

2022 代数组合研讨会（线上）

2022 年 6 月 18 日

6 月 18 日上午， 腾讯会议：997-361-671	
8:10-8:15	开幕式
主持人：杨立波	
8:15-9:00	黄道骥（明尼苏达大学） Bumpless pipe dream RSK, growth diagrams, and Schubert structure constants
9:00-9:45	卢明（四川大学） From quantum groups to i-quantum groups
9:45-10:00	休息
主持人：范久瑜	
10:00-10:45	付昌建（四川大学） On support τ -tilting graphs of finite-dimensional algebras
10:45-11:30	于世卓（南开大学） Polyubles and Poisson homogeneous spaces
6 月 18 日上午， 腾讯会议：997-361-671	
主持人：付昌建	
14:15-15:00	耿圣飞（四川大学） Denominators of cluster monomials for some surface cluster algebras
15:00-15:45	李彦鹏（四川大学） Crystals via tropicalization
15:45-16:00	休息
主持人：于世卓	
16:00-16:45	张逸枫（香港科技大学） Molecules of Gelfand S_n -graphs

报告摘要

On support τ -tilting graphs of finite-dimensional algebras

付昌建（四川大学）

Abstract: Support τ -tilting graph of a finite dimensional algebra A is the dual graph of simplicial complex associated to A . In this talk, we will review basic properties, problems and recent progress related to it. Part of this talk is based on joint work with S. Geng, P. Liu and Y. Zhou.

Denominators of cluster monomials for some surface cluster algebras

耿圣飞（四川大学）

Fomin-Zelevinsky has conjectured that for a cluster algebra with a given initial seed, different cluster monomials have different denominators. In this paper, we show that for some surface cluster algebras with an admissible initial seed, different cluster monomials have different denominators. In particular, we get that for cluster algebras of type A , C , D and \widetilde{A} , different cluster monomials have different denominators for any given initial seed. This talk is based on joint work with Changjian Fu.

Bumpless pipe dream RSK, growth diagrams, and Schubert structure constants

黄道骥（明尼苏达大学）

We introduce analogs of left and right RSK insertion for Schubert calculus of complete flag varieties. The objects being inserted are certain biwords, the insertion objects are bumpless pipe dreams, and the recording objects are decorated chains in Bruhat order. As an application, we adopt Lenart's growth diagrams of permutations to give a combinatorial rule for Schubert structure constants in the separated descent case. This is joint work with Pavlo Pylyavskyy.

Crystals via tropicalization

李彦鹏（四川大学）

In this talk, I will first recall the notion of Kashiwara crystals and geometric crystals. Using tropicalization, we shall recover the combinatorial expressions for tensor product multiplicities and for reduction multiplicities to Levi subgroups obtained by Berenstein-Zelevinsky in 2001 and generalize them in several directions. This is joint work with Arkady Berenstein.

From quantum groups to i-quantum groups

卢明（四川大学）

A quantum symmetric pair consists of a quantum group and its coideal subalgebra (called an i-quantum group). A quantum group can be viewed as an example of i-quantum groups associated to symmetric pairs of diagonal type. In this talk, I should give a brief introduction to quantum groups and i-quantum groups.

Polyubles and Poisson homogeneous spaces

于世卓（南开大学）

Polyubles are constructions of "n-th power" of Manin triples, which can be used to construct a class of Poisson structures on homogeneous spaces. In this talk, we first introduce a class of isomorphisms between them. Then, we apply these isomorphisms to a class of Poisson homogeneous spaces, including concrete examples related to multi-flag varieties.

Molecules of Gelfand S_n -graphs

张逸枫（香港科技大学）

A Gelfand model for an algebra is a module isomorphic to a direct sum of irreducible modules, with every isomorphism class of irreducible modules represented exactly once. We generalize constructions of Adin, Postnikov, and Roichman and construct two Gelfand models for the associated Iwahori-Hecke algebra of classical finite Coxeter groups. Our Gelfand models have interesting "canonical bases" that give rise to associated W -graphs. We classify the molecules in these W -graphs when W is a symmetric group, and conjecture that in type A every molecule is a cell.