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Orbifold cohomology of hypertoric varieties

Hypertoric varieties are hyperkähler analogues of toric varieties, and are constructed as abelian hyperkähler quotients of a quaternionic affine space. Just as symplectic toric orbifolds are determined by labelled polytopes, orbifold hypertoric varieties are intimately related to the combinatorics of hyperplane arrangements. By developing hyperkähler analogues of symplectic techniques developed by Goldin, Holm, and Knutson, we give an explicit combinatorial description of the Chen–Ruan orbifold cohomology of an orbifold hypertoric variety in terms of the combinatorial data of a rational cooriented weighted hyperplane arrangement. Time permitting, we detail several explicit examples, including some computations of orbifold Betti numbers (and Euler characteristics).

This is joint work with R. Goldin.