International Journal of Mathematical Archive-10(9), 2019, 1-7
Available online through www.ijma.info ISSN 2229 – 5046

# CHARACTERS OF NAGENDRAM Γ-SEMI SUB NEAR-FIELD SPACE OF A Γ-NEAR-FIELD SPACE OVER NEAR-FIELD

**DR N V NAGENDRAM***

**Professor of Mathematics,**
**Kakinada Institute of Technology & Science (K.I.T.S.),**
**Department of Humanities & Science (Mathematics),**
**Tirupathi (Vill.) Peddapuram (M), Divili 533 433**
**East Godavari District. Andhra Pradesh. INDIA.**

***(Received On: 21-07-19; Revised & Accepted On: 25-09-19)***

***ABSTRACT***

*In this manuscript we obtain the notion of characters of Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field almost with few of their characterizations. We also present the interesting relations on orthogonality characters of Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field.*

***Keywords:*** *characters of Nagendram Γ-semi sub near-field space, Γ-near-field space; Γ-Semi sub near-field space of Γ-near-field space; Semi near-field space of Γ-near-field space, Nagendram Γ-semi sub near-field space, Nagendram Γ-semi near-field space, closed, compact, connected Nagendram Γ-semi sub near-field spaces of a Γ-near-field space over near-field, orthogonality characters of Nagendram Γ-semi sub near-field space.*

***2000 Mathematics Subject Classification:*** *43A10, 46B28, 46H25,6H99, 46L10, 46M20, 51 M 10, 51 F 15,03 B 30.*

## SECTION 1: INTRODUCTION AND PRELIMINARIES

In this paper author introduced characters of Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field and discussed about orthogonality characters of Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field.

**Definition 1.1: Characters of Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field.** Let N be a Nagendram Γ-semi sub near-field space ***K*** of a Γ-near-field space over near-field and $\rho : N \to NL(V)$ a complex representation. The character of the representation is defined as the function $\chi_p = \chi_V : N \to C$ and $\chi_V(g) = tx(\rho(g))$.

**Note 1.2:** If S, T are complex matrices such that tr( ST) = tr ( TS ) then tr ( $STS^{-1}$ ) = tr ( S ). So tr is independent of the chosen basis. Also, if $M : V \to V$ is linear, $\{v_1, v_2, ...., v_n\}$ is a basis of V. $v_1^*, v_2^*, ....., v_n^*$ the corresponding dual basis of $V^*$ then tr ( M ) = $\sum_i v_i^*(M(v_i))$.

If V is a representation of N, then $V^*$ = Hom ( V, C )is the dual representation of N. If N is compact, we may choose a N-invariant. Hermitian inner product (.) on V. This gives a N-equivalent complex anti-linear map $V \to V^*$ $v \mapsto (,v,\cdot)$. This gives an isomorphism $V^* \cong \overline{V}$ where $\overline{V}$ is the complex Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field with the same addition as V and scalar multiplication is given by $\lambda . V = \overline{\lambda} v$ and $\lambda \in C, v \in V$.

## SECTION 2: CHARACTERS OF NAGENDRAM GAMMA SEMI SUB NEAR-FIELD SPACES OF A GAMMA NEAR-FIELD SPACE OVER A NEAR-FIELD.

In this section, author present propositions on characters of Nagendram Gamma semi sub near-field spaces of a Gamma near-field space over a near-field.

***Corresponding Author: Dr. N. V. Nagendram*, Professor of Mathematics, Kakinada Institute of Technology & Science, Tirupathi (v), Peddapuram(M), Divili 533 433, East Godavari District, Andhra Pradesh. India.***

**Proposition 2.1:** Let N be a Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field. Then
(a) a character of a representation of N is a $C^{\infty}$ function on N,
(b) if V and W are isomorphic representations of N, then $\chi_V = \chi_W$
(c) $\chi_V(ghg^{-1}) = \chi_V(h)$, for all $g, h \in$ N,
(d) $\chi_V \oplus W = \chi_V + \chi_V W$
(e) $\chi_V \oplus W = \chi_V \chi W$,
(f) $\chi_V \cdot (g) = \chi \overline{V}(g) = \overline{\chi V(g)} = \chi_V(g^{-1})$
(g) $\chi_V(1) = \dim_C(V)$.

