

Meeting: 1004, Bowling Green, Kentucky, SS 14A, Special Session on Geometric Topology and Group Theory

1004-05-86 **Kelly Jeanne Pearson*** (kelly.pearson@murraystate.edu), Dept of Mathematics and Stats
Murray State Un, Murray State University, Murray, KY 42071, and **Tan Zhang**. *The Dimension
of the Cohomology Groups of the Orlik-Solomon Algebras.*

The Orlik-Solomon algebra is a graded algebra defined by the partially ordered set of subspace intersections of the hyperplanes in an arrangement. Define the cohomology of an Orlik-Solomon algebra as that of the complex formed by its homogeneous components with the differential defined via multiplication by an element of degree one. The dimension of the cohomology of the Orlik-Solomon algebra in dimension one has been determined by Libgöber and Yuzvinsky. Using similar techniques, we study the dimension of the cohomology groups of the Orlik-Solomon algebra in higher dimensions under the special case where the element of degree one which defines the multiplication is concentrated under an element of the intersection lattice of codimension two. We provide computational methods for the dimension of the second cohomology group. (Received January 18, 2005)