Curve counting on elliptically fibered Calabi-Yau 3-folds

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Abstract.

Let X be a Calabi-Yau threefold and let $X \to S$ be an elliptic fibration with integral fibers. I will explain how to use a derived auto-equivalence and wallcrossing to prove a functional equation for the generating series of Pandharipande-Thomas invariants of X (over irreducible classes in the base). This yields a structure result for such series in terms of Jacobi forms and some form of Noether-Lefschetz data of the fibration (conjectured to be modular form).

This is joint work with Junliang Shen.