

INTERSECTION NUMBERS ON THE HILBERT SCHEME OF POINTS ON SURFACES

Speaker: Amin Gholampour (Maryland), Apr. 15, 2016

Abstract: Carlsson-Okounkov expressed the Chern classes of certain natural K-theory classes over the product of two Hilbert scheme of points on nonsingular surface in terms of Nakajima operators. As an application, taking the trace, they obtain a closed formula for the Euler class of the twisted tangent bundle of the Hilbert scheme generalizing Gottsche's formula.

We study certain top intersection products on the Hilbert scheme of points on a nonsingular surface relative to an effective smooth divisor. We find a formula relating these numbers to the corresponding intersection numbers on the non-relative Hilbert schemes. In particular, we obtain a relative version of Carlsson-Okounkov's formula. If time permits, we discuss the relation of this to some virtual integrations over the nested Hilbert scheme of points on nonsingular surfaces as well as to some Donaldson-Thomas invariants of threefolds.