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Adam Berliner and **Richard A Brualdi*** (brualdi@math.wisc.ed), Department of Mathematics, University of Wisconsin, 480 Lincoln Drive, Madison, WI 53726, and **Louis Deaett**, **Kathleen P Kiernan**, **Seth Myer** and **Michael Schroeder**. *Signed Domination Number of a Matrix*. Preliminary report.

Let $A = [a_{ij}]$ be an m by n $(0, 1)$ -matrix (bi-adjacency matrix of a bipartite graph G with a bipartition into sets of sizes m and n). A *signing* of A is a $(0, 1, -1)$ -matrix $A' = [a'_{ij}]$ with the same nonzero pattern as A . The *value* of the signing is $\sum_{ij} a'_{ij}$. The signing A' is called a *dominating signing* provided whenever $a'_{pq} \neq 0$ (that is, $a_{pq} = 1$), we have $a'_{pq} + \sum_{j \neq q} a'_{pj} + \sum_{i \neq p} a'_{iq} \geq 1$. The *signed domination number* of A is the minimum value of a dominating signing of A . We investigate and determine the signed domination number of several classes of matrices, including the m by n matrices J_{mn} of all 1s and $J_{nn} - I_n$. (Received September 08, 2008)