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Tai Ha* (tai@math.tulane.edu), Department of Mathematics, 6823 St. Charles Avenue, New Orleans, LA 70118. *Regularity of powers of ideals: revisited.*

Let $X = \text{Proj}R$ be a projective scheme with at worst rational singularity, and let I be a homogeneous ideal in R . It is known that $\text{reg}(I^n) = an + b$, a linear function in n , for $n \gg 0$. While the linear constant a is well understood from reduction theory, not much is known about the free constant b . Recently, Eisenbud and Harris showed that when I is generated by generic linear forms, b can be related to a “local” invariant, namely, the maximal value of the regularity of fibers of the projection map given by the generators of I . In this talk, we’ll discuss a more general situation, when I is generated by forms of the same degree. We show that b can also be related to a local invariant, the “local” a^* -invariant, that is closely related to regularity, of fibers of certain map. (Received September 04, 2009)