Stanford Algebraic Geometry Seminar

$X^2 = 0$ AND UPPER TRIANGULAR MATRICES

BRIAN ROTHBACH
Berkeley

Abstract

Extending work of Melnikov, I consider the natural action of the Borel (invertible upper triangular) matrices on the variety V of $n \times n$ upper triangular matrices with square 0. I obtain a poset, with elements corresponding to Borel orbits and the order relation defined by inclusion under closure. Using this poset, I prove that set-theoretically V has the $C_{\lceil \frac{n}{2} \rceil}$ irreducible components (where C_k is the kth Catalan number $\frac{1}{k+1}\binom{2k}{k}$), each with dimension $\lceil \frac{n}{2} \rceil \lfloor \frac{n}{2} \rfloor$.

Friday, January 17
3:30 p.m.
Room 383N

http://math.stanford.edu/~vakil/seminar0203/seminar.html.