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The Vanishing of Invariants on Complete Intersections

We discuss some invariants for a pair of modules over a complete intersection ring, with special focus on the graded case. In particular, we study a new invariant when the ring has only isolated singularity at the irrelevant maximal ideal or when the tensor product of the modules has finite length. We show that it shares many of the same properties as Hochster's original theta invariant, defined for hypersurfaces. In particular, it vanishes if and only if the dimension inequality is satisfied.