Research Highlight:
The homotopy types of moment-angle complexes for flag complexes
Work of Professor WU Jie

In this work, we study the homotopy types of moment-angle complexes, or equivalently, of complements of coordinate subspace arrangements. The overall aim is to identify the simplicial complexes K for which the corresponding moment-angle complex Z_K has the homotopy type of a wedge of spheres or a connected sum of sphere products. When K is flag, we identify in algebraic and combinatorial terms those K for which Z_K is homotopy equivalent to a wedge of spheres, and give a combinatorial formula for the number of spheres in the wedge. We also establish a connection between minimally non-Gold rings and moment-angle complexes Z_K which are homotopy equivalent to a connected sum of sphere products. We go on to show that for any flag complex K the loop spaces ΩZ_K and $\Omega DJ(K)$ are homotopy equivalent to a product of spheres and loops on spheres when localised rationally or at any prime p>2.

References:

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