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Relative exact covers

Abstract: Recently Rim and Teply [11] found a necessary condition for the existence of σ-torsionfree covers with respect to a given hereditary torsion theory for the category R-mod. This condition uses the class of σ-exact modules; i.e. the σ-torsionfree modules for which every its σ-torsionfree homomorphic image is σ-injective. In this note we shall show that the existence of σ-torsionfree covers implies the existence of σ-exact covers, and we shall investigate some sufficient conditions for the converse.