

abstract

Joint IAS-PU Symplectic Geometry Seminar
Topic:

Speaker:

Affiliation:

Date:

Time/Room:

Over 15 years ago, di Francesco and Itzykson gave an estimate on the growth (as the degree increases) of the number of plane rational curves passing through the appropriate number of points. This provides an example of an upper bound on (primary) Gromov-Witten invariants. Physical considerations suggest that primary GW-invariants of Calabi-Yau threefolds, of any given genus, grow at most exponentially in the degree. For the genus 0 and 1 GW-invariants of projective complete intersections, this can be seen immediately from the known mirror formulas. Maulik and Padharipande expect that such a bound in higher genera can be deduced from a suitable bound on the genus 0 descendant GW-invariants of P^3 .

I will describe a formula that presents generating functions for the genus 0 GW-invariants of any complete intersection with any number of marked points as linear combinations of derivatives of the well-known generating function for GW-invariants with 1 marked point. Estimates on the coefficients lead to bounds on GW-invariants of all projective complete intersections. Even without any estimates, the structure of this formula leads to fascinating vanishing results, which do not appear to have any geometric explanation at this point.