

EXPANSIONS OF ABELIAN CATEGORIES

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In this talk, I will explain the notion of expansions of abelian categories. Roughly speaking, it is a fully faithful exact functor between abelian categories such that it admits an exact left and right adjoint, whose kernels are equivalent to the category of finite dimensional modules over a division ring.

Expansions arise naturally in the theory of weighted projective lines. Our main example is obtained via the 2-cycle construction in the sense of Lenzing. We will prove a comparison theorem for expansions and show that in certain cases, the only nontrivial expansions are given by 2-cycle construction. Under certain assumptions, using a method from Happel-Reiten-Smalø's tilting theory, from expansions of abelian category we obtain one-point extensions of abelian categories.

This is based on a joint investigation with Henning Krause.

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