1117-13-162 **Susan Marie Cooper*** (susan.marie.cooper@ndsu.edu), Department of Mathematics, NDSU Dept #2750, PO Box 6050, Fargo, ND 58108-6050. *The Symbolic Polyhedron and Waldschmidt Constant.*

Computing symbolic powers of homogeneous ideals is quite challenging, even for monomial ideals. In this talk we compare symbolic and regular powers of monomial ideals. We will investigate the symbolic polyhedron of a monomial ideal, a convex polyhedron with the property that when scaled by a factor of m it contains the exponent vectors of all monomials in the mth symbolic power of the ideal. We will connect the symbolic polyhedron to the Waldschmidt constant which is an asymptotic invariant defined by the initial degrees of the symbolic powers of the ideal. This is joint work from two projects: the first with R. Embree, H. T. Hà, and A. Hoefel and the second with C. Bocci, E. Guardo, B. Harbourne, M. Janssen, U. Nagel, A. Seceleanu, A. Van Tuyl, and T. Vu. (Received January 12, 2016)