Robert Won* (robwon@uw.edu), Luigi Ferraro and Jason Gaddis. A translation principle for generalized Weyl algebras.

Stafford studied the infinite-dimensional primitive quotients of the universal enveloping algebra $U(Sl_2)$. These rings are parametrized by $\mathbb{C}$; for each $\lambda \in \mathbb{C}$, there is a ring $R_{\lambda}$. Stafford proved a translation principle for these rings: as long as $\lambda \neq -2, -1$ then $R_{\lambda}$ is Morita equivalent to $R_{\lambda+1}$. Each $R_{\lambda}$ can be realized as a generalized Weyl algebra with base ring $\mathbb{C}[z]$ and quadratic defining element. We study generalized Weyl algebras $A$ with base ring $\mathbb{C}[z]$ or $\mathbb{C}[z, z^{-1}]$ with arbitrary defining element and prove a graded translation principle, showing that the noncommutative projective scheme $qgrmod-A$ is equivalent to the noncommutative projective scheme of a simple generalized Weyl algebra. This work is joint with Luigi Ferraro and Jason Gaddis. (Received July 05, 2019)