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**Ngo.** *Cohomology for infinitesimal unipotent algebraic and quantum groups.*

In this talk we will study the structure of cohomology spaces for the Frobenius kernels of unipotent and parabolic algebraic group schemes and of their quantum analogs. Given a simple algebraic group  $G$ , a parabolic subgroup  $P_J$ , and its unipotent radical  $U_J$ , we determine the ring structure of the cohomology ring  $H^\bullet((U_J)_1, k)$ . We also obtain new results on computing  $H^\bullet((P_J)_1, L(\lambda))$  as an  $L_J$ -module where  $L(\lambda)$  is a simple  $G$ -module with high weight  $\lambda$  in the closure of the bottom  $p$ -alcove. Finally, we provide generalizations of all our results to the quantum situation. (Received August 03, 2010)