Kaleidoscopes, Waves, and the Prepotential

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Abstract

Many Calabi-Yau manifolds admit flop transitions that act as reflections on Kähler moduli space. Such flops generate discrete symmetry groups called Coxeter groups, which enforce a Coxeter-symmetric prepotential. The prepotential becomes an eigenfunction of a Laplace-Beltrami operator on the moduli space, where worldsheet instantons correspond to plane waves and resum into Bessel and Jacobi theta functions. These special functions imply relations among the enumerative invariants of the CY. While instanton contributions converge quickly at the large volume point in the usual representation, the "momentum space" representation of these plane waves converges efficiently in the interior of the moduli space.

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