On Classification of Quantum $p$-Groups via Primitive Deformations.

Our goal is to study the structures of finite-dimensional connected Hopf algebras, to which we refer as finite quantum $p$-groups, over an algebraically closed field $k$ of prime characteristic $p$. In particular, we introduce a concept, called Primitive Deformation, to provide a structured technique to classify all $p^{n+1}$-dimensional connected Hopf algebras whose primitive space is an abelian restricted Lie algebra of dimension $n$. As an application for case $n = 2$, this work helps us to complete the classification of $p^i$-dimensional, where $i \leq 3$, connected Hopf algebras over $k$. All necessary background will be given. This is a joint work with Linhong Wang and Xingting Wang. (Received August 22, 2016)