**Proof:** Given N be a Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field.
(a): By definition of character of Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field and $\rho$ : $N \to NL(V)$ a complex representation. The character of the representation is defined as the function $\chi_p = \chi_V : N \to C$ and $\chi_V(g) = tx(\rho(g))$ is a complex representation on from $C^{\infty}$ on N. hence it is obvious that a character of a representation of N is a $C^{\infty}$ function on N. Hence Proved (a).

(b): If $\rho_1, \rho_2 : N \to NL(n, C)$ are two representations and

$$\begin{tikzcd} C^n \arrow[r, "M"] \arrow[d, "\rho_1(g)"'] & C^n \arrow[d, "\rho_2(g)"] \\ C^n \arrow[r, "M"'] & C^n \end{tikzcd}$$

Commutes then $tr(\rho_2(g)) = tr(M\rho_2(g)M^{-1}) = tr(\rho_1(g))$. Proved (b).
(c) $Tr(\rho(ghg^{-1})) = tr((\rho(g)(\rho(h)(\rho(g^{-1})) = tr(\rho(h))$
(d) and (e) recall from linear algebra that if $S : V \to W$ and $T : V \to V$ are linear, then $tr(S \oplus T) = tr(S) + tr(T)$ and $tr(S \otimes T) = tr(S).\, tr(T)$.
(f) If $\rho : N \to NL(V)$ is a representation, $(v_1, v_2, \ldots\ldots, v_n)$ is a basis for V and $v_1^*, v_2^*, v_3^*, \ldots\ldots, v_n^*$ is the associated dual basis, then

$$\chi_\rho^*(g) = tr(\rho^*(g)) = \sum_i v_i\left(\rho^*(g)v_i^*\right) = \sum_i v_i^*\left(\rho\left(g^{-1}\right)v_i\right) = \chi_\rho(g^{-1}).$$

If ( , ) is an invariant Hermitian inner product, and $\{v_i\}$ is an orthogonal basis, then

$$\begin{aligned} tr\,\rho^*(g) &= \sum_i (v_i, .) \circ \rho\left(g^{-1}\right) v_i \\ &= \sum_i \left(v_i, \rho\left(g^{-1}\right) v_i\right) \\ &= \sum_i \left(\rho(g)v_i, v_i\right) \\ &= \sum_i \left(\left(\rho(g)\right)_{ji} v_j, v_i\right) \\ &= \sum_i \overline{\left(\rho(g)\right)_{ji}}\left(v_j, v_i\right) \\ &= \sum \overline{\rho(g)_{ii}} = \overline{\chi_\rho(g)}. \end{aligned}$$

(g) $\chi_V(1) = tr(id) = \dim_C V$
This completes the proof of the proposition.

**Proposition 2.2:** Let $\rho : N \to NL(V)$ be a representation of N and $V^G = \{g \in V : g.v = v\}$.
Then $\int_N \chi_V(g)\,dg = \dim_C V$.

**Proof:**
Consider $Q : V \to V$ given by $Q(V) = \int_N \rho(g)\, v\, dg$. We claim that Q is a linear N-equivalent map such that $Q(V) \subseteq V^N$ and $Q|V^N = id_V^N$.

It is clear that Q is linear. Now,

$$Q(\rho(a)\, v) = \int_N \rho(g)\,\rho(a)\, v\, dg = \int_N \rho(ag)\; v\, dg = \int_N \rho(g)\; v\, dg = Q(v) = \int_N \rho(ag)\; v\, dg$$

$$= \rho(a) \int_N \rho(g)\; dg = \rho(a)\, Q(v)$$

and so $Q(v) \subseteq V^N$ and $Q(\rho(a)\,.\,v) = Q(v)$ for all $g \in N$ and $v \in V$. Also if $v \in V^N$ we have

$$Q(v) = \int_N \rho(g)\; c\, dg = \int_N v\, dg = v. \text{ since } \int_N 1\; dg = 1.$$

This claim implies that $\mathrm{tr}(Q) = \dim V^N$ On the other hand.

$$\mathrm{Tr}(Q) = \sum v_i^* \,(Q(v_i)) = \sum v_i^* \left( \int_N \rho(g)\; v_i\; dg \right) = \int_N \left(\chi_V(g)\;\right) dg = \int_N \rho(g)\,\rho(a)\, v\, dg\,.$$

This completes the proof of the proposition.

## SECTION 3: ORTHOGONALITY OF CHARACTERS OF NAGENDRAM GAMMA SEMI SUB NEAR-FIELD SPACES OF A GAMMA NEAR-FIELD SPACE OVER A NEAR-FIELD.

