

LOWER BOUNDS FOR THE DEPTH OF POWERS OF EDGE IDEALS

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ABSTRACT. We consider a simple graph its corresponding edge ideal I in a polynomial ring R . It is well known that upper bounds for the projective dimension of R/I provide lower bounds for the first non-zero homology group of the graph's independence complex. Determining upper bounds for the projective dimension of R/I is equivalent to finding lower bounds for the depth of R/I . We discuss such bounds as well as lower bounds for the depth of higher powers of the edge ideal. This is joint work with Susan Morey.

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