

1154-05-1202 **Nathan Vallapureddy*** (nvallap1@jhu.edu) and **Lyle Paskowitz** (lyle@jhu.edu). *Efficient and Non-efficient Domination of Z -stacked Archimedean Lattices*. Preliminary report.

On a graph, a vertex v dominates another vertex v' if $v = v'$ or v is adjacent to v' . An efficient dominating set is a subset of vertices D such that every vertex in the graph is dominated by exactly one vertex in D . We developed general results about the efficient domination problem on graphs. In particular, we investigated the existence of efficient dominating sets on the stacked versions of each of the eleven Archimedean Lattices. We constructed efficient dominating sets on eight of the stacked lattices, and used integer programming to prove that no such sets exist on the other three stacked lattices. (Received September 13, 2019)