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**Daniel Bravo, James Gillespie\*** (jgillesp@ramapo.edu) and **Mark Hovey**. *Gorenstein AC-injective/projective modules*. Preliminary report.

Much of the development of Gorenstein homological algebra depends on the ring being Noetherian. In our paper *The Stable Module Category of a General Ring*, we introduce a way to extend Gorenstein homological algebra to arbitrary rings. We strengthen the definition of Gorenstein injective (resp. Gorenstein projective) modules to get what we call Gorenstein AC-injective (resp. Gorenstein AC-projective) modules. We show that, over any ring, they are the right half (resp. left half) of a complete hereditary cotorsion pair. These classes of modules coincide with the usual Gorenstein injective (resp. Gorenstein projective) modules over special rings. For example, if  $R$  is Noetherian, the Gorenstein AC-injectives coincide with the usual Gorenstein injectives. If  $R$  is coherent the Gorenstein AC-projectives coincide with the previously named “Ding projective” modules. (Received January 26, 2014)