

Discrete Mathematics & Combinatorics

Root poset ideals with Koszul Orlik-Solomon algebras

Axel Hultman

Linköpings universitet, Sverige

Building on work of Sommers and Tymoczko, Abe et al. showed that every ideal in the root poset of a Weyl group determines a free hyperplane arrangement. We characterize the ideals whose arrangements satisfy the stronger property of being supersolvable. As an application, we find that the Orlik-Solomon algebra of a root ideal arrangement is Koszul if and only if the arrangement is supersolvable.