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Let  $R$  be a complete local noetherian ring of dimension  $d$ . What is the universal annihilator of  $Ext_R^{d+1}(M, N)$  for finitely generated  $R$ -modules  $M, N$ ?

If  $d = 1$ , a result of Wang (1994) shows this annihilator to contain the conductor ideal. In general, for  $R$  Gorenstein and containing a coefficient field, we show that this annihilator contains the annihilator of the cokernel of a natural map from the  $d^{\text{th}}$  Hochschild homology of  $R$  to the ring, which in turn in the reduced case contains the annihilator of the cokernel of the characteristic class, the natural linear map from the module of differential forms  $\Omega_{R/K}^d$  to the dualizing module  $\omega_{R/K}$ . This annihilator contains any Noether different and so also the Jacobian ideal thereby strengthening Wang's earlier results.

These results provide in particular a lower bound for the universal annihilator of the stable category of maximal Cohen-Macaulay modules over such a ring, a quantity of interest in string theory. (Received July 23, 2010)