

IPM Workshop on

Representations of Artin Algebras, October 15-18, 2012 , IPM, Tehran, Iran

Almost Split Sequences for Complexes of Modules

Razieh Vahed

University of Isfahan and IPM

Iran

Let Λ be an artin algebra. By letting the Nakayama functor act degree-wise, we define a translation τ in the category of complexes of finitely generated Λ -modules. Then we investigate the existence of almost split sequences in this category. As applications of our results, we show that every compact object of the homotopy categories $\mathbf{K}(\text{Prj}\Lambda)$ and $\mathbf{K}(\text{Inj}\Lambda)$ with local endomorphism ring admits an almost split sequence in $\mathbf{K}(\text{mod}\Lambda)$. Moreover, the translation τ provides a bijection between the class of compact objects of $\mathbf{K}(\text{Prj}\Lambda)$ with local endomorphism ring and the class of compact objects of $\mathbf{K}(\text{Inj}\Lambda)$ with the same property.