1106-14-2731 **Jason A. Miller*** (millerj@math.osu.edu). *Okounkov Bodies of Borel Orbit Closures.*

The theory of Okounkov bodies generalizes the relationship between toric geometry and polytopes. The theory associates to a valuation v and line bundle $\mathcal{L}$ on a projective variety, a convex body $\Delta_v(\mathcal{L})$, which encodes information about the variety and line bundle. Spherical varieties are a generalization of certain classes of varieties with group actions such as toric and flag varieties. For such varieties, Okounkov theory can be used to obtain information about the G-orbits via faces on an associated polytope. However, much of the structure of these varieties is determined by the Borel orbit structure, which is generally not well understood. I will discuss original work examining an extension of this correspondence for a certain class of spherical varieties, wonderful group compactifications. Given any Borel orbit closure Z of a wonderful group compactification, the Okounkov construction gives a finite union of faces of the Okounkov polytope. This correspondence enjoys similar properties as in the case of G-orbits. The dimension of the space of global sections $H^0(Z,\mathcal{L})$ is given by the number of lattice points in the union of faces. One can then calculate the degree of $\mathcal{L}$ by taking the sum of the volume of these faces. (Received September 16, 2014)