

Erdős-Pósa property of cycles that are far apart

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We prove that there exist functions f and g such that for all nonnegative integers k and d , for every graph G , either G contains k cycles such that vertices of different cycles have distance greater than d in G , or there exists a subset X of vertices of G , with $|X| \leq f(k)$ such that $G - B_G(X, g(d))$ is a forest, where $B_G(X, r)$ denotes the set of vertices of G having distance at most r from a vertex of X .