1077-14-1989 Erik A Insko* (erik-insko@uiowa.edu) and Alexander Yong. Patch Ideals and Peterson Varieties.

Patch ideals encode neighborhoods of a variety in $GL_n/B$. For Peterson varieties we determine generators for these ideals and show they are complete intersections, and thus Cohen-Macaulay and Gorenstein. We combinatorially describe the singular locus of the Peterson variety; give an explicit equivariant $K$-theory localization formula; and extend some results of B. Kostant and of D. Peterson to intersections of Peterson varieties with Schubert varieties. Similarly, we use patch ideals to briefly analyze other examples of torus-invariant subvarieties of $GL_n/B$, including Richardson varieties and Springer fibers. (Received September 21, 2011)