In this section, author present main result on Orthogonality of characters of Nagendram Gamma semi sub near-field spaces of a Gamma near-field space over a near-field.

**Theorem 3.1:** Let L, M be two compact representations of a compact Nagendram Gamma semi sub near-field spaces of a Gamma near-field space over a near-field N. Then $(\chi_L, \chi_M) = \int_N \chi_L(g)\,\chi_M(g)\,dg = \dim_C(L, M)$.

In particular, if L, M are irreducible, then $(\chi_L, \chi_M) = \begin{cases} 0 & L \cong M \\ 1 & L \text{ not} \cong M \end{cases}$

**Proof:**

$\overline{\chi_L}\;\chi_M = \chi_L\,.\,\chi_M = \chi_M \otimes V^* = X_{\mathrm{Hom}(L, M)}$ Since, $M \otimes V^* \cong \mathrm{Hom}(L, M)$.

$\mathrm{Hom}(L, M)^N = \mathrm{Hom}_N(L, M)$ by proposition 2.2,

$$\int_N \left(\overline{\chi_L}\;\chi_M\right)(g)\, dg = \int_N \chi_{Hom}\;(L, M)\,(g)\, dg = \mathrm{Hom}(L, M)^N = \mathrm{Hom}_N(L, M).$$

This completes the proof of the theorem.

## ACKNOWLEDGMENT

Dr N V Nagendram being a Professor is indebted to the referee for his various valuable comments leading to the improvement of the advanced research article in algebra of Mathematics. For the academic and financial year 2019, this work was supported by our Hon'ble chairman Sri B. Srinivasa Rao, Kakinada Institute of Technology & Science (K.I.T.S.), R&D education Department Humanities & sciences (Mathematics), Divili 533 433. Andhra Pradesh INDIA.

## REFERENCES

1. G. L. Booth A note on Γ-near-rings Stud. Sci. Math. Hung. 23 (1988) 471-475.
2. G. L. Booth Jacobson radicals of Γ-near-rings Proceedings of the Hobart Conference, Longman Sci. & Technical (1987) 1-12.
3. G Pilz Near-rings, Amsterdam, North Holland.
4. P. S. Das Fuzzy groups and level subgroups J. Math. Anal. and Appl. 84 (1981) 264-269.
5. V. N. Dixit, R. Kumar and N. Ajal On fuzzy rings Fuzzy Sets and Systems 49 (1992) 205-213.
6. S. M. Hong and Y. B. Jun A note on fuzzy ideals in Γ-rings Bull. Honam Math. Soc. 12 (1995) 39-48.
7. Y. B. Jun and S. Lajos Fuzzy (1; 2)-ideals in semigroups PU. M. A. 8(1) (1997) 67-74.
8. Y. B. Jun and C. Y. Lee Fuzzy Γ-rings Pusan Kyongnam Math. J. 8(2) (1992) 163-170.
9. Y. B. Jun, J. Neggers and H. S. Kim Normal L-fuzzy ideals in semirings Fuzzy Sets and Systems 82 (1996) 383-386.
10. N V Nagendram,T V Pradeep Kumar and Y V Reddy On "Semi Noetherian Regular Matrix δ–Near-Rings and their extensions", International Journal of Advances in Algebra (IJAA), Jordan, ISSN 0973 - 6964, Vol.4, No.1, (2011), pp.51-55.

