

SUMMARY OF PHD DISSERTATION

Thesis title: On the character formula of irreducible representations of Lie super-algebra $gl(m/n)$.

Speciality: Algebra and Number theory

Speciality code: 62 46 01 04

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Supervisors:

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The aim of thesis:

The aim of this thesis is to give the Jacobi-Trudi type formula to compute characters of the finite dimension irreducible representations of the general linear Lie super algebras $gl(m|n)$. The content of the thesis consists of three main parts.

Part 1: Study of the Jacobi-Trudi type formula for the character of irreducible representations of $gl(m|1)$.

Part 2: Study of the Jacobi-Trudi type formula for the character of irreducible representations of $gl(m|n)$.

Part 3: Study of the character formula of irreducible representations of the general linear Lie algebras $gl(m)$.

The main results of the thesis include:

The thesis obtains the following results:

1. Show that the special weights class of Lie super-algebra $gl(m|n)$, which consists of weights whose arbitrary weights are different from this by an integer multiple of $(1, \dots, 1; -1, \dots, -1)$.
2. Let Λ be a special weight of $gl(m|1)$. We show that the character of finite dimensional irreducible representation with highest weight Λ is Jacobi-Trudi type formula. Then, we also state a consequence that the character of finite

dimensional irreducible representation with highest weight Λ , for any Λ , is the product of any power of $\frac{x_1 x_2 \dots x_m}{y}$ and the character of irreducible representation with highest weight that is the special weight.

3. Give the reduction formula for the Su-Zhang character formula of the irreducible representation with the highest weight being the special weight of $gl(m|n)$.
4. we consider the special weight of form $\Lambda = (\alpha_1, \alpha_2, \dots, \alpha_m; -k, -k_2, \dots, -k)$ of the Lie super-algebra $gl(m|n)$. We show that the character of finite dimensional irreducible representation with highest weight Λ is Jacobi-Trudi type formula.
5. Give the inductive form for the Weyl character formula in the case of $gl(m)$.

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Supervisors

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