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Rational Curves in Projective Toric Varieties

I will discuss joint work with Jake Levinson in which we study embedded rational curves in projective toric varieties from a combinatorial perspective. We show that any degree d rational curve in a toric variety can be constructed from a special affine-linear map called a degree d Cayley structure. We characterize when the curves coming from a degree d Cayley structure are smooth and have degree d . We then use this to establish a bijection between the set of irreducible components of the Hilbert scheme whose general element is a smooth degree d curve, and so-called maximal smooth Cayley structures.