11. N V Nagendram,T V Pradeep Kumar and Y V Reddy "A Note on Bounded Matrices over a Noetherian Regular Delta Near Rings", (BMNR-delta-NR) published in International Journal of Contemporary Mathematics, Vol.2, No.1, June 2011, Copyright@MindReaderPublications, ISSNNo:0973-6298, pp.13-19.
12. N V Nagendram, T V Pradeep Kumar and Y V Reddy "A Note on Boolean Regular Near-Rings and Boolean Regular δ–Near Rings", (BR-delta-NR) published in International Journal of Contemporary Mathematics, IJCM Int. J. of Contemporary Mathematics ,Vol. 2, No. 1, June 2011,Copyright @ Mind Reader Publications, ISSN No: 0973-6298, pp. 29 - 34.
13. N V Nagendram, T V Pradeep Kumar and Y V Reddy "on p-Regular δ–Near-Rings and their extensions", (PR-delta-NR) accepted and to be published in int. J. Contemporary Mathematics (IJCM),0973-6298,vol.1, no.2, pp.81-85,June 2011.
14. N V Nagendram, T V Pradeep Kumar and Y V Reddy "On Strongly Semi –Prime over Noetherian Regular δ–Near Rings and their extensions",(SSPNR-delta-NR) published in International Journal of Contemporary Mathematics, Vol.2, No.1, June 2011, , pp.83-90.
15. N V Nagendram, Dr T V Pradeep Kumar and Dr Y V Reddy "On Structure Theory and Planar of Noetherian Regular δ-Near–Rings (STPLNR-delta-NR)",International Journal of Contemporary Mathematics, IJCM ,published by IJSMA, pp.79-83, Dec, 2011.
16. N V Nagendram, Dr T V Pradeep Kumar and Dr Y V Reddy "On Matrix's Maps over Planar of Noetherian Regular δ-Near–Rings (MMPLNR-delta-NR)", International Journal of Contemporary Mathematics, IJCM, published by IJSMA, pp.203-211, Dec, 2011.
17. N V Nagendram, Dr T V Pradeep Kumar and Dr Y V Reddy "On IFP Ideals on Noetherian Regular-δ- Near Rings(IFPINR-delta-NR)", Int. J. of Contemporary Mathematics, Copyright @ Mind Reader Publications, ISSN No: 0973-6298, Vol. 2, No. 1, pp.53-58, June 2011.
18. N V Nagendram, B Ramesh paper "A Note on Asymptotic value of the Maximal size of a Graph with rainbow connection number 2*(AVM-SGR-CN2*)" published in an International Journal of Advances in Algebra (IJAA) Jordan @ Research India Publications, Rohini , New Delhi , ISSN 0973-6964 Volume 5, Number 2 (2012), pp. 103-112.
19. N V Nagendram research paper on "Near Left Almost Near-Fields (N-LA-NF)" communicated to for 2nd intenational conference by International Journal of Mathematical Sciences and Applications, IJMSA@ mindreader publications, New Delhi on 23-04-2012 also for publication.
20. N V Nagendram, T Radha Rani, Dr T V Pradeep Kumar and Dr Y V Reddy "A Generalized Near Fields and (m, n) Bi-Ideals over Noetherian regular Delta-near rings (GNF-(m, n) BI-NR-delta-NR)", published in an International Journal of Theoretical Mathematics and Applications (TMA),Greece,Athens,dated 08-04-2012.
