

1035-13-1660

Kristen A Beck* (kbeck@uta.edu), Department of Mathematics, The University of Texas at Arlington, P.O. Box 19408, Arlington, TX 76019. *The Image of the Totalling Functor.*

Let A denote a graded algebra over a field k . The totalling functor Tot can be extended to establish a relationship between the derived category of graded A -modules and the derived category of DG modules over A . If this functor is surjective, then the latter derived category can be obtained from the former, and is therefore superfluous. We will investigate the image of Tot on the derived categories in the special case when $A = k[x_1, \dots, x_d]$. It will be shown that when $d \geq 2$, there are semifree DG modules of rank ≥ 4 that are not obtained from the totalling of any complex in the derived category of graded A -modules. However when $A = k[x]$, we will find that every rank n semifree DG module over A is in the image of Tot . Moreover, for a polynomial ring in d variables of arbitrary size, a special class of rank n semifree DG modules will be defined which are always in the image of Tot . (Received September 20, 2007)