

1113-13-255

Nathan Fieldsteel* (fieldst2@illinois.edu), Department of Mathematics, 1409 W Green Street, Urbana, IL 61801. *Zero-Divisors-Cup-Length of Orlik-Solomon Algebras*. Preliminary report.

To any arrangement of n complex affine hyperplanes we associate the Orlik-Solomon algebra A , a combinatorially determined \mathbb{C} -algebra. The Orlik-Solomon algebra is a quotient of an exterior algebra by an ideal generated by products of linear forms, and is naturally identified with the singular cohomology of the complement of the arrangement with its usual cup product. The zero-divisors-cup-length of A , denoted $\text{zcl}(A)$, is the degree of nilpotency of the kernel of $A \otimes_{\mathbb{C}} A \rightarrow A$, the cup product map. $\text{zcl}(A)$ is a lower bound for certain topological invariants of the complement of the arrangement. We present a combinatorial formula for the zero-divisors-cup-length of Orlik-Solomon algebras. (Received August 24, 2015)