21. N V Nagendram, Smt.T.Radha Rani, Dr T V Pradeep Kumar and Dr Y V Reddy "Applications of Linear Programming on optimization of cool freezers(ALP-on-OCF)" Published in International Journal of Pure and Applied Mathematics, IJPAM-2012-17-670 ISSN-1314-0744 Vol-75 No-3(2011).
22. N V Nagendram "A Note on Algebra to spatial objects and Data Models(ASO-DM)" Published in international Journal American Journal of Mathematics and Mathematical Sciences, AJMMS,USA, Copyright @ Mind Reader Publications, Rohini , New Delhi, ISSN. 2250-3102, Vol.1, No.2 (Dec. 2012), pp. 233 – 247.
23. N V Nagendram, Ch Padma, Dr T V Pradeep Kumar and Dr Y V Reddy "A Note on Pi-Regularity and Pi-S-Unitality over Noetherian Regular Delta Near Rings (PI-R-PI-S-U-NR-Delta-NR)" Published in International Electronic Journal of Pure and Applied Mathematics, IeJPAM-2012-17-669 ISSN-1314-0744 Vol-75 No-4 (2011).
24. N V Nagendram, Ch Padma, Dr T V Pradeep Kumar and Dr Y V Reddy "Ideal Comparability over Noetherian Regular Delta Near Rings(IC-NR-Delta-NR)" Published in International Journal of Advances in Algebra (IJAA, Jordan), ISSN 0973-6964 Vol:5,NO:1(2012),pp.43-53@ Research India publications, Rohini, New Delhi.
25. N. V. Nagendram, S. Venu Madava Sarma and T. V. Pradeep Kumar, "A Note On Sufficient Condition Of Hamiltonian Path To Complete Graphs (SC-HPCG)", IJMA-2(11), 2011, pp.1-6.
26. N V Nagendram, Dr T V Pradeep Kumar and Dr Y V Reddy "On Noetherian Regular Delta Near Rings and their Extensions(NR-delta-NR)",IJCMS,Bulgaria,IJCMS-5-8-2011,Vol.6,2011,No.6,255-262.
27. N V Nagendram, Dr T V Pradeep Kumar and Dr Y V Reddy "On Semi Noehterian Regular Matrix Delta Near Rings and their Extensions(SNRM-delta-NR)", Jordan,@ResearchIndiaPublications, Advances in Algebra ISSN 0973-6964 Volume 4, Number 1 (2011), pp.51-55© Research India Publicationspp.51-55
28. N V Nagendram, Dr T V Pradeep Kumar and Dr Y V Reddy "On Boolean Noetherian Regular Delta Near Ring(BNR-delta-NR)s", International Journal of Contemporary Mathematics,IJCM Int. J. of Contemporary Mathematics ,Vol. 2, No. 1-2,Jan-Dec 2011, Mind Reader Publications, ISSN No: 0973-6298, pp. 23-27.
29. N V Nagendram, Dr T V Pradeep Kumar and Dr Y V Reddy "On Bounded Matrix over a Noetherian Regular Delta Near Rings (BMNR-delta-NR)", Int. J. of Contemporary Mathematics,Vol. 2, No. 1-2, Jan-Dec 2011 ,Copyright @ Mind Reader Publications, ISSN No: 0973-6298, pp.11-16
30. N V Nagendram, Dr T V Pradeep Kumar and Dr Y V Reddy "On Strongly Semi Prime over Noetherian Regular Delta Near Rings and their Extensions(SSPNR-delta-NR)", Int. J. of Contemporary Mathematics,Vol. 2, No. 1, Jan-Dec 2011 ,Copyright @ Mind Reader Publications, ISSN No: 0973-6298, pp.69-74.

