1037-52-78 **Hal Schenck** and **Stefan Tohaneanu*** (stefan.tohaneanu@uc.edu), Department of Mathematical Sciences, The University of Cincinnati, P O Box 210025, Cincinnati, OH 45221-0025. *The Orlik-Terao algebra and formal arrangements.* Preliminary report.

The Orlik-Solomon algebra is the cohomology ring of the complement of a hyperplane arrangement $\mathcal{A}$; it is the quotient of an exterior algebra $\Lambda(V)$ by a homogeneous ideal. Orlik and Terao introduced a commutative analog $Sym(V^*)/I$ of the Orlik-Solomon algebra to answer a question of Aomoto and showed the Hilbert series depends only on the intersection lattice $L(\mathcal{A})$. Falk and Randell introduced the property of formality; in this note we study the relation between formality and the Orlik-Terao algebra. Our main result is a necessary and sufficient condition for formality in terms of the quadratic component I_2 of the Orlik-Terao ideal I. The key insight is that formality is determined by the tangent space $T_p(V(I_2))$ at a generic point p. (Received January 23, 2008)