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**Brian D. Boe, Jonathan R. Kujawa and Daniel K. Nakano\*** (nakano@math.uga.edu),  
Department of Mathematics, University of Georgia, Athens, GA 30605. *Complexity and varieties  
for modules over Lie superalgebras.*

Let  $\mathfrak{g} = \mathfrak{g}_0 \oplus \mathfrak{g}_1$  be a classical Lie superalgebra and  $\mathcal{F}$  be the category of finite-dimensional  $\mathfrak{g}$ -modules which are semisimple over  $\mathfrak{g}_0$ . In this talk the speaker will explore the homological properties of the category  $\mathcal{F}$ . In particular it will be shown that  $\mathcal{F}$  is Frobenius in the sense that all projective modules are injective. Moreover, all modules in  $\mathcal{F}$  admit a projective resolution with polynomial rate of growth. Later the speaker will show that when  $\mathfrak{g}$  is a Type I Lie superalgebra with a (strong) duality that the condition of tilting and projective are equivalent through the use of support varieties in conjunction with the associated varieties defined by Duflo and Serganova. (Received February 05, 2009)