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KALANGI NON-ASSOCIATIVE Γ-SEMI SUB NEAR-FIELD SPACE OF A Γ-NEAR-FIELD SPACE OVER NEAR-FIELD

SRI. KALANGI HARISCHANDRA PRASAD*[1]
Author cum research Scholar,
Associate Professor, Department of Science & Humanities,
Sai Tirumala MVR College of Engineering Jonnalagadda, Narasaraopeta,
Guntur District, Andhra Pradesh. INDIA.

Dr T V PRADEEP KUMAR[2]
Assistant Professor of Mathematics,
A N U College of Engineering & Technology,
Department of Mathematics, Acharya Nagarjuna University
Nambur, Nagarjuna Nagar - 522 510. Guntur District. Andhra Pradesh. INDIA.

Dr N V NAGENDRAM[3]
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.

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ABSTRACT

In this manuscript we introduce new notions on Kalangi non-associated Γ-semi sub near-field space of a Γ-near-field space over near-field, quasi non associative Γ-semi sub near-field space, K-quasi N -Γ-semi sub near-field space, quasi ideals, etc and concepts like Kalangi quasi bipotent elements and several analogous properties done in case of Γ-near-field spaces.

Keywords: *Non-associative Γ-semi sub near-field space, Kalangi-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, quasi Γ-semi sub near-field space, quasi non-associative Γ-semi near-field space.*

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SECTION 1: INTRODUCTION AND PRELIMINARIES

In this paper we together introduced several concepts and new notions in Kalangi non-associative Γ-semi sub near-field space of a Γ-near-field space over near-field like quasi non associative Γ-semi sub near-field space, K-quasi N -Γ-semi sub near-field space, quasi ideals, etc and concepts like Kalinga quasi bipotent elements and several analogous properties done in case of Γ-near-field spaces.

Definition 1.1: Let N be a Non-associative Γ-semi sub near-field space of a Γ-near-field space over near-field we say N is a Kalangi quasi non-associative Γ-semi sub near-field space (K-quasi non-associative Γ-semi sub near-field space) if N has a proper subset which is a near-field under the operations of N.

Corresponding Author: Sri. Kalangi Harischandra Prasad[1], Research Scholar, Associative professor, Department of Science & Humanities(Mathematics), Sai Tirumala MVR engineering College, Jonnalagadda, Narasarao Peta - 522 601, Guntur District, Andhra Pradesh. INDIA.
E-mail: harischandraprasadmaths@gmail.com.

Definition 1.2: Let N be a non-associative Γ-semi sub near-field space of a Γ-near-field space over near-field we say N is a Kalinga quasi non-associative Γ-semi sub near-field space (K-quasi non-associative Γ-semi sub near-field space) if N has a proper subset P such that P is a Γ-semi near-field space.

Example 1.3: Let N = $Z_8 \times Z_{12}$ be the K-mixed direct product of a near-field and a Γ-semi sub near-field space where Z_8 is the near-field of integers modulo 8 and Z_{12} is a Γ-semi near-field space under the operation '×' and '.'. M be any groupoid with unit. NM is the groupoid Γ-semi near-field space which is a K-quasi non-associative Γ-semi sub near-field space of a Γ-near-field space over near-field.

Example 1.4: Let N = $Z^0 \times Z_8$ where $Z^0 = Z^+ \cup \{0\}$ is a Γ-semi sub near-field space and Z_8 is a Γ-semi sub near-field space be the K-mixed direct product of a Γ-near-field space and a Γ-semi sub near-field space of a Γ-near-field space over near-field. Clearly, NM is a K-quasi Γ-semi sub near-field space where M is any groupoid with identity. Thus the concept of K-mixed direct product has helped us to construct non-trivial and non-abstract examples of such structures. Now for these K-quasi Γ-semi sub near-field spaces and K-quasi Γ-semi near-field spaces we can define in an analogous way concept of K-quasi ideals, K-quasi Γ-semi sub near-field space and K-quasi N-subgroup.

Definition 1.5: Let (N, +, .) be a K-quasi Γ-semi sub near-field space of a Γ-near-field space over near-field. We call a non-empty Γ-semi sub near-field space I to be a Kalangi quasi left ideal (K-quasi left ideals) in N if
(i) (I, +) is a K- Γ-semi sub near-field space
(ii) $n(n^{|} + i) + nn^{|} \in I$ and $n, n^{|} \in P$; P is a Γ-semi sub near-field space of a Γ-near-field space over near-field in N.
we say I is a K-quasi ideal if $IP \subseteq I$.

