

Algebra/Topology Seminar

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DUAL FILTERED GRAPHS FOR KAC–MOODY ALGEBRAS

Thursday, March 28, 2024

3:00 p.m. in BB-B010

ABSTRACT. We introduce a family of dual filtered graded graphs (Γ_s, Γ_w) for an arbitrary Kac–Moody algebra g . These dual filtered graded graphs have the Weyl group W of g as their vertex set. The edges of graph Γ_s are labeled versions of the λ -chain model of K-Chevalley rules for Kac–Moody flag manifolds as developed by Lenart and Shimozono, originally defined by Lenart and Postnikov. Meanwhile, the labels on Γ_w come from the dual multiplication map of K-homology of affine Grassmannian Gr_G . In the limit $n \rightarrow \infty$ of the $A_{n-1}^{(1)}$, our construction recovers the Möbius construction of the dual filtered graph, as previously studied by Patrias and Pylyavskyy. We also expect to recover their combinatorics of Möbius deformation of the shifted Young’s lattice in type $C_n^{(1)}$ as n approaches infinity. This research is conducted jointly with Mark Shimozono.