

Tilting theory and g-fans

Friday 22 December 2023 14:00 (50 minutes)

The notion of tilting objects is basic to study the structure of a given derived category. The class of silting objects gives a completion of the class of tilting objects from the point of view of mutation, and they correspond bijectively with other important objects in the derived category. The subset of 2-term silting complexes enjoys especially nice properties, which is closely related to τ -tilting theory and cluster theory. In this talk, we discuss the notion of g -simplicial complexes, g -polytopes and g -fans, which is defined from 2-term silting complexes. We study several properties of these three objects. In particular, we give tilting theoretic interpretations of the h -vectors and Dehn-Sommerville equations of the g -simplicial complex. Moreover, we discuss the convexity of the g -polytope and its dual polytope.

This is a joint work with Aoki-Higashitani-Iyama-Kase.

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