

Throttling for the Game of Cops and Robbers on Graphs

Katherine Perry*, Jane Breen, Boris Brimkov, Josh Carlson, Leslie Hogben, Carolyn Reinhart, University of Denver

The game of Cops and Robbers is a pursuit-evasion game played on a reflexive graph in which a cop or set of cops attempt to catch a single robber. The game is played over a countable sequence of time-steps in which the cops and robber take turns moving along the edges of the graph to neighboring vertices. Define $c(G)$ to be the minimum number of cops needed to catch a robber on G and $capt_k(G)$ to be the minimum number of turns it takes any set of k cops to catch the robber on G . In this talk, we'll consider the idea of cop-throttling, $th_c(G)$, which is defined to be the minimum of the set $\{k + capt_k(G)\}$ for $c(G) \leq k \leq \gamma(G)$, where $\gamma(G)$ denotes the domination number of G .

Keywords: cops and robbers, propagation time, throttling, pursuit evasion