

Stanford Algebraic Geometry Seminar

VANISHING OF COHOMOLOGY CLASSES ON THE MODULI SPACE OF CURVES

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Abstract:

I will discuss a theorem (with T. Graber) that all codimension i tautological classes on the moduli space of curves are trivial away from boundary strata corresponding to curves with at least $i - g + 1$ rational components. (I will define the moduli space and its tautological ring.) In some sense, this is the geometric content behind many vanishing conjectures and theorems on moduli spaces of curves (due to Getzler, Ionel, Faber, Looijenga, Pandharipande, Diaz, and others). I will show how the theorem implies these various results via straightforward graph combinatorics, and how in most cases it extends them. This suggests the potential importance of a strange stratification of the moduli space of curves by number of rational components. If there is time, I will discuss some of the ideas behind the proof, which uses virtual localization on J. Li's algebro-geometric space of relative stable maps.

Friday, October 11

4:15 p.m.

Room 383-N

NOTE new room and time (second change!), this week only.

<http://math.stanford.edu/~vakil/seminar.html>.