

BOSTON UNIVERSITY GEOMETRY AND PHYSICS SEMINAR

MIRROR SYMMETRY FOR Q-FANO 3-FOLDS

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CCDS 365, Jan 25, 2023, 4-5pm

Tea: 3:45pm in Room 365

Abstract: This is a report on work of my graduate student Cristian Rodriguez. A Q-Fano 3-fold is a complex projective variety with mild singularities such that its 1st Chern class is positive. Q-Fano 3-folds with $b_2=1$ arise as end products of Mori's minimal model program. Thousands of families are expected, whereas there are only 17 in the smooth case. We will describe mirror symmetry for Q-Fano 3-folds in terms of the Strominger–Yau–Zaslow conjecture and Kontsevich's homological mirror symmetry conjecture, building on work of Auroux. The mirror of a Q-Fano 3-fold is a K3 fibration over the affine line such that the total space is log Calabi–Yau and some power of the monodromy at infinity is maximally unipotent. In 95 cases the Q-Fano is realized as a hypersurface in weighted projective space and we describe the mirror K3 fibration explicitly.

See <http://math.bu.edu/research/geom/seminar.html> or contact Yu-Shen Lin (yslin@bu.edu) or Brian Williams (bwill22@bu.edu) for more information.