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**Xin Tang\*** (xtang@uncfsu.edu), 1200 Murchison Road, Fayetteville, NC 28301. *The Automorphism Groups for a Family of Generalized Weyl Algebras.*

We present some results on the algebra automorphisms for a family of generalized Weyl algebras  $\mathcal{A}_p(\lambda, \mu, K_q[s, t])$  and some related algebras. First of all, we show that these generalized Weyl algebras possess simple localizations in the case where none of  $p$  and  $q$  is a root of unity. As an application, we are able to determine height-one prime ideals and the automorphism groups for these generalized Weyl algebras, and solve the isomorphism problem in the generic case. Second of all, we establish a quantum analogue of the Dixmier conjecture and determine their automorphism groups for the simple localizations of these generalized Weyl algebras. Using the method of discriminant, we are also able to determine the automorphism group for the generalized Weyl algebras  $A_p(1, 1, K_q[s, t])$  in the case where neither  $p$  nor  $q$  is equal to one. Some relevant problems will be addressed as well. (Received August 01, 2016)