**NURSEL EREY**, North Dakota State University

*Powers of Edge Ideals with Linear Quotients or Linear Resolutions*

A classical result of Fröberg states that the edge ideal $I(G)$ of a graph $G$ has linear minimal free resolution if and only if the complement graph $G^c$ is chordal. For edge ideals, Herzog, Hibi and Zheng showed that having linear minimal free resolutions is also equivalent to having linear quotients. Moreover, they proved that if $I(G)$ has a linear minimal free resolution, then every power of $I(G)$ has linear minimal free resolution. This result was extended by D'Alì by showing that every power of $I(G)$ has linear quotients if $I(G)$ has linear quotients.

I will provide linear quotients orderings for powers of edge ideals of some graphs and present related results. In the second part of my talk, I will talk about the problem of describing edge ideals whose powers eventually have linear resolutions. In particular, I will discuss powers of edge ideals of some gap-free graphs.