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Complex Toric Arrangements: Combinatorial Models and the Fundamental Group

Abstract for the Combinatorics Seminar 2011 September 20

The study of arrangements of subtori in the complex torus $T = \mathbf{C}^n$ is a recently thriving topic. It has some structural similarities with the theory of hyperplane arrangements, yet it bears its own peculiarities.

The Salvetti complex is a combinatorial model of the complement of a complexified real arrangement of hyperplanes. We take Salvetti's work as a stepping stone to develop a combinatorial model for the complement of a complex toric subspace arrangement, $M := T\backslash A$, where A is the union of the subtori in the arrangement. More precisely, we prove that M is homotopy equivalent to the nerve of a combinatorially defined acyclic category. Then, we find a presentation of the fundamental group of M.

This is joint work with Giacomo D'Antonio of the University of Bremen.
