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*Cocycle twists and Manin's universal quantum groups*

We examine 2-cocycle twists of a family of infinite-dimensional Hopf algebras, known as Manin's universal quantum groups, denoted by  $\underline{\text{aut}}(A)$ , which Manin showed, universally coact on connected graded quadratic algebras,  $A$ . In this talk, we consider  $\underline{\text{aut}}(A)$  under a more general setting, namely, when  $A$  is a finitely generated algebra subject to  $m$ -homogeneous relations and show how  $\underline{\text{aut}}(A)$  can be twisted by 2-cocycles. This is joint work with V. C. Nguyen, H. Huang, C. Ure, K. B. Vashaw, and X. Wang.