

HILBERT COEFFICIENTS OF SOCLE IDEALS AND GENERALIZED COHENMACAULAY RINGS

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My talk is based on joint work with H. L. Truong. In my talk, we assume that (R, \mathfrak{m}) is a Noetherian local ring of dimension d and I is an \mathfrak{m} -primary ideal of R . It is well known that the Hilbert-Samuel function $\ell_R(R/I^{n+1})$ become the polynomial, which is called Hilbert-Samuel polynomial

$$\ell_R(R/I^{n+1}) = \sum_{i=0}^d (-1)^i e_i(I) \binom{n+d-i}{d-i},$$

for all large enough $n \gg 0$. These integers $e_i(I)$ are called the Hilbert coefficients of R with respect to I . In this talk, we present the characterization of the Cohen-Macaulayness and generalized Cohen-Macaulayness in terms of the Hilbert coefficients $e_i(\mathfrak{q} :_R \mathfrak{m}, R)$, where \mathfrak{q} is a parameter of R and $i \geq 1$.

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