Mathematics > Symplectic Geometry

Lagrangian fibrations on blowups of toric varieties and mirror symmetry for hypersurfaces

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We consider mirror symmetry for (essentially arbitrary) hypersurfaces in (possibly noncompact) toric varieties from the perspective of the Strominger-Yau-Zaslow (SYZ) conjecture. Given a hypersurface H in a toric variety V we construct a Landau-Ginzburg model which is SYZ mirror to the blowup of $V\times\C$ along $H\times 0$, under a positivity assumption. This construction also yields SYZ mirrors to affine conic bundles, as well as a Landau-Ginzburg model which can be naturally viewed as a mirror to H. The main applications concern affine hypersurfaces of general type, for which our results provide a geometric basis for various mirror symmetry statements that appear in the recent literature. We also obtain analogous results for complete intersections.

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