

Castelnuovo-Mumford regularity of power products

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Abstract

We show that the Castelnuovo-Mumford regularity and related invariants of products of powers of ideals in a standard graded polynomial ring are affine-linear in the exponents if these are large enough, provided that each ideal is generated by elements of constant degree. A counterexample shows that linearity is false without the condition, but the regularity is always given by the maximum of finitely many affine-linear polynomials.

Joint work with Aldo Conca (Genoa).