Mathematics, Statistics, and Computer Science **@ UIC**

Algebraic Geometry Seminar

Witten conjecture for Mumford's kappa classes

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Abstract: Kappa classes were introduced by Mumford, as a tool to explore the intersection theory of the moduli space of curves. Iterated use of the projection formula shows there is a close connection between the intersection theory of kappa classes on the moduli space of unpointed curves, and the intersection theory of psi classes on all moduli spaces. In terms of generating functions, we show that the potential for kappa classes is related to the Gromov-Witten potential of a point via a change of variables essentially given by complete symmetric polynomials, rediscovering a theorem of Manin and Zokgraf from '99. Surprisingly, the starting point of our story is a combinatorial formula that relates intersections of kappa classes and psi classes via a graph theoretic algorithm (the relevant graphs being dual graphs to stable curves). Further, this story is part of a large wall-crossing picture for the intersection theory of Hassett spaces, a family of birational models of the moduli space of curves. This is joint work with Vance Blankers (arXiv:1810.11443) .

Wednesday, October 31 at 4:00 PM in 427 SEO