Cops and invisible robbers: the cost of drunkenness

Abstract: We examine a version of the Cops and Robber (CR) game in which the robber is invisible, i.e., the cops do not know his location until they capture him. We examine two variants: in the first the robber is adversarial (he actively tries to avoid capture); in the second he is drunk (he performs a random walk). We study the invisible Cost of Drunkenness (iCOD), which is defined as the ratio $c_{ti}(G)/d_{ti}(G)$, with $c_{ti}(G)$ and $d_{ti}(G)$ being the expected capture times in the adversarial and drunk CiR variants, respectively. In this talk we provide bounds for $d$-regular trees and grids, and time permitting, we give general upper and lower bounds for general classes of graphs.

Joint work with A. Kehagias and P. Prałat.

All Faculty, staff, students and guests are welcome to attend