

1096-05-1640

Matthew J Prudente* (mjp209@lehigh.edu), 14 E. Packer Ave, Bethlehem, PA 18015.

Two-Player Variation on Graph Pebbling. Preliminary report.

Given a graph G with pebbles on the vertices, we define a *pebbling move* as removing two pebbles from a vertex and placing one pebble on its neighbor. The *pebbling number*, $\pi(G)$, of G is the least number of pebbles needed so that any arrangement of the $\pi(G)$ pebbles can reach any goal vertex through a sequence of pebbling moves. We define a new two-person pebbling game with players the *mover* and the *defender*. The mover and defender will alternate moves, with the stipulation that the defender cannot reverse the previous move. The mover wins if they can reach the root and the defender wins if the mover cannot. The value $\eta(G)$ is defined as the minimum number of pebbles such that given every configuration of the $\eta(G)$ pebbles and every root vertex r , the mover has a winning strategy. We investigate winning strategies for different classes of graphs such as paths, complete graphs and cycles. (Received September 16, 2013)