

Workshop on Interactions Between
Algebraic Combinatorics and Algebraic Geometry
May 28 - June 1, 2007

Chern-Schwartz-MacPherson classes for Schubert cells in the Grassmannian

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Abstract

The Chern-Schwartz-MacPherson (CSM) class of a possibly singular variety X is a characteristic class in the homology of X . If X is non-singular, this is the class associated to its tangent bundle.

More generally, one can associate a CSM class in the homology of X to any constructible subset of X . *In joint work with Paolo Aluffi* we used a Bott-Samelson resolution of a Schubert variety in the Grassmannian to compute the CSM class for the corresponding Schubert cell. Given that Schubert varieties are singular, an unexpected feature is a certain effectivity satisfied by these classes; we have proved it for small Grassmannians, and it is conjectured to hold in general. If time permits, I will also indicate a proof of the positivity based on non-intersecting lattice paths.