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Relatively exact modules

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Abstract: Rim and Teply [10] investigated relatively exact modules in connection with the existence of torsionfree covers. In this note we shall study some properties of the lattice $\mathcal{E}_\tau(M)$ of submodules of a torsionfree module M consisting of all submodules N of M such that M/N is torsionfree and such that every torsionfree homomorphic image of the relative injective hull of M/N is relatively injective. The results obtained are applied to the study of relatively exact covers of torsionfree modules. As an application we also obtain some new characterizations of perfect torsion theories.

Keywords: Hereditary torsion theory τ , τ -injective module, τ -exact module, pre-radical, exact torsion theory, perfect torsion theory

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