Stanford Algebraic Geometry Seminar

HIRZEBRUCH-RIEMANN-ROCH THEOREM IN QUANTUM COBORDISM THEORY

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Abstract

Moduli spaces of stable maps in Gromov-Witten theory come equipped not only with virtual fundamental classes but also with virtual tangent bundles. Intersection numbers against characteristic classes of these bundles yield new Gromov-Witten invariants. The initial goal of the project, which is a joint work of Tom Coates and the speaker, was to express these new invariants via the old ones (i.e. not involving these characteristic classes). It turns out that not only the expression is possible but it can be given a very elegant formulation. However in order to give this formulation we need, reviving a point of view of Kontsevich and Morava, to consider the new intersection numbers as Gromov-Witten invariants with values in complex cobordisms and to interpret the whole problem as a quantum version of the Hirzebruch-Riemann-Roch theory corresponding to the Chern-Dold character from the cobordisms to cohomology.

Friday, May 9
3:30 p.m.
Room 383-N

http://math.stanford.edu/~vakil/seminar0203/