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

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ABSTRACT

In this manuscript we introduce Bi-Invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field lies in some maximal torus of Nagendram Γ-semi sub near-field space.

Keywords: *Invariant, Bi-invariant, characters of complex irreducible representations of compact 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.*

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SECTION-1: INTRODUCTION AND PRELIMINARIES.

In this paper author introduced PART III characters of Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field.

Definition 1.1: Let N be a Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field, and V be a finite dimensional vector space over a filed F which in classical invariant theory was usually assumed to be the complex numbers. A representation N in V is a Nagendram Γ-semi sub near-field space homomorphism $\pi : N \rightarrow NL(V)$ which induces a near-field space action of N on V. If F (V) is the near-field space of polynomial functions on V then the near-field space action of N on V produces an action on F (V) by $(n. f) (x) := f(n^{-1}(x)) \; \forall x \in V, n \in N$ and $f \in F (V)$.

With this action it is natural to consider the subspace of all polynomial functions which are invariant under this group action, in other words the set of polynomials such that $n . f = f$ for all $n \in$ N. This Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field is called a Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field is denoted by $F [V]^N$.

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Definition 1.2: Let M ≤ N be a be Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field**.** The normalizer $N_G(M)$ = N(M) of M in N is N(M) = {n ∈ N / nMn^{-1} = M}.

Note 1.3: Let M ⊆ N(M) and N(M) is a Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field.

Definition 1.4: Let N be a compact Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field, S ⊆ N a maximal torus. The Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space B = B (S, N) is B = N(S) /S.

Note 1.5: B acts on S: (nS) . b = nbn^{-1} for all b ∈ S ,nS ∈ B. We will see that S/B = N/~ (tilde) where N//~ (tilde) is the quotient of Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field N by the conjugation action.

Definition 1.6: Let N be a Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field. A function $f \in C^{\infty}$ (N) is a class function if f (y) = f (hyh^{-1}) for y, h ∈ N. we denote the space of all class functions by $C^0(N)^N$.

Definition 1.7: Let N be Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field and M ⊆ N a Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field. The centralizer Z (N) of M in N is Z (M) = { n ∈ N / nmn^{-1} = M for all m ∈ M }.

Definition 1.8: Suppose ρ : N → NL (n, C) is a representation of a Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field. Let r_{ij} : M_n (C)denote standard co-ordinate functions. The functions r_{ij} o ρ : N → C are called the matrix coefficients of the representation ρ.

More abstractly, the representation coefficients may be realized as (r_{ij} o ρ) (n) = < e_i^*, ρ(n) e_j > where {e_1, e_2, . . . , e_n} is a basis of C^n and {e_1^*, e_2^*, . . ., e_n^*} is the associated dual basis for Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field.

Definition 1.9: Let N be a Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field. A function f : N → C is representative function an abstract matrix coefficient if there is a representation ρ : N → NL(V) such that f (n) = < l, ρ(n) ξ > for some ξ ∈ V, $l \in V^*$ and for all n ∈ N. we usually such a function by $f_{V, l, \xi}$.

SECTION-2: MAIN RESULTS ON BI-INVARIANT CHARACTERS OF NAGENDRAM GAMMA SEMI SUB NEAR-FIELD SPACES OF A GAMMA NEAR-FIELD SPACE OVER A NEAR-FIELD.

In this section, author present theorem as main results on bi-invariant characters of Nagendram Gamma semi sub near-field spaces of a Gamma near-field space over a near-field.

Proposition 2.1: Let N be a Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field and M ≤ N a closed Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field. Then, N(M) is closed in N and is hence a Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field of N.

Proof: For c ∈ M consider the mapping ψ_c : N → N ; $\psi_c(n) = ncn^{-1}$. Since M is closed Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field and ψ_c is smooth, ψ_c^{-1} (M) is closed for all c∈M. Now, N(M) = $\bigcap_{c \in M} \left\{ n \in N \ / ncn^{-1} \in M \right\}$ = $\bigcap_{c \in M} \left\{ \varphi_c^{-1} (M) \right\}$ and so N(M) is closed Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field.

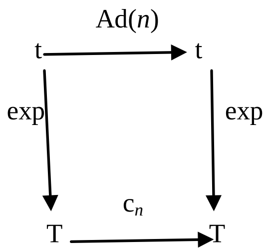
Theorem 2.2: Let N be a compact Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field, S ⊆ N a maximal torus. Then, the Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field N = N (S, N) is N = N(S)/S.

Proof: We will argue that the connected component $N(S)_0$ of 1 in N(S) is S. This will be enough since | $N(S)/N(S)_0$ | is the number of connected components of N(S).

Now, $N(S)_0$ acts on S by conjunction for all $n \in N(S)_0$ and $d \in S$, we have $ndn^{-1} = c_n(d) \in S$. Hence, $d_{nn}{}^1(t) \subseteq t$.

In other words, $Ad(n)(t) \subseteq t$. Thus, we get a Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field map Ad (.)|t : $N(S_0) \to NL(t)$ and $n \mapsto Ad(n)|t$.

Also, for any $n \in N(S)_0$.



Commutes since c_n is a Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field map. Therefore, $Ad(n)$ (ker exp) $\subseteq$ ker exp for all $n \in N(S)_0$.

Recall that Z_T := ker {ker : $t \to S$} $\cong Z^m$ where m = dim S. So, the image of Ad|t in $NL(Z_\Gamma) \cong NL(m, Z)$ is discrete. But, $N(S)_0$ is connected and so for all $n \in N(S)_0$, $Ad(n)|t$ = id. Thus, for all $X \in Nag(N(S)_0)$ [Nag = Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field] and $P \in t$ we have Ad(exp X) P = P and so [X, P] = 0. Since, t is maximal abelian, we must have $Nag(N(S)_0) \subseteq t$.

On the other hand, $S \subseteq N(S)_0$ and so $Nag(N(S)_0) = t$. Since both $N(S)_0$ and S are connected, they must be therefore be equal. This completes the proof of the theorem.

Remark 2.3: In fact, Aut(S) = {ϕ: S → S| ϕ is a Nag Γ Bi-NFS map}=NL (X_Γ).

Lemma 2.4: Let N be a compact Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field. Two elements y_1, y_2 of a maximal torus S are conjugate in N if and only if there is $n \in N = N(S)/S$ so that n . $y_1 = y_2$.

Proof: Suppose $x, y \in S$ and $y = nxn^{-1}$ for some $n \in N$. Then, $Z(y) = nZ(y)n^{-1} = c_n(Z(x))$. Since, $x \in S$ and $S \subseteq Z(x)$ we have $c_n(S) \subseteq Z(y)$.

Now, $Z(y)_0$ is compact and connected and S, $c_n(S) \subseteq Z(y)_0$ are tori. Since, both tori are maximal Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field in N, they are maximal in $Z(y)_0$. Thus, there exists $h \in Z(y)_0$ such that $c_h(n_k(S)) = S$ and so $hn \in N(S)$.

Also, $c_{hn}(x) = hnxn^{-1} = hyh^{-1} = y$ since $h \in Z(y)$. we conclude that $hnS \in N(S)/S$ and (hnS) . x = y. If x_1, $x - 2 \in S$ and $b = nS \in B$ with b . $x_1 = x_2$, then $nx_1n^{-1} = x_2$. So, x_1 and x_2 are conjugate in N. This completes the proof of the lemma.

Remark 2.5: Induced map S/B → N/∼ is a continuous bijection. Since S/B is compact Bi-invariant Nagendram Γ-semi sub near-field space of a Γ-near-field space over near-field and N/∼ is Hausdorff, this map is actually a homeomorphism.

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