

## **BV differentials and Derived Lagrangian intersections in moduli spaces of surfaces on Fano and CY threefolds**

We elaborate on construction of a derived Lagrangian intersection theory on moduli spaces of divisors on compact Calabi Yau threefolds. Our goal is to compute deformation invariants associated to a fixed linear system of divisors in CY3. We degenerate the CY3 into a normal crossing singular variety composed of Fano threefolds meeting along a K3. The deformation invariance arguments, together with derived Lagrangian intersection counts over the special fiber of the induced moduli space degeneration family, provides one with invariants of the generic CY fiber. This is report on several joint projects in progress with Ludmil Katzarkov, Tony Pantev, Vladimir Baranovsky and Maxim Kontsevich.