1024-05-229   **Robert A. Proctor*** (`rap@email.unc.edu`), Department of Mathematics, University of North Carolina, Chapel Hill, NC 27599-3250. *Extremal Properties for Lie Theoretic Posets?* Preliminary report.

Algebraic and geometric considerations have led to Dynkin diagram classifications of many kinds of special objects, such as Lie groups, root systems, Weyl groups, and quivers. Occasionally these rather special objects which have been singled out by nature are known to possess extremal properties. For example, the E8 root lattice describes a nice sphere packing in 8 dimensions. Extremal combinatorialists may be interested in certain classes of partially ordered sets which arise in Lie theory. Bruhat posets are defined on the elements of Weyl groups. d-Complete posets are associated to the Bruhat posets which are distributive lattices; they directly enjoy their own Dynkin diagram classification theorem. Using a result of Griggs, Stanley showed that Bruhat posets on finite Weyl groups possess the extremal set theoretic Sperner property. Some Bruhat posets arose in L.H. Harper's solutions to the edgesum and edge isoperimetric minimization problems for the graphs of the Platonic solids. (Received January 09, 2007)