

Linkage and Tor algebra classes of codepth three perfect ideals

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The possible graded-commutative algebra structures on $\text{Tor } Q^*\{Q/I\}_k$, where I is a grade three perfect ideal in a regular local ring Q with residue field k , were identified by Weyman (1989) and by Avramov, Kustin, and Miller (1988). Based on these algebra structures one can classify, in term of numerical parameters, all grade 3 perfect ideals of a regular local ring.

Employing linkage theory methods we are able to give a detailed structure of this classification. The talk is based on a work done in collaboration with L.W. Christensen and J. Weyman.