

GORENSTEIN INJECTIVE MODULES

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Gorenstein injective modules can be defined in such a way that they can be dualized and allow us to define Gorenstein projective modules which generalize Auslander's G-dimension 0 modules. We will discuss various properties of Gorenstein injective modules and show the existence of Gorenstein injective covers and envelopes over certain rings.

Ω -GORENSTEIN MODULES

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We will consider modules over a local Cohen-Macaulay ring of Krull dimension d admitting a dualizing module Ω . We will introduce Ω -Gorenstein injective, projective, and flat modules. These modules generalize the usual Gorenstein injective, projective, and flat modules. We will show the existence of Ω -Gorenstein injective envelopes and Ω -Gorenstein projective and flat covers.