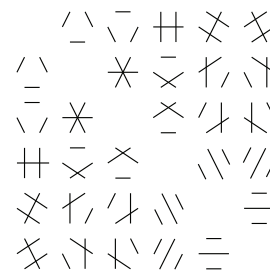# Mathematics Seminar

Rocky Mountain Algebraic Combinatorics Seminar

Tableau statistics and symmetric functions arising in the study of Delta-Springer varieties

Sean Griffin

UC Davis

Hall–Littlewood polynomials are a remarkable family of symmetric functions that have several nice formulas in terms of tableaux statistics. They continue to have important applications in representation theory, where they encode representations of the symmetric group arising from geometry. In this talk, I will introduce a new family of symmetric functions (and associated combinatorial statistics) that unify Hall–Littlewood polynomials with symmetric functions appearing in the Delta Conjecture (at $t = 0$). I'll mention how these new symmetric functions encode geometric data about a new class of varieties called the Delta-Springer varieties. This is partially based on joint work with Jake Levinson and Alexander Woo.

This is the second in a set of two (independent) talks. In the first talk on Thursday in FRAGMENT, I will introduce the Delta-Springer varieties. No knowledge about these varieties will be assumed in Friday's talk.

Lazy Tournaments, Parking Functions, and Moduli of Curves

Maria Gillespie

CSU

We present a combinatorial algorithm on trivalent trees that we call a lazy tournament, which gives rise to a new geometric interpretation of the multidegrees of a projective embedding of the moduli space $M_{0,n}$-bar of stable n-marked genus 0 curves. We will show that the multidegrees are enumerated by disjoint sets of boundary points of the moduli space that can be seen to total $(2n-7)!!$, giving a natural proof of the value of the total degree. These sets are compatible with the forgetting maps used to derive the previously known recursion for the multidegrees, and are in bijection with the previously known combinatorial interpretation in terms of parking functions.

If time permits, we will mention forthcoming work on realizing the tournament points and other similar combinatorial interpretations in terms of degenerations of explicit families of hyperplanes. This is joint work with Sean Griffin and Jake Levinson.

Weber 223
4–6 pm, Friday, Sep 3, 2021
(Refreshments 3:30–4 pm)
Colorado State University

This is a joint Denver U / UC Boulder / UC Denver / U of Wyoming / CSU seminar that meets biweekly.
Anyone interested is welcome to join us at a local restaurant for dinner after the talks.

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