

Title: The Universal Family of Marked Poset Polytopes

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Abstract: We quickly review poset polytopes, Gelfand-Tsetlin and Feigin-Fourier-Littelmann-Vinberg polytopes, as well as their common generalization as marked poset polytopes. We then introduce a continuous family of marked poset polytopes, parametrized by a unit hypercube, whose extremal cases include all marked chain-order polytopes, in particular the marked order and the marked chain polytope. The universal family continuously interpolates between all of these and combinatorial types stay constant along relative interiors of faces of the cube. We present a common polyhedral subdivision for all polytopes in the family. The vertices of the subdivision coincide with the vertices of the polytope in the generic case, i.e. for interior points of the parametrizing cube. We hope to gain better knowledge on the face structure of all marked poset polytopes by studying the generic case and how it degenerates. This is joint work with Xin Fang, Ghislain Fourier and Jan-Philipp Litza.