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Suk J. Seo<sup>\*</sup> (sseo<sup>@</sup>mtsu.edu), 1301 E. Main St., Box 48 Computer Science Department, Middle Tennessee State University, Murfreesboro, TN 37132, and Peter J. Slater. *The open neighborhood locating-dominating set problem*. Preliminary report.

Suppose we want to place various detection devices in a facility so as to identify the location of an intruder such as a thief or saboteur. We assume each device can detect an intruder in its neighborhood, but not its own. A solution to this problem is to find a open neighborhood locating-dominating set for a graph G which models this facility. For a graph G an open neighborhood locating dominating set (OLD(G)-set) is a minimum cardinality vertex set S with the property that for each vertex v its open neighborhood N(v) has a unique non-empty intersection with S. In this paper we present the results on minimum density OLD-sets for special classes of graphs including trees and various (infinite) grid graphs. (Received August 30, 2008)