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Lagraa, M.; **Touhami, N.**

The inhomogeneous quantum groups from differential calculi with classical dimension. (English) Zbl 0982.17007

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Authors' summary: From the bicovariant first-order differential calculus on inhomogeneous Hopf algebra $\mathcal{B}$ the authors construct the set of right-invariant Maurer-Cartan one-forms considered as a right-invariant basis of a bicovariant $\mathcal{B}$-bimodule over which they develop the Woronowicz general theory of differential calculus on quantum groups [*S. L. Woronowicz*, Commun. Math. Phys. 122, 125-170 (1989; Zbl 0751.58042)]. In this formalism, they introduce suitable functionals on $\mathcal{B}$ which control the inhomogeneous commutation rules. In particular, they find that the homogeneous part of commutation rules between the translations and those between the generators of the homogeneous part of $\mathcal{B}$ and translations are controlled by different R-matrices satisfying characteristic equations.

MSC:

17B37 Quantum groups (quantized enveloping algebras) and related deformations

16W35 Ring-theoretic aspects of quantum groups (MSC2000)

81R50 Quantum groups and related algebraic methods applied to problems in quantum theory

Keywords:

Woronowicz theory; bicovariant first-order differential calculus; inhomogeneous Hopf algebra; right-invariant Maurer-Cartan one-forms; quantum groups; commutation rules

Full Text: DOI

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