

2-Limited Packings of Box Product Graphs

For a fixed integer k , a set of vertices B of a graph G is a k -limited packing of G provided that the closed neighbourhood of any vertex in G contains at most k elements of B . The size of a largest possible k -limited packing in G is denoted $L_k(G)$ and is the k -limited packing number of G . In this talk, we investigate the 2-limited packing number of box products of paths. We show that the function $\Delta[L_2(P_k \square P_n)] = L_2(P_k \square P_n) - L_2(P_k \square P_{n-1})$ is eventually periodic, and thereby give closed formulas for $L_2(P_k \square P_n)$, $k = 1, 2, \dots, 5$. The techniques we use are suitable for establishing other types of packing and domination numbers for box products of paths and, more generally, for graphs of the form $H \square P_n$.

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