

1048-13-283

Lance Bryant* (lbryant@math.purdue.edu), 175 Villefranche Dr, West Lafayette, IN 47906.

The Gorenstein property of associated graded rings of ideal filtrations in one-dimensional analytically irreducible Noetherian local domains.

Let (R, m) be a one-dimensional analytically irreducible Noetherian local domain, \bar{R} its integral closure in the quotient field K , and $v : K \rightarrow \mathbb{Z}$ the corresponding valuation. Assume R and \bar{R} have the same residue field. For an ideal filtration $F = \{F_i\}_{i \geq 0}$, I will discuss some necessary and sufficient conditions for the associated graded ring $gr_F(R) = \bigoplus_{i \geq 0} F_i/F_{i+1}$ to be Gorenstein that involve the value-semigroup $v(R)$ of R . These conditions include an analogue of a recent result of Barucci and Fröberg concerning the Cohen-Macaulay property of $gr_m(R)$, an analogue of a classic result of Kunz relating the Gorenstein property of R to the symmetric property of $v(R)$, and a numerical criterion. (Received February 09, 2009)