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Chassidy Bozeman, Joshua Carlson, Michael Dairyko, Derek Young and Michael Young* (myoung@iastate.edu). *Lower Bounds for the Exponential Domination Number of $C_m \times C_n$.*

A vertex v in an exponential dominating set assigns weight $2^{1-\text{dist}(v,u)}$ to vertex u . An exponential dominating set of a graph G is a subset of $V(G)$ such that every vertex in $V(G)$ has been assigned a sum weight of at least 1.

In this talk the exponential dominating number, denoted by $\gamma_e(G)$, for the graph $G = C_m \times C_n$ is discussed. Anderson et. al. proved that $\frac{mn}{15.875} \leq \gamma_e(C_m \times C_n) \leq \frac{mn}{13}$ and conjectured that $\frac{mn}{13}$ is also the asymptotic lower bound. We use a linear programming approach to sharpen the lower bound to $\frac{mn}{13.7619+\epsilon(m,n)}$. (Received July 29, 2015)