2-Restricted Optimal Rubbling of Graphs

Robert A. Beeler, Teresa Haynes, Kyle Murphy*

For a graph $G = (V, E)$, a pebbling distribution $f$ is defined as $f : V \rightarrow \mathbb{Z}^+$, where each vertex $v \in V$ begins with $f(v)$ pebbles. A pebbling move takes two pebbles from some vertex adjacent to $v$ and places one pebble on $v$. A rubbling move takes one pebble from each of two vertices that are adjacent to $v$ and places one pebble on $v$. A vertex $x$ is reachable under a pebbling distribution $f$ if there exists some sequence of rubbling and pebbling moves that places a pebble on $x$. A pebbling distribution where every vertex is reachable is called a rubbling configuration. The $t$-restricted optimal rubbling number of $G$ is the minimum number of pebbles required for a rubbling configuration where no vertex is assigned more than $t$ pebbles. Here we present results on the 2-restricted optimal rubbling number.