

# A REDUCTION THEOREM FOR 2-TERM TILTING COMPLEXES AND ITERATED TILTING MUTATION

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Abstract:

In this talk we will consider a finite dimensional algebra  $A$  over a field (of any characteristic) and its derived category  $\mathcal{D}(A)$ , which is an invariant much coarser than the module category but still fine enough to determine all classical homological invariants associated to  $A$ . By a classical (Morita-type) result of Rickard, in order to describe  $\mathcal{D}(A)$  one has to determine the tilting complexes over  $A$ . We will be concerned with two problems, namely

- (1) determining all two-term tilting complexes of  $A$
- (2) producing new tilting complexes from a given one (by means of mutation).

To this end, I will discuss a reduction theorem that relates (bijectively) the two-term tilting complexes over  $A$  and over  $A/I$ , where  $I$  is an ideal generated by central elements. Thereafter we will consider (tame) blocks of group algebras and Brauer tree algebras and present various instances of the efficiency of this result for the aforementioned problems, as well consequences on higher term tilting complexes.

The new results are joint work with Florian Eisele and Theo Raedschelders.