The Relationship Between Neighbor-Component Order Connectivity and Double Domination

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When looking at a graph G on n nodes and e edges, neighbor-component order connectivity is the minimal removal of closed neighborhoods of nodes such that all remaining components of G have order less than a given threshold value k. Double domination is a variation of j-tuple domination in which $j = 2$ and every node in the $2-$tuple dominating set for G must be dominated by at least two nodes. Thus, the double domination number is the minimal cardinality of a 2-tuple dominating set. Formulas for the neighbor-component order connectivity and the double domination number have been derived for the cycle, star, wheel, complete bi-partite, and complete graphs. In this talk, we will compare the two sets of formulas and examine the results.