

1106-13-986

Susan E. Morey* (morey@txstate.edu), Department of Mathematics, Texas State University, 601 University Dr., San Marcos, TX 78666. *Using Parameters from Graph Theory to Bound Algebraic and Geometric Invariants of Edge Ideals.*

In recent years many exciting connections have been discovered between parameters in Graph Theory, Combinatorics, and Commutative Algebra. Given a graph or a simple hypergraph, also called a clutter, there is an associated square-free monomial ideal, called the edge ideal. This association induces a natural one-to-one correspondence between square-free monomial ideals and clutters. Using this correspondence, algebraic properties of ideals can be translated into graph theoretic or combinatorial properties and vice versa, thus allowing techniques from one field of mathematics to be used to answer questions from another. The focus of this talk will be on how parameters of a graph or hypergraph, such as the diameter, independence number, domination number, or matching number, relate to algebraic invariants of the edge ideal of the graph or hypergraph. The algebraic invariants presented will be of geometric interest, such as depth, projective dimension, and index of stability. (Received September 09, 2014)