

Quivers and Representations II

August 2–3, 2007

以下のとおり，研究集会を催しますのでご案内申し上げます．

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場所：大阪市立大学大学院理学研究科数学講究室 (3040)

プログラム

- 8月2日(木)

13:00-14:00 Zongzhu Lin (Kansas State University)

AR quiver approach to canonical basis.

14:30-15:30 Yoshiyuki Kimura (Kyoto University)

Affine quiver and the crystal base $B(\infty)$.

16:00-17:00 Naoya Enomoto (Kyoto University)

Symmetric crystals and the Lascoux-Leclerc-Thibon-Ariki type conjectures for the affine Hecke algebra of type B . (joint work with Masaki Kashiwara)

- 8月3日(金)

10:30-11:30 Zongzhu Lin (Kansas State University)

Realizing the whole Kac-Moody Lie algebras and the whole quantum group.

13:00-14:00 Kentaro Nagao (Kyoto University)

Quiver varieties and q -Fock spaces.

14:30-15:30 Masaharu Kaneda (Osaka City University)

Beilinson's lemma on the projective spaces revisited.

アブストラクト

Lin: AR quiver approach to canonical basis.

Given an orientation of affine Dynkin quiver, its Ar quiver is known. In this talk I will show how to construct and realize the canonical basis from the AR quiver.

Kimura: Affine quiver and the crystal base $B(\infty)$.

In this talk, we study explicit relationship between canonical basis (as simple perverse sheaves) and geometric construction of the crystal $B(\infty)$ by using Lusztig's quiver varieties (as conormal bundles). More precisely, we give some estimates of singular support of canonical basis of affine quivers and determine the bijection preserving the crystal structure.

Enomoto: Symmetric crystals and the Lascoux-Leclerc-Thibon-Ariki type conjectures for the affine Hecke algebra of type B .

The Lascoux-Leclerc-Thibon-Ariki theory gives a crystal structure on the K -group of the representations of the affine Hecke algebras of type A and describes certain composition multiplicities by using the upper global basis of $U_q^-(gl_\infty)$ or $U_q^-(\hat{sl}_{\ell-1})$.

In the first half of this talk, we will review the LLTA theory for the affine Hecke algebra of type A . In the latter half, we will introduce the notion of symmetric crystals and formulate the LLTA type conjectures for the affine Hecke algebras of type B .

Lin: Realizing the whole Kac-Moody Lie algebras and the whole quantum group.

We will consider the Hall algebra of a tensor product of a quiver with another quiver. Applications of this give realization to the entire kac-Moody Lie algebra and quantum groups (not just the positive part) from the Hall algebra.

Nagao: Quiver varieties and q -Fock spaces.

In this talk I will give an overview of the relationship between geometry of quiver varieties of type \hat{A} and theory of q -Fock spaces. In both contexts we have crystal structures, actions of the quantum toroidal algebra and actions of the Hall algebra. I have some results on the first two objects. More careful study on connections between these three is expected.

Kaneda: Beilinson's lemma on the projective spaces revisited.

TBA

旅費の援助ができる可能性がありますので、希望者は7月24日までにご連絡下さい
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