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Robert Won* (rwon@ucsd.edu). *The category of graded modules of a generalized Weyl algebra.* Preliminary report.

The first Weyl algebra $A = k\langle x, y \rangle / (xy - yx - 1)$ is \mathbb{Z} -graded with $\deg x = 1$ and $\deg y = -1$. Sue Sierra studied its category of graded modules, $\text{gr } A$. Paul Smith showed that $\text{gr } -A$ is equivalent to the category of graded modules over a commutative ring graded by finite subsets of \mathbb{Z} . Generalized Weyl algebras are a class of noncommutative rings introduced by Vladimir Bavula which generalize the Weyl algebra. In this talk, we investigate the category of graded modules over certain generalized Weyl algebras and in some cases construct commutative rings with equivalent graded module categories. (Received January 20, 2015)