

Topology and combinatorics of toric arrangements.

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A recent offspring of the theory of hyperplane (and subspace) arrangements is the study of arrangements in the complex torus (and, more generally, in abelian varieties). I will introduce the subject, present the state of the art and describe the combinatorial framework we developed in order to obtain presentations of the integer cohomology ring of complements of toric arrangements.

Time permitting, I will comment on how this abstract combinatorial theory applies to all abelian arrangements in a unified fashion, and how it encompasses other combinatorial objects that appeared recently in the literature on toric arrangements (such as arithmetic Tutte polynomials, arithmetic matroids, matroids over rings).

Some of the results I will talk about arose in joint works with Giacomo d'Antonio, Filippo Callegaro, Sonja Riedel and Kolja Knauer.