

Queen's Algebraic Geometry — Seminar —

MIRROR SYMMETRY: ALGEBRAIC VS. DIFFERENTIAL GEOMETRY

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Abstract

The mirror symmetry phenomenon of physical string theory predicts that certain varieties come in pairs (X, Y) that should determine ‘the same physics’. Essentially all known examples of mirror pairs come from convex polytopes. More precisely, they arise as hypersurfaces or complete intersections in projective toric varieties, and mirror duality comes from duality of polytopes. I will sketch this construction due to Batyrev. Strominger-Yau-Zaslow gave a different (conjectural) interpretation of mirror symmetry as duality of torus fibrations over the same base. These dual fibrations should give rise to ‘dual’ integral affine structures on the base. I will describe a combinatorial model for these structures in the case of Batyrev mirror pairs. Joint work with Ilia Zharkov.

Monday, April 11, 2005
2:30pm – 3:30pm
422 Jeffery Hall