**Nonexistence of Efficient Dominating Sets in the Cayley Graphs
Generated by Transposition Trees of a Given Diameter.**

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Finding an efficient dominating set in a graph is an important problem in different areas of Computer Science. An independent dominating set S of vertices in a graph X_n^d (see, [2, 3, 4, 6]) is said to be an efficient dominating set, or E-set if each vertex of $X_n^d \setminus S$ is adjacent to exactly one vertex in S. I am studying the nonexistence of E-sets in X_n^d (Cayley graphs) generated by transposition trees of a given diameter "d". It is known that every X_n^d with $d < 3$ has its vertex set S_n split into E-sets. However, no X_n^3 has E-sets. In this work, we will advance in these topics and obtain related developments.

Keywords: Efficient dominating set; Sphere packing; Permutations; Transposition trees; Johnson graph; Cayley graph.