

Toric varieties with isolated singularities and smooth normalization

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Let us denote by $X(S) \subset \mathbb{C}^p$ the toric variety given by the semigroup $S \subset \mathbb{Z}^s$. In the case of affine normal toric varieties it is well known that the semigroup $S = \check{\sigma} \cap \mathbb{Z}^s$, where $\check{\sigma} \subset \mathbb{R}^s$ is a strongly convex cone. And for normal toric surfaces there is a normal form for $\check{\sigma}$, which facilitates the study of these surfaces. As far as we know, there is no analogous result for the non-normal case. Moreover, for toric varieties of higher dimension, there is no similar normal form describing the combinatorics, even in the normal case. In this work, given $X(S) \subset \mathbb{C}^{2s}$ a s -dimensional toric variety with isolated singularity at the origin and smooth normalization, we present a general form for the semigroup S which defines this variety. This is a joint work with Maria Elenice Rodrigues Hernandes and Maria Aparecida Soares Ruas.

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