Simplicial Complexes of Zero-Sumfree Set

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One major goal in additive combinatorics is to find the maximum size of an ℓ-zero-sumfree subset of a general abelian group. Consider the set of all ℓ-zero-sumfree subsets of $\mathbb{Z}/n\mathbb{Z}$; this is a simplicial complex denoted by $\Delta_{n,\ell}$. We created an algorithm to determine all faces of $\Delta_{n,\ell}$ for moderately-sized n and ℓ. As a result, we were able to describe all faces of a number of classes of $\Delta_{n,\ell}$. In this talk, we will present a sampling of these cases as well as the characteristic polynomials of their associated subspace arrangements.