Definition 1.6: Let (N, +, .) be a K-quasi Γ-semi sub near-field space of a Γ-near-field space over near-field. We call a non-empty Γ-semi sub near-field space I to be a Kalangi quasi left ideal (K-quasi left ideals) in N if
(i) (I, +) is a subgroup.
(ii) $n(n^{|} + i) + nn^{|} \in I$ and $i \in I$, $n, n^{|} \in R$; $R \subseteq N$ and R is a ring. We say I is a K- quasi ideal if I is a K-quasi left ideal of N and $IR \subseteq I$.

Definition 1.7: Let N be a K-quasi Γ-semi sub near-field space (K-quasi Γ-semi near-field space) of a Γ-near-field space over near-field. We say N is Kalinga quasi bipotent (K-quasi bipotent) if $Pa = Pa^2$ where $P \subset N$ and P is a near-ring ($P \subset N$ and P is a semi near-ring) for every a in N.

Definition 1.8: Let N be a K-quasi Γ-semi sub near-field space (K-quasi Γ- semi near-field space) N is said to be a Kalinga quasi k-Γ-semi sub near-field space if $a \in Pa$ for each a in N where P is a proper subset N which is a near-field ($P \subset N$ and P is a Γ-semi sub near-field space).

Definition 1.9: Let N be a K-quasi Γ-semi sub near-field space of a Γ-near-field space over near-field (K-quasi Γ-semi sub near-field space) N is said to be Kalinga quasi regular (K-quasi regular) if for each a in N there exists x in P ; $P \subset N$, P is a near-field ($P \subset N$ and P is a near-field space) such that a = a(xa) = (ax)a.

Definition 1.10: A K-quasi Γ-semi sub near-field space of a Γ-near-field space over near-field (K-quasi Γ-semi sub near-field space) N is called Kalangi quasi irreducible (K-quasi irreducible) (Kalangi quasi simple) if it contains only the trivial K-quasi N-sub near-field spaces (K quasi N-Γ-semi sub near-field spaces).

SECTION 2: MAIN RESULT ON KALANGI GAMMA SEMI SUB NEAR-FIELD SPACES OF A GAMMA NEAR-FIELD SPACE OVER A NEAR-FIELD.

In this section, author present theorem as main result on Kalangi Gamma semi sub near-field spaces of a Gamma near-field space over a near-field.

The study of the quasi regular concept happens to be an interesting study in case of near-field spaces and semi near-field spaces. We leave the reader to obtain results and define K-quasi regular elements in non-associative Gamma semi sub near-field spaces of a Gamma near-field space over a near-field. As the definition of K-quasi regularity does not involve any associative or non-associative elements. This study is a routine and the reader is expected to obtain some interesting results about them.

If we define K-non-associative Γ-semi sub near-field space of a Γ-near-field space over near-field (K-quasi Γ-semi sub near-field space) N then we have several interesting results.

Theorem 2.1: Let N be a K-Γ-semi sub near-field space of a Γ-near-field space over near-field (K-quasi Γ-semi sub near-field space) having a proper subset P of N to be a commutative near-field space with unit and of a characteristic 0. L any loop of finite order. Then the near loop near-field space NL has a right quasi regular element $x = \sum \alpha_i m_i$ ($m_i \in L$) $\alpha_i \in P \subset N$ is right quasi regular then $\sum \alpha_i \neq 1$.

Proof: Let $y = \sum \beta_i h_j$ where $\beta_i \in P$ and $h_j \in L$ be the right quasi inverse of x then

$$x + y - xy = 0 \text{ i.e., } \sum \alpha_i m_i + \sum \beta_i h_j - (xy) = 0.$$

Equating the coefficients of the like terms and adding these coefficients we get

$$\sum \alpha_i + \sum \beta_i - \sum \alpha_i \sum \beta_i = 0. \text{ Or } \sum \alpha_i = \sum \beta_i - \sum \alpha_i \sum \beta_i = \sum \beta_i (\sum \alpha_i - 1).$$

Now if $\sum \alpha_i = 1$ then $\sum \alpha_i = 0$ a contradiction. Hence $\sum \alpha_i \neq 0$. This completes the proof of the theorem.

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