1048-20-150   **Ting Xue*** (`txue@math.mit.edu`), Department of Mathematics, Massachusetts Institute of Technology, Cambridge, MA 02139. *Nilpotent orbits in characteristic 2 and Springer correspondence.*

Let G be an adjoint algebraic group of type B, C or D defined over an algebraically closed field $\mathbf{k}$ of characteristic 2 and $\mathfrak{g}$ be the Lie algebra of G. Let $\mathfrak{g}^*$ be the dual vector space of $\mathfrak{g}$. We construct Springer correspondences for the nilpotent varieties in $\mathfrak{g}$ and $\mathfrak{g}^*$. The correspondence in $\mathfrak{g}$ (resp. $\mathfrak{g}^*$) is a bijective map from the set of isomorphism classes of irreducible representations of the Weyl group of G to the set of all pairs $(c, \mathcal{F})$, where c is a nilpotent G-orbit in $\mathfrak{g}$ (resp. $\mathfrak{g}^*$) and $\mathcal{F}$ is an irreducible G-equivariant local system on c (up to isomorphism). In particular, we classify the nilpotent G-orbits in $\mathfrak{g}^*$ over $\mathbf{k}$ and the nilpotent G-orbits in $\mathfrak{g}$ and $\mathfrak{g}^*$ over finite fields of characteristic 2. (Received February 04, 2009)