

1086-VN-2137      **David Offner\***, Westminster College, New Wilmington, PA 16172, and **Kerry Ojakian**, Bronx Community College (CUNY), Bronx, NY 10453. *A new lower bound for a variation of Cops and Robber on the hypercube, with an application to Graph Searching.*

The game of Cops and Robber is a two-player, perfect-information game played on an undirected graph  $G$ . A robber and a fixed number of cops each occupy vertices of  $G$ , and take turns moving to adjacent vertices. The cops win if a cop ever occupies the same vertex as the robber. The cop number is the minimum number of cops required to guarantee a winning strategy for the cops, and this number can be interpreted as a measure of the difficulty of searching the graph. In this talk, we give a new lower bound on the cop number for the  $n$ -dimensional hypercube in the variation of the game where only one cop is allowed to move on each turn. Additionally, we connect Cops and Robber to another class of vertex pursuit games, Graph Searching, where any number of cops may move on a turn, but the robber is not visible to the cops, and may be infinitely fast. Our result also provides a new lower bound for the cop number in this setting. (Received September 25, 2012)