1154-05-2628 **Jonad Pulaj*** (jopulaj@davidson.edu), Dept. of Mathematics and Computer Science, Davidson College, Davidson, NC 28035. *Automated tree strategy selection for graph pebbling numbers.*

Given a distribution of pebbles to the vertices of a graph, a pebbling move across an edge removes two pebbles from one endpoint and places exactly one at the other endpoint. The pebbling number $\pi(G)$ is the smallest number such that for any distribution of $\pi(G)$ pebbles on a graph G there is a sequence of pebbling moves that places one pebble on any chosen vertex. Computing $\pi(G)$ is difficult in theory and practice, although approaches with linear optimization techniques have yielded promising results. One such approach uses a combination of appropriately chosen trees in G that yield an upper bound on $\pi(G)$. Using integer programming we automate this tree selection strategy by casting it as a variant of the classical Steiner tree problem with hop constraints. This yields improved bounds for pebbling numbers of specific graphs of interest related to Graham's conjecture, a central open question in graph pebbling. (Received September 17, 2019)