

1106-VN-2761 **David Blessing*** (dblessing2014@fau.edu), 5110 Atlantic Ct., Cape Coral, FL 33904, **Katie Johnson**, FL, and **Erik Insko** and **Christie Mauretour**. *On (t, r) Broadcast Domination Numbers of Grids.*

The domination number of a graph $G = (V, E)$ is the minimum cardinality of any subset $S \subset V$ such that every vertex in V is in S or adjacent to an element of S . Finding the domination numbers of m by n grids was an open problem for nearly 30 years and was finally solved in 2011 by Goncalves, Pinlou, Rao, and Thomassé. Many variants of domination number on graphs have been defined and studied, but exact values have not yet been obtained for grids. We will define a family of domination theories parameterized by pairs of positive integers (t, r) where $1 \leq r \leq t$ which generalize domination and distance domination theories for graphs. We call these domination numbers the (t, r) broadcast domination numbers. We give the exact values of (t, r) broadcast domination numbers for small grids, and we identify upper bounds for the (t, r) broadcast domination numbers for large grids and conjecture that these bounds are tight for sufficiently large grids. (Received September 16, 2014)