

The derived category of an algebra with radical squared zero

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Let A be a finite dimensional algebra with radical squared zero of arbitrary global dimension over an algebraically closed field. Our objective is to study $D^b(\text{mod } A)$, the bounded derived category of finite dimensional A -modules, that is, to classify the indecomposable complexes and the morphisms between them, describe the shapes of the Auslander–Reiten components, and determine the derived type. Our technique is to apply our Galois covering theory developed for general linear categories, which was presented at the last ARTA conference in Torun. More precisely, we first construct a Galois covering functor from $D^b(\text{rep}^-(\widetilde{Q}))$, the bounded derived category of finitely co-presented representations of \widetilde{Q} , onto $D^b(\text{mod } A)$, where \widetilde{Q} is the minimal gradable Galois covering of the ordinary quiver of A ; and then apply our results *joint with Charles Paquette* on the representations of strongly locally finite quivers.

Joint work with Raymundo Bautista.

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