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Mapping toric varieties into small dimensional spaces

A smooth d -dimensional projective variety X can always be embedded into $2d + 1$ -dimensional space. In contrast, a singular variety may require an arbitrary large ambient space. If we relax our requirement and ask only that the map is injective, then any d -dimensional projective (resp. affine) variety can be mapped injectively to $2d + 1$ -dimensional projective space (resp. affine). Focusing on the affine case, a natural question then arises: what is the minimal m such that an affine variety can be mapped injectively to m -dimensional affine space? In this talk I discuss this question for the affine cones over normal toric varieties, with the most complete results being for the affine cones over Segre-Veronese varieties.

(joint work with Jack Jeffries)