Flow polytopes of graphs
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EMILY BARNARD, DePaul University
Pairwise Completability for 2-Simple Minded Collections

Let Λ be a basic, finite dimensional algebra over an arbitrary field, and let mod(Λ) be the category of finitely generated right modules over Lambda. A 2-term simple minded collection is a special set of modules that generate the bounded derived category for mod(Λ). In this talk we describe how 2-term simple minded collections are related to certain simplicial fans, and we show how to model 2-term simple minded collections for the preprojective algebra of type A.

AVERY ST. DIZIER, University of Illinois, Urbana-Champaign
Flow Polytopes and Grothendieck polynomials

I will first describe a process for subdividing certain flow polytopes into simplices, due to Meszaros. Then, I will explain a connection between a polynomial invariant of the resulting simplices and a family of Grothendieck polynomials.

JIHYEUG JANG, Sungkyunkwan University
Volumes of flow polytopes related to the caracol graphs

Recently, Benedetti et al. introduced an Ehrhart-like polynomial associated to a graph. This polynomial is defined as the volume of a certain flow polytope related to a graph and has the property that the leading coefficient is the volume of the flow polytope of the original graph with net flow vector $(1, 1, \ldots, 1)$.

Benedetti et al. conjectured a formula for the Ehrhart-like polynomial of what they call a caracol graph. In this talk we prove their conjecture using constant term identities, labeled Dyck paths, and a cyclic lemma.

KAROLA MÉSZÁROS, Cornell University
Flow polytopes in combinatorics and algebra

The flow polytope $\mathcal{F}_G(\mathbf{v})$ is associated to a graph G on the vertex set $\{1, \ldots, n\}$ with edges directed from smaller to larger vertices and a netflow vector $\mathbf{v} = (v_1, \ldots, v_n) \in \mathbb{Z}^n$. Postnikov and Stanley established a remarkable connection of flow polytopes and Kostant partition functions two decades ago, developed further by Baldoni and Vergne. Since then, flow polytopes have been discovered in the context of Schubert and Grothendieck polynomials and the space of diagonal harmonics, among others. This talk will survey a selection of results about the ubiquitous flow polytopes.

MARTHA YIP, University of Kentucky
A unifying framework for the ν-Tamari lattice and principal order ideals in Young's lattice

We present a unifying framework in which the ν-Tamari lattice, introduced by Préville-Ratelle and Viennot, and principal order ideals in Young's lattice indexed by lattice paths ν, are realized as the dual graphs of two triangulations of a family of flow polytopes. The first triangulation gives a new geometric realization of the ν-Tamari complex introduced by Ceballos, Padrol and Sarmiento. The second triangulation shows that the h^*-vector of this family of flow polytopes is given by the ν-Narayana numbers, extending a result of Mészáros. This is joint work with von Bell, González D'León, and Mayorga Cetina.