

RYERSON UNIVERSITY
DEPARTMENT OF MATHEMATICS
GRAPHS AT RYERSON (G@R) SEMINAR

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Date: Monday, March 20, 2017

Time: 10am

Location: ENG 210

Overprescribed Cops and Robbers

Abstract:

Capture time measures the length of the game of Cops and Robbers assuming optimal play. If we add more cops than the cop number, then the capture time will monotonically decrease. Eventually, the capture time becomes 1 when we are at (or near) the domination number. We refer to this phenomenon as temporal speed-up. Temporal speed-up represents a new approach to Cops and Robbers, measuring the range of capture times for an overprescribed number of cops beyond the cop number.

We consider the temporal speed-up for various graph classes, including trees, multi-dimensional Cartesian grids, hypercubes, and planar graphs. For hypercubes of dimension n , the cop number is linear in n , with capture time order $n \log n$. Perhaps surprisingly, we show that the capture time of order $n \log n$ persists even up to an exponential number of cops.

ALL FACULTY, STAFF, STUDENTS AND GUESTS ARE WELCOME TO ATTEND