Centroidal Dimension of Product Graphs

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Let G be a simple connected graph, v a vertex in $V(G)$, and $W = w_1, w_2, \ldots, w_k$ a subset of $V(G)$. A *centroidal representation* of v with respect to W, $r_c(v|W)$ is an ordered partition of W which lists all the elements of W in nondecreasing order by their distance from v. The set W is called a *centroidal resolving set* for G if every two vertices of G have distinct centroidal representations. A centroidal resolving set containing a minimum number of vertices is called a *centroidal basis* for G. The *centroidal metric dimension* of G, $CD(G)$, is the number of vertices in a centroidal basis for G.

In this talk, we shall derive upper and lower bounds for centroidal dimension of join product graphs and corona product graphs. We shall also study the conditions for the sharpness of the bounds.

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