1053-13-308 **Andrew H Hoefel*** (`andrew.hoefel@mathstat.dal.ca`), Department of Mathematics and Statistics, Chase Building, Dalhousie University, Halifax, NS B3H 3J5, Canada. *Gotzmann Edge Ideals.*

Let P be the polynomial ring in n variables over a field. A homogeneous ideal $I \subset P$ generated in degree d is called Gotzmann if it has the smallest possible Hilbert function out of all homogeneous ideals with the same dimension in degree d. An edge ideal is a quadratic square-free monomial ideal and its minimal monomial generators correspond to the edges of a simple graph. From combinatorial bounds on Hilbert functions it can be shown that only star graphs have Gotzmann edge ideals. The analogous problem for all square-free monomial ideals leads to interesting inequalities. (Received September 07, 2009)