

CATEGORY OF n -FCP-GR-PROJECTIVE MODULES WITH RESPECT TO SPECIAL COPRESENTED GRADED MODULES

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ABSTRACT. Let R be a ring graded by a group G and $n \geq 1$ an integer. We introduce the notion of n -FCP-gr-projective R -modules and by using of special finitely copresented graded modules, we investigate that (1) there exist some equivalent characterizations of n -FCP-gr-projective modules and graded right modules of n -FCP-gr-projective dimension at most k over n -gr-cocoherent rings, (2) R is right n -gr-cocoherent if and only if for every short exact sequence $0 \rightarrow A \rightarrow B \rightarrow C \rightarrow 0$ of graded right R -modules, where B and C are n -FCP-gr-projective, it follows that A is n -FCP-gr-projective if and only if $(gr\text{-}\mathcal{FCP}_n, gr\text{-}\mathcal{FCP}_n^\perp)$ is a hereditary cotorsion theory, where $gr\text{-}\mathcal{FCP}_n$ denotes the class of n -FCP-gr-projective right modules. Then we examine some of the conditions equivalent to that each right R -module is n -FCP-gr-projective.

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