Kadison, Lars


Summary: To a depth two extension $A \mid B$, we associate the dual bialgebroids $S := \text{End}_B A_B$ and $T := (A \otimes_B A)^B$ over the centralizer $R = C_A(B)$. In a set-up which is quite common, where $R$ is a subalgebra of $B$, two nondegenerate pairings of $S$ and $T$ will define an anti-automorphism $\tau$ of the algebra $S$. Making use of a two-sided depth two structure, we show that $\tau$ is an antipode and $S$ is a Hopf algebroid of a type we call skew Hopf algebra. A final section discusses how $\tau$ and the nondegenerate pairings generalize to modules via the $\pi$-method for depth two.

MSC:

16T05 Hopf algebras and their applications
16T10 Bialgebras

Keywords:

depth two extensions; dual bialgebroids; pairings; anti-automorphisms; antipodes; Hopf algebroids; skew Hopf algebras

Full Text: arXiv