

SQUARE-FREE MONOMIAL IDEALS AND STABILITY OF CERTAIN SET OF ASSOCIATED PRIME IDEALS

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Let R be a commutative Noetherian ring and I be an ideal of R . A well-known result of Brodmann [1] showed that the sequence $\{\text{Ass}_R(R/I^k)\}_{k \geq 1}$ of associated prime ideals is stationary for large k , i.e., there exists a positive integer k_0 such that $\text{Ass}_R(R/I^k) = \text{Ass}_R(R/I^{k_0})$ for all $k \geq k_0$. A minimal such k_0 is called the *index of stability* of I and $\text{Ass}_R(R/I^{k_0})$ is called the *stable set of associated prime ideals* of I , which is denoted by $\text{Ass}^\infty(I)$. Also we say an ideal I of R satisfies the *persistence property* if $\text{Ass}_R(R/I^k) \subseteq \text{Ass}_R(R/I^{k+1})$ for all positive integers k .

In this talk, we first focus on the stable set of square-free monomial ideals, and state some results in this subject, see [2, 3]. We next present two classes of monomial ideals such that are none of edge ideals, cover ideals and polymatroidal ideals, but satisfy the persistence property, see [5]. We finally extend the notion of the persistence property for monomial ideals to a family of ideals in commutative Noetherian rings, see [4].

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