1127-52-115 **Robert Davis*** (davisr@math.msu.edu), 619 Red Cedar Rd., Michigan State University, East Lansing, MI 48824, and **Bruce Sagan**. *Pattern-avoiding Birkhoff polytopes and an application of Gröbner basis techniques.*

The Birkhoff polytope B_n is the convex hull of all $n \times n$ permutation matrices, and is a long-studied polytope related to many areas of mathematics. This talk will discuss a generalization which considers subpolytopes $B_n(\Pi)$ of B_n whose vertices correspond to permutations avoiding a given set of patterns Π. We will pay special attention to $B_n(132, 312)$ due to its relationship with certain EL-shellable posets, shifted standard Young tableaux, and (P, ω)-partitions. We will see how Gröbner basis techniques allow us to identify a regular, unimodular triangulation of $B_n(132, 312)$, which in turn allows us to compute explicit formluas for its normalized volume and its Ehrhart h^*-vector. (Received January 28, 2017)