_A(f(x,q), μ_A(f(y,q), μ }

≥ min {$f^{-1}(\mu_A)(x,q),f^{-1}(\mu_A)(y,q)$,μ}

max{ $f^{-1}(\mu_A)(x,q)$, λ } = max {μ_A(f(x,q),λ}

≥ min {μ_A(f(y+x-y,q), μ }

≥ min {$f^{-1}(\mu_A)(y+x-y,q)$, μ }

max{ $f^{-1}(\mu_A)(xy,q)$, λ } = max { μ_A (f(xy,q),λ}

= max { μ_A (f(x,,q),f(y,q)), μ }

≥ min {μ_A(f(x,q), μ}

≥ min {$f^{-1}(\mu_A)(x,q)$, μ}

max { $f^{-1}(\mu_A)(x(y+z-xy),q)$, λ) }

= max { μ_A (f(x(y+z-xy)),q),λ}

≥ max {μ_A(f(z,q)), λ }

≥ min {$f^{-1}(\mu_A)(z,q)$, μ }

∴ $f^{-1}(\mu_A)$ is a (λ, μ) Q-fuzzy ideal of N

(ii) Let x ∈ N then x ∈ $f^{-1}(\mu_A)_*$ ⇔ μ_A (f(x),q) ≥ μ_A (0',q) = μ_A (f(0,q))
⇔ $f^{-1}(\mu_A)(x,q) > f^{-1}(\mu_A)(0,q)$

⇔ x ∈ $f^{-1}(\mu_A)_*$

Hence $f^{-1}(\mu_A)_* = (f^{-1}(\mu_A))_*$

(iii) Let y∈N' then y = f(x,0) for some x∈N so that

$(f \circ f^{-1})(\mu_A)(y) = f(f^{-1}(\mu_A)(y)) = f(f^{-1}(\mu_A))(f(y))$

= $f^{-1}(\mu_A)(y)$

= $\mu_A(f(y)) = \mu_A(y)$

Hence $(f \circ f^{-1})(\mu_A) = (\mu_A)$

(iv) Let x∈N then

$(f \circ f^{-1})(\mu_A)(x) = f(f^{-1}(\mu_A)(x))$

= $f(\mu_A)(f(x))$

= $\mu_A(x)$

Hence $(f \circ f^{-1})(\mu_A) = (\mu_A)$

Proposition 3.10: Let 'A' is a (λ, μ) Q-Fuzzy ideal of N then the non-empty level set U(A;t) ideal of N for all q∈Q and t ∈ $I_m(A)$.

Proof: Let and t ∈ $I_m(A)$⊆[0,1] and let x,y ∈ U(A;t) then A(x,q) ≥ t and A(y,q) ≥ t so

max {A(x-y,q),λ} ≥ min {A(x,q), A(y,q),} μ ≥ t which implies that x,y ∈ U(A;t) and

max {A(x,q),λ} ≥ min {A(y+x-y,q), μ } ≥ t which implies that x ∈ U(A;t)

Finally max{A(x(y+z)-xy,q),λ} ≥ min{A(x,q), μ } ≥ t

Thus U(A;t) is a (λ, μ) Q-Fuzzy ideal of N.

Proposition 3.11: Let {A_i}={ α_i / i∈I} be a family of (λ,μ) Q-fuzzy N-subgroup of N. Then

($\cap A_i$) = {$\cap\alpha_i$} for all i∈I.

Proof: Let $\cap\alpha_{Ai} = \alpha$ and for all x,y,n ∈ N and q∈Q

max {α (x-y),q},λ} = inf {α_{Ai}(x-y,q), λ}

≥ inf {min{α_{Ai}(x,q), α_{Ai}(y,q),μ}}

≥ min {inf α_{Ai}(x,q), inf α_{Ai}(y,q),μ}

$= \min\{\alpha(x,q), \alpha(y,q),\mu\}$

Also $\max\{\alpha(nx,q),\lambda\} = \inf\{\alpha_{Ai}(nx,q), \lambda\}$

$\geq \inf\{\min\{\alpha_{Ai}(x,q),\mu\}\}$

$\geq \min\{\inf\{\alpha_{Ai}(x,q),\mu\}\}$

$\geq \max\{\alpha(x,q),\mu\}$

$\max\{\alpha(xn,q),\lambda\} = \inf\{\alpha_{Ai}(xn,q), \lambda\}$

$\geq \inf\{\min\{\alpha_{Ai}(x,q),\mu\}\}$

$\geq \min\{\inf\{\alpha_{Ai}(x,q),\mu\}\}$

$\geq \max\{\alpha(x,q),\mu\}$

Thus $(\cap A_i)$ is (λ,μ) Q- fuzzy N-subgroup of N.

Conclusion: In this paper (λ,μ) Q-fuzzy sub near ring and ideals over a near ring were introduced and their basic algebraic properties were studied. (λ,μ) Q-fuzzy N-subgroups were defined and their fundamental structures were explored. A similar approach can be explained for non-zero symmetry many near rings.

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