Lie Groups and Representation Theory Seminar
at the University of Tokyo
リー群論・表現論セミナー

DATE November 15 (Tue), 2011, 16:30–18:00

PLACE Room 126, Graduate School of Mathematical Sciences

SPEAKER **Laurant Demonet** (Nagoya University)

TITLE Categorification of cluster algebras arising from unipotent subgroups of non-simply laced Lie groups

ABSTRACT We introduce an abstract framework to categorify some anti-symetrizable cluster algebras by using actions of finite groups on stably 2-Calabi–Yau exact categories. We introduce the notion of the equivariant category and, with similar technics as in [K], [CK], [GLS1], [GLS2], [DK], [FK], [P], we construct some examples of such categorifications. For example, if we let Z/2Z act on the category of representations of the preprojective algebra of type A2n-1 via the only non trivial action on the diagram, we obtain the cluster structure on the coordinate ring of the maximal unipotent subgroup of the semi-simple Lie group of type Bn [D]. Hence, we can get relations between the cluster algebras categorified by some exact subcategories of these two categories. We also prove by the same methods as in [FK] a conjecture of Fomin and Zelevinsky stating that the cluster monomials are linearly independent.

References

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