

# Gromov-Witten invariants of varieties with holomorphic two-forms

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Gromov-Witten invariants (GW-invariants, for short) have been quite useful in algebraic geometry from enumerative problems to mirror symmetry and various effective techniques have been contrived such as the localization by torus action (Kontsevich, Graber-Pandharipande, Givental), the degeneration method (J.Li, Ionel-Parker) and the quantum Lefschetz hyperplane principle (Kontsevich, B.Kim, Givental-Coates), to name a few. The purpose of our current project is to provide a new method for computing GW-invariants, namely the method of *localization by holomorphic two-form*. More precisely, we prove that the virtual fundamental class of the moduli space of stable maps to a smooth projective variety equipped with a holomorphic two-form is localized to the locus of stable maps to the degeneracy locus of the two-form. This gives a few surprising vanishing results of Gromov-Witten invariants. Furthermore, based on the observation of the localizing phenomenon, we define localized GW-invariants and prove a conjecture by Maulik and Pandharipande about the GW-invariants of surfaces of general type.

This is a joint work with Jun Li at Stanford.