

PMath 965 - Topics in Geometry and Topology -

Mirror Symmetry for Toric Varieties and other GIT quotients

Course Description

GIT quotients of vector spaces $V//G$ and their representation theoretic subvarieties form the basis of most constructions of mirror symmetry. The focus of this course will be to explore mirror symmetry for Fano varieties of this form. Topics covered will include: the basics of geometric invariant theory (GIT), toric varieties via GIT. Batyrev–Borisov mirror symmetry and Berglund–Hübsch mirror symmetry. Quantum cohomology and the moduli space of stable maps, I functions and J functions. The mirror theorem for toric complete intersections. Abelian/non-Abelian correspondence and applications to quantum cohomology, J functions, and mirror symmetry. Applications of mirror symmetry to the Fanosearch programme.