DEFORMATION BY COCYCLES OF POINTED HOPF ALGEBRAS OVER NON-ABELIAN GROUPS

GASTÓN ANDRÉS GARCÍA AND MITJA MASTNAK

ABSTRACT. We introduce a method to construct multiplicative 2-cocycles for bosonizations of Nichols algebras over Hopf algebras with bijective antipode. These cocycles arise as liftings of invariant ε-biderivations defined on the Nichols algebras. Using this construction, we show that all known finite dimensional pointed Hopf algebras over the dihedral groups $\mathbb{D}_m$ with $m = 4t \geq 12$, over the symmetric group $\mathbb{S}_3$ and some families over $\mathbb{S}_4$ are cocycle deformations of bosonizations of Nichols algebras, by constructing explicitly the 2-cocycles.