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Louiza Fouli and **Susan E. Morey*** (morey@txstate.edu), Department of Mathematics, Texas State University, 601 University Dr., San Marcos, TX 78666. *Depths and Reductions of Edge Ideals of Graphs*. Preliminary report.

There is a natural one-to-one correspondence between square-free monomial ideals generated in degree two and graphs. In this talk, properties of a graph will be used to give algebraic information about the corresponding edge ideal. Of particular interest will be the depths and reductions of the edge ideals. It will be shown that the depths of low powers of the edge ideal are bounded below by a function of the diameter of the graph, generalizing a previous result for edge ideals of trees. For graphs with at most one cycle, minimal reductions of the edge ideal will be examined. Using the ideal of equations of the fiber cone, it will be shown that the generating sets of minimal reductions of these ideals have a particularly nice form, and this form will be used to shed light on the core of the ideal. (Received February 22, 2010)