Queen's Algebraic Geometry
— Seminar —

Asymptotic Linearity of Regularity and a^*-invariant of Powers of Ideals

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Abstract

Let $X = \operatorname{Proj} R$ be a projective variety and let I be a homogeneous ideal in R. It is well known that the regularity $\operatorname{reg}(I^n)$ and the a^*-invariant $a^*(I^n)$ are asymptotically linear functions in n, i.e. there exist constants a_1, a_2, b_1 and b_2 such that $\operatorname{reg}(I^n) = a_1 n + b_1$ and $a^*(I^n) = a_2 n + b_2$ for all n sufficiently large. The linear constants are well understood from reduction theory. In this talk, when I is generated in a single degree, I will discuss how the free constants b_1 and b_2 can be related to a collection of "local" data, the regularity and a^*-invariant of fibers of certain projection map from the blowup of X.

Monday 15 November 2010
16:30 – 17:30
319 Jeffery Hall