Reduction Techniques and other Combinatorial Tools in tau-tilting Theory

Håvard Utne Terland

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Abstract

1 Introduction

1.1 Setting

An algebra A will always refer to a finite dimensional algebra over a field k, which need not be algebraically closed. All algebras encountered in this thesis will be, unless otherwise stated, on the form $k\Gamma/I$ for some finite quiver Γ and admissible ideal I. The number n is, unless otherwise stated, reserved for the number of indecomposable projective summands of A. By mod A.

2 Tau-tilting theory

τ-tilting theory was introduced in [AIR13] as a possible generalization of tilting theory, which has had tremendous impact on the field of representation theory of finite dimensional algebras as a whole. Although first introduced in [AIR13], some of the main results of τ-tilting theory stem from (cite smalø). We here recall some important definitions and results from τ-tilting theory.

Definition 2.1. s

3 Tau-exceptional sequences

Tau-exceptional sequences were introduced in [BM20] as a generalization of exceptional sequences to any finite dimensional algebra.

References

[AIR13]   Takahide Adachi, Osamu Iyama, and Idun Reiten. *τ-tilting theory*. 2013. arXiv: 1210.1036 [math.RT].

[BM20]   Aslak Bakke Buan and Bethany Marsh. *τ-exceptional sequences*. 2020. arXiv: 1802.01169 [math.RT].