BOSTON UNIVERSITY GEOMETRY SEMINAR

Equivariant birational maps and partial resolutions of categorical quotients

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Tea 3:45-4 in MCS 144.

Abstract: Abstract: If X^{ss} is the set of semi-stable points for a linearized action of a reductive group on a smooth projective variety X then there two procedures (Kirwan's procedure or change of linearization) for constructing a partial resolution of singularities of the categorical quotient X^{ss}/G. Both involve finding an equivariant birational map $\tilde{X} \to X^{ss}$ with $\tilde{X}$ smooth such that G acts properly on $\tilde{X}$ and the induced map on quotients is proper and birational.

A natural question to ask is whether (and to what extent) this procedure can be replicated for non-GIT quotients. We consider the problem for actions of diagonalizable groups and show that there is a simple combinatorial procedure that replicates Kirwan's construction for non-projective toric varieties. We also explain potential applications to intersection theory on Artin toric stacks.