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Andrew H Hoefel* (ahhoefel@mast.queensu.ca), Department of Math & Stats, Jeffery Hall, University Ave., Kingston, Ontario K7L 3N6, Canada. *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 $d \geq k$. Although Herzog, Hibi and Zheng showed that F_1 is the set of chordal graphs, combinatorial classifications of F_k for $k \geq 2$ 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 . (Received February 13, 2012)