ALEXANDER CLOW, Simon Fraser University

The Hole Story for Cop Number

The cop number of a graph, written $c(G)$, is a central invariant in the study of discrete-time processes on graphs. One advantage of cop number is its deep and well documented connection to concepts in structural graph theory, such as graph minors, subgraphs, and induced subgraphs. This talk will survey recent work on the connection between cop number and the structure of holes in a graph. A hole is an induced cycle of length at least 4. In doing so we will show that any graph G with $c(G) = \theta(G) = k \geq 2$, where $\theta(G)$ is the clique cover number, has C_ℓ as an induced subgraph for all $3 \leq \ell \leq k+1$. We will also prove that in any graph without holes of length at most t, $N[P]$ can be guarded by 1 cop for any short (as a function of t) induced path P, even when P is not a shortest path.