

**Title:** Toric Varieties

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**Abstract:** In algebraic geometry, a toric variety refers to an algebraic variety containing an algebraic torus, on which the canonical action of the torus on itself extends. Toric varieties form a rich class of algebraic varieties which can be described in a combinatorial way and which are also closely related to convex geometry. In modern Diophantine analysis, toric varieties are also used to give geometric interpretations of classic Diophantine problems.

The purpose of this project is to study toric varieties from diverse points of view, and also modern research topics according to the flavour of the participants such as: proof of inequalities of convex geometry via Hodge index theorem, Okounkov bodies, heights on toric varieties etc.