

Moduli of enhanced CY threefolds and closed GW invariants

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Lecture 1: I will review the theory of quasi-modular forms and their role as generating function of ramified covering of elliptic curves. In particular, I will explain how Ramanujan differential equation is derived in a geometric framework of enhanced elliptic curves.

Lecture 2: I will explain the theory of CY modular forms for the mirror quintic CY3, and their role as generating function of genus g Gromov-Witten invariants. In particular, I will explain the derivation of BCOV anomaly equation in the framework of enhanced mirror quintic CY3s.

Lecture 3. I will review some computations in the B-model side of mirror symmetry for computing open Gromov-Witten invariants. This is mainly based on the works of J. Walcher. The main idea is to reproduce the geometric machinery of the previous lectures in the open case (undergoing work with E. Scheidegger).