31. N V Nagendram, Dr T V Pradeep Kumar and Dr Y V Reddy "On IFP Ideals on Noetherian Regular Delta Near Rings (IFPINR-delta-NR)", Int. J. of Contemporary Mathematics,Vol. 2, No. 1-2, Jan-Dec 2011, Copyright @ Mind Reader Publications, ISSN No: 0973-6298, pp.43-46.
32. N V Nagendram, Dr T V Pradeep Kumar and Dr Y V Reddy "On Structure Thoery and Planar of Noetherian Regular delta-Near–Rings (STPLNR-delta-NR)",International Journal of Contemporary Mathematics, IJCM, accepted for Ist international conference conducted by IJSMA, New Delhi December 18,2011, pp:79-83, Copyright @ Mind Reader Publications and to be published in the month of Jan 2011.
33. N V Nagendram, Dr T V Pradeep Kumar and Dr Y V Reddy "On Matrix's Maps over Planar of Noetherian Regular delta-Near–Rings (MMPLNR-delta-NR)", International Journal of Contemporary Mathematics, IJCM, accepted for Ist international conference conducted by IJSMA, New Delhi December 18, 2011, pp:203-211, Copyright @ Mind Reader Publications and to be published in the month of Jan 2011.
34. N V Nagendram, Dr T V Pradeep Kumar and Dr Y V Reddy "Some Fundamental Results on P- Regular delta-Near–Rings and their extensions (PNR-delta-NR)", International Journal of Contemporary Mathematics, IJCM, Jan-December'2011, Copyright@MindReader Publications, ISSN:0973-6298, vol.2,No.1-2, PP.81-85.
35. N V Nagendram, Dr T V Pradeep Kumar and Dr Y V Reddy "A Generalized ideal based-zero divisor graphs of Noetherian regular Delta-near rings (GIBDNR- d-NR)", International Journal of Theoretical Mathematics and Applications (TMA) accepted and published by TMA, Greece, Athens, ISSN:1792- 9687 (print), vol.1, no.1, 2011, 59-71, 1792-9709 (online), International Scientific Press, 2011.
36. N V Nagendram, Dr T V Pradeep Kumar and Dr Y V Reddy "Inversive Localization of Noetherian regular Delta-near rings (ILNR- Delta-NR)", International Journal of Pure And Applied Mathematics published by IJPAM-2012-17-668, ISSN.1314-0744 vol-75 No-3, SOFIA, Bulgaria.
37. N VNagendram1, N Chandra Sekhara Rao2 "Optical Near field Mapping of Plasmonic Nano Prisms over Noetherian Regular Delta Near Fields (ONFMPN-NR-Delta-NR)" accepted for 2nd international Conference by International Journal of Mathematical Sciences and Applications, IJMSA @ mind reader publications, New Delhi going to conduct on 15 – 16 th December 2012 also for publication.
38. N V Nagendram, K V S K Murthy (Yoga), "A Note on Present Trends on Yoga Apart From Medicine Usage and Its Applications (PTYAFMUIA)" Pubished by the International Association of Journal of Yoga Therapy, IAYT 18 th August, 2012.
39. N VNagendram, B Ramesh, Ch Padma, T Radha Rani and S V M Sarma research article "A Note on Finite Pseudo Artinian Regular Delta Near Fields (FP AR-Delta-NF)" communicated to International Journal of Advances in Algebra, IJAA, Jordan on 22 nd August 2012.
40. N V Nagendram "Amenability for dual concrete complete near-field spaces over a regular delta near-rings (ADC-NFS-R-δ-NR)" accepted for 3nd international Conference by International Journal of Mathematical Sciences and Applications, IJMSA@mind reader publications, New Delhi going to conduct on 15–16th December 2014 also for publication.
41. N V Nagendram "Characterization of near-field spaces over Baer-ideals" accepted for 4th international Conference by International Journal Conference of Mathematical Sciences and Applications, IJCMSA@ mind reader publications, New Delhi going to conduct on 19–20 th December 2015 at Asian Institute of Technology AIT, Klaung Lange 12120, Bangkok, Thailand.
42. N V Nagendram, S V M Sarma Dr T V Pradeep Kumar "A note on sufficient condition of Hamiltonian path to Complete Graphs" published in International Journal of Mathematical archive IJMA, ISSN 2229-5046, Vol.2, No.2, Pg. 2113 – 2118, 2011.
43. N V Nagendram, S V M Sarma, Dr T V Pradeep Kumar "A note on Relations between Barnette and Sparse Graphs" publishd in an International Journal of Mathematical Archive (IJMA), An International Peer Review Journal for Mathematical, Science & Computing Professionals, 2(12), 2011, pg no.2538-2542,ISSN 2229–5046.
44. N V Nagendram "On Semi Modules over Artinian Regular Delta Near Rings(S Modules-AR-Delta-NR) Accepted and published in an International Journal of Mathematical Archive (IJMA)", An International Peer Review Journal for Mathematical, Science & Computing Professionals ISSN 2229-5046, IJMA-3-474, 2012.
45. N V Nagendram "A note on Generating Near-field efficiently Theorem from Algebraic K - Theory" published by International Journal of Mathematical Archive, IJMA, ISSN. 2229-5046, Vol.3, No.10, Pg. 1 – 8, 2012.
46. N V Nagendram and B Ramesh on "Polynomials over Euclidean Domain in Noetherian Regular Delta Near Ring Some Problems related to Near Fields of Mappings (PED-NR-Delta-NR & SPR-NF)" Accepted and published in an International Journal of Mathematical Archive (IJMA), An International Peer Review Journal for Mathematical, Science & Computing Professionals ISSN 2229-5046, vol.3, no.8, pp no. 2998-3002, 2012.
47. N V Nagendram "Semi Simple near-fields Generating efficiently Theorem from Algebraic K-Theory" published by International Journal of Mathematical Archive, IJMA, ISSN. 2229-5046, Vol.3, No.12, Pg. 1–7, 2012.
48. N V Nagendram "----" published by International Journal of Mathematical Archive, IJMA, ISSN. 2229-5046, Vol.3, No.10, Pg. 3612 – 3619, 2012.
49. N V Nagendram, E Sudeeshna Susila, "Applications of linear infinite dimensional system in a Hilbert space and its characterizations in engg. Maths (AL FD S HS & EM)", IJMA, ISSN.2229-5046, Vol.4, No.7, Pg. 1 – 11 (19 – 29), 2013.

