

Discrete Mathematics Seminar

Illinois State University

2:00–2:50 pm, April 1

Speaker: Anton Bernshteyn, Georgia Institute of Technology

Catching an invisible intruder on subdivisions of a graph

We wish to locate an intruder who is hiding at one of the vertices of a graph G . At each step, we are allowed to ‘check’ an arbitrary set of k vertices. If the intruder is presently at any of those vertices, then we win. Otherwise, the intruder may choose to move to an adjacent vertex or remain in place. The intruder is ‘invisible’: we have no way of knowing if or where the intruder moves. We call the smallest k such that we can guarantee the capture of the intruder after finitely many steps the *search number* of G . In this talk I will describe some results and problems around the search number, with a particular emphasis on its behavior under edge-subdivisions. This is joint work with Eugene Lee (Carnegie Mellon University).

