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Determining the Maximum Nullity for Families of Regular Graphs

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In 2008 it was shown that the *maximum nullity* of a graph could be bounded above by the zero forcing number of the graph. We study techniques for determining the value of the maximum nullity for some regular graphs such as the *circulant graphs* and the extended *Bidiakis cube*. One technique that is used consists of using the *strong Arnold property* to bound the maximum nullity below. It is known that the *Colin de Verdière number* is a lower bound for the maximum nullity but the value is not easily determined. Equitable partitions on the graph's vertex set and a newer technique to decompose the adjacency matrix are both used to establish the eigenvalues of the adjacency matrix of the graph. We also determine minimum rank field independence for some matrices.