\(\gamma'-\text{Realizability and Assorted Musings on Inverse Domination}\)

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In this talk, we introduce \(\gamma'\)-realizable sequences. For a finite, simple graph \(G\) containing no isolated vertices, \(I \subset V(G)\) is said to be an \textit{inverse dominating set} if \(I\) dominates all of \(G\) and \(I\) is contained by the complement of some minimum dominating set \(D\). Define a sequence of positive integers \((x_1, \ldots, x_n)\) to be \(\gamma'\)-\textit{realizable} if there exists a graph \(G\) having exactly \(n\) distinct minimum dominating sets \(D_1, \ldots, D_n\) where for each \(i \in \{1, \ldots, n\}\), the minimum size of an inverse dominating set in \(V(G) \setminus D_i\) is equal to \(x_i\). We intend to detail a few intermediate results which could optimistically be called progress toward the resolution of the problem of deciding, for an arbitrary sequence, whether or not that sequence is \(\gamma'\)-realizable.

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