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4. Algebraic Geometry

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Quasi–Projective Reduction of Toric Varieties

I intend to present joint work with J. Hausen (Konstanz). We define a quasi–projective reduction of a complex algebraic variety X to be a regular map from X to a quasi–projective variety that is universal with respect to regular maps from X to quasi–projective varieties. A toric quasi–projective reduction is the analogous notion in the category of toric varieties. For a given toric variety X we can construct a toric quasi–projective reduction. Then we obtain that X has a quasi–projective reduction if and only if its toric quasi–projective reduction is surjective. This result is applied to characterize when the action of a subtorus on a quasi–projective toric variety admits a categorical quotient in the category of quasi–projective varieties.

Reference: A. A'Campo–Neuen and J. Hausen, Quasi–Projective Reduction of Toric Varieties, *Konstanzer Schriften in Mathematik und Informatik* **51** (1998).