

1056-05-1386

Eric Riedl* (eriedl@nd.edu), 1340 California Ave., Falcon Heights, MN 55108. *Minimal Percolating Sets in Trees.*

Bootstrap percolation is the process on a graph where, given an initial infected set, vertices with at least r infected neighbors are infected until no new vertices can be infected. A set percolates if it infects all the vertices of the graph, and a percolating set is minimal if no proper subset percolates. We consider bootstrap percolation on trees. We describe an $O(n)$ algorithm for computing the largest and smallest minimal percolating sets and find bounds on the sizes of smallest and largest minimal percolating sets. Moreover, we find a bound on the difference between the sizes of a largest and smallest minimal percolating set. (Received September 21, 2009)