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Bounding the Homology of a Simplicial Complex

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One of the most basic questions concerning a simplicial complex K is the following: How can we combinatorially construct a bound i such that $H_j(K)$ vanishes for $j < i$? For any complex K, the minimal nonfaces of K form a clutter (or hypergraph). We show how certain combinatorial invariants of this clutter bound the homology of the complex K, and also how they can be used to study algebraic invariants of K's Stanley-Reisner ideal.

This is joint work with Hailong Dao.
