

1106-VN-725      **J. Mackenzie Gallagher\*** ([gallaghe.john@uwlax.edu](mailto:gallaghe.john@uwlax.edu)), 1725 State St, Dept of Mathematics, La Crosse, WI 54601. *Diameters of polytope graphs and an improved upper bound on subset partition graphs*. Preliminary report.

The graphs of polytopes are studied in mathematical optimization because of their relation to the simplex method for linear programming. A polytope is the convex hull of a finite set of points, and is a high-dimensional generalization of a convex polygon or polyhedron. They are the set of feasible solutions for linear programs. The study of the diameter of graphs obtained from polytopes is related to the efficiency of the simplex method.

Recently, Kim has introduced subset partition graphs, a generalization of previous abstract polytopes. In 2009, Eisenbrand et al. proved that these previous abstract polytopes satisfied an analogue of the Kalai-Kleitman subexponential bound for polytopes. In 2014, Todd improved the Kalai-Kleitman bound for polytopes. In this talk, we show that an analogue of Todd's bound applies to subset partition graphs. (Received September 05, 2014)