1105-14-198 **Justin Sawon*** (sawon@email.unc.edu), Department of Mathematics, University of North Carolina, Chapel Hill, NC 27599-3250. *Projective duality and Brauer elements on K3 surfaces.*

The Brauer group of a variety S is the group of torsion elements in $\mathrm{H}^2(S, \mathcal{O}^*)$. These elements arise as obstructions to lifting PGL(n)-bundles to GL(n)-bundles, and can therefore be represented geometrically as $\mathbb{P}^{n-1}$-bundles, known as Brauer-Severi varieties. Brauer elements of K3 surfaces arise naturally in moduli problems, but it is not always clear how to realize these elements geometrically. In this talk we describe some examples coming from projective duality. These include a degree eight K3 surface in $\mathbb{P}^5$, projectively dual to a degree two K3 surface, and a degree eighteen K3 surface in $\mathbb{P}^{10}$ (a linear section of a certain G_2-homogeneous variety), also projectively dual to a degree two K3 surface. In these examples, Brauer elements arise with natural geometric realizations, coming from certain Fano varieties associated to the K3 surfaces. (Received September 19, 2014)