Liar's Domination on Grid Graphs

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Assume that each vertex of a graph G is the possible location for an intruder in a facility. A protection device at a vertex v is assumed to be able to detect the intruder at any vertex in its closed neighborhood $N[v]$ and to report at which vertex in $N[v]$ the intruder is located. A protection device at v which has an intruder in its closed neighborhood lies, or is a liar, if it either misreports any vertex in $N[v]$ as the intruder's location or reports that there is no intruder in $N[v]$. A liar's dominating set is a set of vertices with protection devices that can correctly identify an intruder's location even when there is at most one liar. The minimum cardinality of a liar's domination set, or liar's domination number, on various grid graphs will be discussed.

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