



Department of Mathematics and Statistics

Colloquium

Tuesday November 12

AMB 164 4:00 - 5:00 pm

## Resonance varieties and Dilworth truncations

Michael Falk

Northern Arizona University

### Abstract

Associated to a graph, hyperplane arrangement, or matroid is a finite-dimensional graded algebra, the Orlik-Solomon algebra, that carries great topological, algebraic, and combinatorial significance. Among its features is a collection of linear subspaces called the “(degree-one) resonance variety,” which itself has many interesting aspects and applications. During my sabbatical, Geoff Whittle and I found a relationship between this resonance variety and the Dilworth truncation of a certain hypergraphic polymatroid. I’ll introduce the notions of hypergraphic polymatroid and Dilworth truncation, and explain Whittle and Vertigan’s generalization of Whitney’s 2-isomorphism theorem, and how it applies to degree-one resonance varieties.

Refreshments at 3:45