1057-18-134   **James Gillespie*** (`jgillesp@ramapo.edu`), 505 Ramapo Valley Road, School of Theoretical and Applied Science, Mahwah, NJ 07430. *Model structures on modules over Ding-Chen rings.*

M. Hovey used the theory of Gorenstein modules to show that the category of modules over an Iwanaga-Gorenstein ring has a formal homotopy theory. In analogy to the situation with chain complexes over a ring, there are three common model structures describing this homotopy theory: the projective, the injective and the flat model structures. The work of Nanqing Ding and coauthors shows that properties of Iwanaga-Gorenstein rings carry over to left and right coherent rings with finite self FP-injective dimension. We call such a ring a Ding-Chen ring. Similarly, the Gorenstein modules carry in the analogy and we make a case as to why we call these "Ding modules". We will describe these modules, and see how the homotopy theory on modules over Gorenstein rings extends to a homotopy theory of modules over Ding-Chen rings. In particular, when G is a finite group and R is a commutative Ding-Chen ring, then the group ring $R[G]$ is a Ding-Chen ring. The associated homotopy category is a generalization of the stable module category that exists when R is a field. (Received January 18, 2010)