## ANDREW HOEFEL, Queen's University

Powers of edge ideals with linear resolutions

Let I(G) be the edge ideal of a simple graph G and let  $\mathcal{F}_k$  be the set of simple graphs G for which  $I(G)^d$  has a linear resolution for all  $d \ge k$ . Although Herzog, Hibi and Zheng showed that  $F_1$  is the set of chordal graphs, combinatorial classifications of  $F_k$  for  $k \ge 2$  remain to be found. Nevo's family of claw and four cycle free graphs may be a subset of  $F_2$  since their second powers have linear resolutions, but it is not known whether the higher powers of these graphs also have linear resolutions. I will be talking about combinatorial techniques for showing higher powers of edge ideals have linear resolutions in an effort to find subsets of the  $\mathcal{F}_k$ .