1117-14-371   **Martha Precup*** (`mprecup@math.northwestern.edu`) and **Edward Richmond**
(`edward.richmond@okstate.edu`). *Generalized Kostant Polynomials.* Preliminary report.

Let $\mathfrak{g}$ be a semisimple Lie algebra and W denote the corresponding Weyl group. The Kostant polynomial K_w corresponding to $w \in W$ is a degree $\ell(w)$ polynomial that satisfies certain vanishing properties on the orbit $W \cdot S_r$ of a regular semisimple element of $\mathfrak{g}$. The values of each K_w on the W-orbit points are given by a combinatorial formula which has applications to equivariant Schubert calculus and is closely related to the geometry of the Schubert variety X_w.

In this talk, we define polynomials that satisfy analogous vanishing conditions on the W-orbit of an arbitrary semisimple element S and use these to analyze the coordinate ring $\mathbb{C}[W \cdot S]$. We are motivated to do so by a result of Jim Carrell proving that in many cases $Gr\,\mathbb{C}[W \cdot S]$ is isomorphic to the cohomology ring of the Springer fiber $\mathcal{B}^N$ where N is a regular nilpotent element of the Levi subalgebra $\mathfrak{z}_{\mathfrak{g}}(S)$ of $\mathfrak{g}$. (Received January 18, 2016)