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Structure and Criticality of Watchman's Walks

A watchman's walk in a simple graph G is a minimum closed dominating walk, an optimal way to move through a graph continuously and see (but not necessarily visit) every vertex. We denote the length of a watchman's walk in G by $w(G)$. In this talk, we will look at the structure of watchman's walks in particular classes of graphs. We will also look at edge-criticality as it pertains to the watchman's walk. We say a graph is 1-watchman-edge-critical if $w(G+e) < w(G)$, for any edge e in the complement of G. Some initial results on this will be presented.