

# The algebraic and combinatorial structure of generalized permutahedra.

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Generalized permutahedra are a beautiful family of polytopes which are known to have a rich combinatorial structure. We explore the Hopf algebraic structure of this family, and use it to unify old results, prove new results, and answer open questions about families of interest such as graphs, matroids, posets, trees, set partitions, building sets, hypergraphs, and simplicial complexes.

The talk will be based on joint work with Marcelo Aguiar, and will assume no previous knowledge of Hopf algebras or generalized permutahedra.