1075-20-63 **Daniel K. Nakano*** (nakano@math.uga.edu), Department of Mathematics, University of Georgia, Athens, GA 30602. *Support varieties and cohomology for modules over quantum groups.*

In this talk I will explain how to compute the support varieties of all the irreducible modules for the small quantum group $u_\zeta(\mathfrak{g})$, where $\mathfrak{g}$ is a simple, complex Lie algebra and ζ is an ℓ-th root of unity larger than the Coxeter number. This calculation employs the prior calculations and techniques of Ostrik and of Nakano–Parshall–Vella, in addition to deep results involving the validity of the Lusztig character formula and the positivity of parabolic Kazhdan-Lusztig polynomials for the affine Weyl group. Analogous results are provided for the first Frobenius kernel G_1 of a reductive algebraic group scheme G defined over the prime field $\mathbb{F}_p$.

If time permits, I will discuss the problem of realizing coordinate algebras of nilpotent orbit closures in regards to the cohomology for quantum groups. These results encompass joint work with Christopher Drupieski, Brian Parshall (support varieties) and Zongzhu Lin (realizing rings of regular functions). (Received August 20, 2011)