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*Bounds on the order of a graph of given metric dimension and diameter: studies for standard graph classes*

It is easily seen that any graph of metric dimension  $k$  and diameter  $D$  has at most  $D^k + k$  vertices. This is almost never reached for general  $k$  and  $D$ ; a tight bound (still exponential) was derived by Hernando, Mora, Pelayo, Seara and Wood in 2011. However, for many graph classes, a polynomial bound holds. We discuss such bounds for trees, interval graphs, permutation graphs, planar graphs, etc. One of the tools that is helpful here is the notion of distance- $V$ - $C$  dimension. Joint work with Laurent Beaudou, Peter Dankelmann, Michael Henning, Arnaud Mary, George Mertzios, Reza Naserasr, Aline Parreau, Petru Valicov.