

Refined Gromov-Witten invariants

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I will discuss a definition of refined curve counting invariants of local Calabi-Yau threefolds in terms of equivariant stable maps counts on Calabi-Yau fivefolds. The corresponding generating function conjecturally reproduces the refined BPS index and the Nekrasov-Okounkov K-theoretic membrane index under a refined version of the Gromov-Witten/Gopakumar-Vafa/Pandharipande-Thomas correspondences. Physically, the proposal gives an algebro-geometric worldsheet construction of refined topological strings. I'll present several acid tests validating the conjecture, both in the A and the B-model. Joint work with Yannik Schuler (ETH Zurich).