1015-13-75 Thuy Pham* (thuy@math.rutgers.edu). jdeg of Algebraic Structures.

Let R be a commutative Noetherian ring, A a finitely generated graded R-algebra where $A = R[A_1]$, and M a finitely generated graded A-module. There are several extensions of the classical multiplicity deg(M) seeking to account for the behavior of each associated prime of M relatively to A and/ or to R. Here we assign to M a new degree jdeg(M), which coincides with deg(M) when R is an Artinian local ring. The new construction jdeg(M), with a global nature (in contrast to other degree functions usually requiring R to be local), captures various aspects of M. An important application of jdeg is to measure the complexity of the chains of graded subalgebras between A and its integral closure \overline{A} , constructed by general algorithms. This gives an extension of recent results to very general graded algebras. (Received January 24, 2006)