

1014-13-366

**Sergey Yuzvinsky\*** (yuz@math.uoregon.edu), Department of Mathematics, University of Oregon, Eugene, OR 97403. *Cohomology of Orlik-Solomon algebras and geometry of line configurations*. Preliminary report.

For a set of several lines in the complex projective plane the cohomology of the complement form a graded-commutative algebra  $A$  (called the Orlik-Solomon algebra) that can be explicitly described by its presentation. The multiplication by an element  $x$  of degree 1 defines a differential on  $A$  whose first cohomology  $H$  is important for certain algebraic and topological problems. The set of  $x$  for which  $H$  does not vanish form an algebraic variety  $R$  called the resonance variety.

In the talk we will describe the sets for which  $R$  is not empty (and supported on the whole set). It turns out that these sets are very special - nets or multi-nets (to be briefly defined in the talk). Many classical line configurations (Brianchon-Pascal, Hesse, Pappus, reflection lines for the Coxeter groups  $A_3$  and  $B_3$ , etc.) belong to this class.

A part of this work is joint with Michael Falk. (Received September 12, 2005)