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**Julia Pevtsova\*** (julia@math.washington.edu) and **Sarah Witherspoon**. *Quantum shifted subgroups and support varieties for some non-cocommutative Hopf algebras.*

The theory of support varieties for modules was originated in a groundbreaking work of Quillen who introduced geometry into the study of cohomological properties of a finite group.

In this talk I shall construct the rank and support varieties for the Borel part of a “small” quantum group  $b_q(sl_2^n)$ , which can be viewed as a quantum analogue of an elementary abelian  $p$ -group. The main challenge, and the major difference from the known cases, arises from the fact that the coproduct, which gives rise to the tensor structure on the module category, is not cocommutative. Yet, we find analogues of Carlson’s shifted cyclic subgroups for  $b_q(sl_2^n)$ , and prove that the support variety of a  $b_q(sl_2^n)$ -module defined in terms of cohomology and the rank variety defined in terms of representation theory coincide.

As an application, we generalize the result of Erdmann and Holloway who establish a similar “rank=support” theorem for the modules of truncated polynomial algebras of the form  $k[t_1, \dots, t_n]/(t_i^2)$ . (Received February 21, 2006)