

Title: Toric degenerations from representation theory, tropical geometry and cluster algebras

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Abstract: In this talk I will explain how toric degenerations arise from the tropicalization of a (projective) variety. In the context of varieties that are interesting from a representation theoretic point of view (e.g. Grassmannians or flag varieties) I will explain a construction of toric degenerations due to Fang, Fourier, and Littelmann called birational sequences and compare to degenerations obtained from the cluster structure on these varieties. I will present many examples and some results on how these constructions are related. For example, I will present computational results on the tropicalization of the full flag variety for $n=4$ and 5 and compare the obtained toric degenerations to some classical degenerations from representation theory (string polytopes and the FFLV polytope) that arise in the context of birational sequences.