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Existence of totally reflexive modules in graded local rings with Hilbert series $1 + et + (e-1)t^2$.

Let (A, m) be a Noetherian local graded ring with Hilbert series $1 + et + (e-1)t^2$. It is known that the existence of exact zero divisors implies the existence of non-free totally reflexive modules. We are interested in the existence of these modules in the absence of exact zero divisors. In a recent study, Vraciu and Atkins constructed an example of a ring of codimesion 8 that does not have exact zero divisors, but has non-free totally reflexive modules. In this talk, we will give a class of rings of codimension 5 and higher admitting totally reflexive modules, but without having exact zero divisors. (Received September 21, 2016)