

Determining the maximum nullity and minimum rank field independence for some graphs.

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In this talk, I will discuss techniques for determining the value of the maximum nullity for some graphs such as the extended cube graphs. One technique consists of determining the Colin de Verdière number of the graph. It is known that the Colin de Verdière number is a lower bound for the maximum nullity but the value is not easily determined. We also use equitable partitions of the graphs vertex set to determine the nullity of the adjacency matrix. Lastly, equitable decompositions on the adjacency matrix is used determine minimum rank field independence for some graphs.

Keywords: maximum nullity, zero forcing number, minimum rank, equitable partition, equitable decomposition, extended cube graph, Colin de Verdière number