

Some Applications on the Double and Paired Domination Polynomial for the Product of Some Graphs

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(joint work with Miloud Mihoubi)

The domination polynomial of a graph G with order n is the polynomial $D(G, x) = \sum_{i=\gamma(G)}^n d(G, i)x^i$, where $d(G, i)$ is the number of dominating sets of G of size i , and $\gamma(G)$ is the domination number of G . The Double (respectively The Paired)domination Polynomial of graph G is the polynomial $P(G, x) = \sum_{i=\gamma_{\times 2}}^n d(G, i) \times x^i$ (respectively $Q(G, x) = \sum_{i=\gamma_{pr}}^n q(G, i) \times x^i$), where $d(G, i)$ (respectively $q(G, i)$) is the double (respectively paired) dominating sets of G of size i and $\gamma_{\times 2}(G)$ (respectively $\gamma_{pr}(G)$)is the double (respectively paired) domination number of G . In this paper, we obtain some properties for the coefficients both of the double domination polynomial and the paired-domination polynomials for the product of some graphs. then we give the recursive formula and some application of the double and paired domination polynomials for particular graphs.

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