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Christopher M Drupieski* (c.drupieski@depaul.edu) and **Jonathan R Kujawa** (kujawa@math.ou.edu). *Support varieties and modules of finite projective dimension for modular Lie superalgebras.*

Let \mathfrak{g} be a finite-dimensional Lie superalgebra over an algebraically closed field k of characteristic $p \geq 3$. Using the cohomology ring of \mathfrak{g} , one can define for each finite-dimensional \mathfrak{g} -supermodule M a corresponding affine algebraic variety $X_{\mathfrak{g}}(M)$, called the cohomological support variety of M . In this talk I'll discuss recent work with Jonathan Kujawa in which we give an explicit 'rank variety' description for $X_{\mathfrak{g}}(M)$ as a subset of $X_{\mathfrak{g}} = \{x \in \mathfrak{g}_{\bar{1}} : [x, x] = 0\}$, the odd nullcone of \mathfrak{g} . A key tool in our approach is the Clifford filtration on \mathfrak{g} , which helps us to compare $X_{\mathfrak{g}}(M)$ to the support variety of a certain related unipotent finite supergroup scheme. As corollaries of our main result, I'll discuss a characterization of when a finite-dimensional \mathfrak{g} -supermodule is of finite projective dimension, and a positive characteristic analogue of a theorem of Bøgvad concerning a criterion for when the enveloping algebra of \mathfrak{g} is of finite global dimension. (Received February 08, 2020)