50. N V Nagendram, Dr T V Pradeep Kumar, “Compactness in fuzzy near-field spaces (CN-F-NS)”, IJMA, ISSN. 2229 – 5046, Vol.4, No.10, Pg. 1 – 12, 2013.
51. N V Nagendram, Dr T V Pradeep Kumar and Dr Y Venkateswara Reddy, "Fuzzy Bi-Γ ideals in Γ semi near – field spaces (F Bi-Gamma I G)" published by International Journal of Mathematical Archive, IJMA, ISSN. 2229-5046, Vol.4, No.11, Pg. 1 – 11, 2013.
52. N V Nagendram," EIFP Near-fields extension of near-rings and regular delta near-rings (EIFP-NF-E-NR)" published by International Journal of Mathematical Archive, IJMA, ISSN. 2229 - 5046, Vol.4, No.8, Pg. 1 –11, 2013.
53. N V Nagendram, E Sudeeshna Susila, “Generalization of (∈,∈Vqk) fuzzy sub near-fields and ideals of near-fields (GF-NF-IO-NF)”, IJMA, ISSN.2229-5046, Vol.4, No.7, Pg. 1 – 11, 2013.
54. N V Nagendram, Dr T V Pradeep Kumar, "A note on Levitzki radical of near-fields (LR-NF)", Published by International Journal of Mathematical Archive, IJMA, ISSN. 2229-5046, Vol.4, No.4, Pg.288 – 295, 2013.
55. N V Nagendram, "Amalgamated duplications of some special near-fields (AD-SP-N-F)", Published by International Journal of Mathematical Archive, IJMA, ISSN. 2229-5046, Vol.4, No.2, Pg.1 – 7, 2013.
56. N V Nagendram," Infinite sub near-fields of infinite near-fields and near-left almost near-fields (IS-NF-INF-NL-A-NF)", Published by International Journal of Mathematical Archive, IJMA, ISSN. 2229-5046, Vol.4, No.2, Pg. 90 – 99, 2013.
57. N V Nagendram "Tensor product of a near-field space and sub near-field space over a near-field" published by International Journal of Mathematical Archive, IJMA, ISSN. 2229-5046, Vol.8, No.6, Pg. 8 – 14, 2017.
58. N V Nagendram, E Sudeeshna Susila, Dr T V Pradeep Kumar “Some problems and applications of ordinary differential equations to Hilbert Spaces in Engg mathematics (SP-O-DE-HS-EM)”, IJMA, ISSN.2229-5046, Vol.4, No.4, Pg. 118 – 125, 2013.
59. N V Nagendram, Dr T V Pradeep Kumar and D Venkateswarlu, "Completeness of near-field spaces over near-fields (VNFS-O-NF)" published by International Journal of Mathematical Archive, IJMA, ISSN. 2229-5046, Vol.5, No.2, Pg. 65–74, 2014
60. Dr N V Nagendram "A note on Divided near-field spaces and ϕ-pseudo – valuation near-field spaces over regular δ-near-rings (DNF-ϕ-PVNFS-O-δ-NR)" published by International Journal of Mathematical Archive, IJMA, ISSN. 2229-5046, Vol.6, No.4, Pg. 31 – 38, 2015.
61. Dr. NV Nagendram "A Note on $B_1$-Near-fields over R-delta-NR ($B_1$-NFS-R-δ-NR)", Published by International Journal of Mathematical Archive, IJMA, ISSN. 2229-5046, Vol.6, No.8, Pg. 144 – 151, 2015.
62. Dr. N V Nagendram " A Note on TL-ideal of Near-fields over R-delta-NR(TL-I-NFS-R-δ-NR)", Published by International Journal of Mathematical Archive, IJMA, ISSN. 2229-5046, Vol.6, No.8, Pg. 51 – 65, 2015.
63. Dr. N V Nagendram "A Note on structure of periodic Near-fields and near-field spaces (ANS-P-NF-NFS)", Published by International Journal of Mathematical Archive, IJMA, ISSN. 2229-5046, Vol.7, No.4, Pg. 1 – 7, 2016.
64. Dr. N V Nagendram "Certain Near-field spaces are Near-fields(C-NFS-NF)", Published by International Journal of Mathematical Archive, IJMA, ISSN. 2229-5046, Vol.7, No.4, Pg. 1 – 7, 2016.
65. Dr. N V Nagendram "Sum of Annihilators Near-field spaces over Near-rings is Annihilator Near-field space (SA-NFS-O-A-NFS)", Published by International Journal of Mathematical Archive, IJMA, ISSN. 2229-5046, Vol.7, No.1, Pg. 125 – 136, 2016.
66. Dr. N V Nagendram “A note on commutativity of periodic near-field spaces", Published by IJMA, ISSN. 2229-5046, Vol.7, No. 6, Pg. 27 – 33, 2016.
67. Dr N V Nagendram “Densely Co-Hopfian sub near-field spaces over a near-field, IMA, ISSN No.2229-5046, 2016, Vol.7, No.10, Pg 1-12.
68. Dr N V Nagendram, “Closed (or open) sub near-field spaces of commutative near-field space over a near-field”, 2016, Vol.7, No, 9, ISSN NO.2229 – 5046, Pg No.57 – 72.
69. Dr N V Nagendram, “Homomorphism of near-field spaces over a near-field “IJMA Jan 2017, Vol.8, No, 2, ISSN NO.2229 – 5046, Pg No. 141 – 146.
70. Dr N V Nagendram, “Sigma – toe derivations of near-field spaces over a near-field “IJMA Jan 2017, Vol.8, No, 4, ISSN NO.2229 – 5046, Pg No. 1 – 8.
71. Dr N V Nagendram, “On the hyper center of near-field spaces over a near-field “IJMA Feb 2017, Vol.8, No,2, ISSN NO.2229 – 5046, Pg No. 113 – 119.
72. Dr N V Nagendram, “Commutative Theorem on near-field space and sub near-field space over a near-field” IJMA July, 2017, Vol.8, No,7, ISSN NO.2229 – 5046, Pg No. 1 – 7.
73. Dr N V Nagendram, “Project on near-field spaces with sub near-field space over a near-field“, IJMA Oct, 2017, Vol.8, No,11, ISSN NO.2229 – 5046, Pg No. 7 – 15.
74. Dr N V Nagendram, “Abstract near-field spaces with sub near-field space over a near-field of Algebraic in Statistics“, IJMA Nov, 2017, Vol.8, No, 12, ISSN NO.2229 – 5046, Pg No. 13 – 22.
75. Smt. T Madhavi Latha, Dr T V Pradeep Kumar and Dr N V Nagendram, “Commutative Prime Γ-near-field spaces with permuting Tri-derivations over near-field”, IJMA Dec, 2017, Vol.8, No,12, ISSN NO.2229 – 5046, Pg No. 1 – 9.

