

Stanford Algebraic Geometry — Seminar —

A DESINGULARIZATION OF THE MODULI SPACE OF STABLE GENUS-ONE MAPS

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Abstract

The main component $\overline{M}_{1,k}^0(\mathbb{P}^n, d)$ of the moduli space of stable genus-one maps in the projective space is the closure of the space of such maps that have smooth domains. Thus, counts of genus-one curves (rather than the Gromov-Witten invariants) in the projective space correspond to integrals over this space. However, such integrals arise in the Gromov-Witten theory as well. In contrast to the genus-zero case, $\overline{M}_{1,k}^0(\mathbb{P}^n, d)$ is only part of the entire moduli space of genus-one maps and is singular. I will describe a natural desingularization of $\overline{M}_{1,k}^0(\mathbb{P}^n, d)$ and of certain sheaves over $\overline{M}_{1,k}^0(\mathbb{P}^n, d)$. Combined with the classical localization theorem and recent results in the GW-theory, these desingularizations make it possible to compute genus-one enumerative invariants of projective spaces and Gromov-Witten invariants of complete intersections.

Tuesday, January 10 (Note unusual date and time, changed again on
Monday!)

4 pm
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<http://math.stanford.edu/~vakil/s0506/>