

k -domination in the intersection graph of geometric objects

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Let \mathcal{C} be a collection of β -fat objects in R^d , so that no points in R^d is common to more than p objects in \mathcal{C} , and let $k \geq 1$ be an integer. Let G be the intersection graph of \mathcal{C} , and let $\alpha_k(G)$, $k \geq 0$, denote the cardinality of a largest set of vertices S in G so that no two vertices in S are of distance $\leq k$ in G . Recall that the k -domination number of G , denoted by $\gamma_k(G)$, is the minimum cardinality of a set $S \subseteq V$, so that every vertex in G is at distance at most k from a vertex of S . Clearly, $\gamma_k(G) \geq \alpha_{2k}(G)$. We establish the inequality

$$\gamma_k(G) \leq \alpha_{2k}(G) \cdot c(\beta, p, k)$$

where $c(\beta, p, k)$ is depending, only, on β, p and k .

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