Numerical semistability of projective toric varieties

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摘要： Numerical semistability is one notion of GIT stability, which is defined by the inclusion of the weight polytopes (Chow/Hurwitz polytopes).

It was proved by Paul that the K-energy of a smooth linearly normal projective variety X restricted to the Bergman metrics is bounded from below if and only if it is semistable.

In this talk, we provide a necessary and sufficient condition for a given smooth toric variety X_P to be numerically semistable, building upon the works of Gelfand-Kapranov-Zelevinsky (A-Resultants/A-Discriminants). Applying this result to a smooth polarized toric variety (X_P, L_P), we prove that (X_P, L_P) is asymptotically numerically semistable if and only if it is K-semistable in the toric sense.

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