76. Smt. T Madhavi Latha, Dr T V Pradeep Kumar and Dr N V Nagendram, "Fuzzy sub near-field spaces in Γ-near-field space over a near-field ", IJMA Nov, 2017, Vol.8, No, 12, ISSN NO.2229 – 5046, Pg No.188 – 196.
77. Smt. T Madhavi Latha, Dr T V Pradeep Kumar and Dr N V Nagendram, "Gamma Semi Sub near-field spaces in gamma near-field space over a near-field PART I", IJMA Jan, 2018, Vol. 9, No, 2, ISSN NO.2229 – 5046, Pg No.135 – 145.
78. Smt. T Madhavi Latha, Dr T V Pradeep Kumar and Dr N V Nagendram, "Gamma Semi Sub near-field spaces in gamma near-field space over a near-field PART II", IJMA 14 Feb, 2018, Vol. 9, No, 3, ISSN NO.2229 – 5046, Pg No.6 – 12.
79. Smt. T Madhavi Latha, Dr T V Pradeep Kumar and Dr N V Nagendram, "Gamma Semi Sub near-field spaces in gamma near-field space over a near-field PART III", IJMA 26 Feb, 2018, Vol. 9, No, 3, ISSN NO.2229 – 5046, Pg No.86 – 95.
80. Smt. T Madhavi Latha, Dr T V Pradeep Kumar and Dr N V Nagendram, "Gamma Semi Sub near-field spaces in gamma near-field space over a near-field PART IV", IJMA 09 Mar, 2018, Vol. 9, No, 4, ISSN NO.2229 – 5046, Pg No.1 – 14.
81. Dr N V Nagendram, "Nagendram Gamma-Semi Sub near-field spaces in gamma near-field space over a near-field", IJMA, June-2018, Vol. 9, No, 6, ISSN NO.2229 – 5046, Pg No. 58-66.
82. Dr N V Nagendram, "Topological Nagendram Gamma-Semi Sub near-field spaces in gamma near-field space over a near-field", IJMA 29 May, 2018, Vol. 9, No, 7, ISSN NO.2229 – 5046, Pg No.7 – 18.
83. Dr N V Nagendram, "Deformation Retracts of classical Nagendram Gamma-semi sub near-field spaces of a Gamma-near-field space over near-field" August, 2018, Vol. 9, No,.11, ISSN NO.2229–5046, Pg No. 64– 69.
84. Dr N V Nagendram "Representation of Nagendram Gamma-semi sub near-field spaces of a Gamma-near-field space over near-field" November 2018, IJMA, Vol. 9, No, 11, ISSN NO.2229 – 5046, Pg No.46 – 54.
85. Dr N V Nagendram "Maximal Nagendram G-semi sub near-field spaces of a G-near-field space over near-field" Jan.-2019, IJMA, Vol. 10, No, 1, ISSN NO.2229 – 5046, Pg No .47–53.

**Source of support: Nil, Conflict of interest: None Declared.**