# Domination Parameters of Middle Graphs: Connected and Outer-Connected Perspectives

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**Abstract :** In this paper, we study the notions of connected domination number and of outer-connected domination number for middle graphs. Indeed, we obtain tight bounds for these numbers in terms of the order of the middle graph M(G). We also compute the outer-connected domination number of some families of graphs such as star graphs, cycle graphs, wheel graphs, complete graphs, complete bipartite graphs and some operation on graphs, explicitly. Moreover, some Nordhaus-Gaddum-like relations are presented for the outer-connected domination number of middle graphs.

**Keywords :** connected domination number, outer-connected dom- ination number, domination number, middle graph, nordhaus- gaddum-like relation.

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