Extremal problems in game domination

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In the *domination game* on a graph G, Dominator and Staller together construct a dominating set S of G. On each turn, each player adds to S a vertex that dominates at least one vertex not yet dominated by S; the game ends once S is a dominating set of G. Dominator aims to minimize the final size of S, while Staller aims to maximize it. When Dominator plays first, the final size of S is the *game domination number* of G, denoted $\gamma_g(G)$.

In this talk, we explore some extremal questions on game domination. We give upper bounds on γ_g over the classes of n-vertex connected graphs, chordal graphs, and trees. We also give tight asymptotic bounds on the value of γ_g over several classes of "grid-like" graphs.

This is joint work with Douglas B. West and Reza Zamani.