1056-05-586   **Lisa Danz*** (`ldanz@mit.edu`), 1540 Morton Ave., Los Altos, CA 94024. *The optimal t-rubbling number of the complete m-ary tree.* Preliminary report.

Given a graph with pebbles on the vertices, a rubbling move is either a pebbling move, which removes two pebbles from one vertex and adds one pebble to an adjacent vertex, or a strict rubbling move, which removes one pebble from each of two vertices adjacent to a third vertex u and adds one pebble to vertex u. The optimal t-rubbling number of a graph is the smallest number n for which there exists a distribution of n pebbles among the vertices such that t pebbles can reach any vertex through a sequence of rubbling moves. We investigate the optimal t-rubbling number of the complete m-ary tree. We find an exact answer for the case $m \geq 3$, and we find a lower bound and an algorithm for the case $m = 2$. For a fixed tree height, we find that the optimal rubbling number achieves the lower bound for all t sufficiently large. (Received September 13, 2009)