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Christopher R. Nowlin* (cnowlin@math.ucsb.edu), cnowlin@math.ucsb.edu. *Torus-invariant prime spectrum of an affine quantum nilpotent Lie algebra.*

Fix a nonzero scalar q and an integer $n \geq 2$. We introduce an algebra $\mathbf{X}_{n,q}$, which has a quotient isomorphic to a distinguished subalgebra of the FRT-algebra of type D_n . Let W represent the affine Weyl group of type \tilde{A}_3 ; we show there is a particular element $\hat{w} \in W$ for which $\mathbf{X}_{2,q}$ is isomorphic to a cocycle twist of the corresponding De Concini-Kac-Procesi algebra, denoted $U_q^{\hat{w}}$. Under standard mild hypotheses, there is an algebraic torus H which acts by algebra automorphisms on $\mathbf{X}_{2,q}$ with respect to which $\mathbf{X}_{2,q}$ is a Cauchon-Goodearl-Letzter extension. We will proceed to show that the subset of the prime spectrum of $\mathbf{X}_{2,q}$ invariant under the induced action of H is isomorphic as a partially ordered set to the Bruhat order interval $\{w \in W : w \leq \hat{w}\}$. This agrees with a theorem of Yakimov's for De Concini-Kac-Procesi algebras of finite type. (Received September 01, 2011)