

Northeastern University



Mathematics Department

Geometry, Physics, and Representation Theory Seminar

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Thursday, February 13, 2:50-3:50 pm, Lake Hall 509

On the some examples of family Floer mirrors

Abstract

Strominger-Yau-Zaslow conjecture predicts the existence of special Lagrangian fibrations on Calabi-Yau manifolds and provides an recipe for the construction of mirrors via dual torus fibration. Due to the analytic difficulty of the original conjecture, Kontsevich-Soibelman and Gross-Siebert developed an algebraic algorithm to construct the mirror. The symplectic counterpart is the family Floer homology introduced by Fukaya. However, there are not many explicit examples of the family Floer mirrors are computed, due to the lack of control of the holomorphic discs in a given geometry. In this talk, we will provide some log Calabi-Yau surfaces and the idea how to compute the family Floer mirror explicitly. In particular, by comparing with the construction of mirrors in the work of Gross-Hacking-Keel, this motivates some conjectures of the existence of Ricci-flat metric on some log Calabi-Yau surfaces. This is a joint work in progress with Man-Wai Cheung.