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Derivations and automorphism of certain quantum algebras. (Dérivations et automorphismes de quelques algèbres quantiques.) (French) [Zbl 0760.17003](#)
Commun. Algebra 20, No. 6, 1787-1802 (1992).

As its title indicates, this paper is concerned with automorphisms and derivations of certain quantum algebras. More precisely:

(i). Let A be the multiparametric quantum affine algebra, i.e. A is generated by variables x_i , $1 \leq i \leq n$, subject to the commutation rules $x_i x_j = q_{ij} x_j x_i$, where $q_{ij} q_{ji} = 1$, $q_{ii} = 1$. Then all the derivations of A are determined. The analysis is carried further in some special cases, and this is used to obtain information about the automorphisms of A . For example, $\text{Aut}(A)$ is determined if $q_{ij} = q$ for $i < j$ and q is not a root of 1.

(ii). In a similar way, the automorphisms and derivations of the algebra of 2×2 quantum matrices and of the quantum enveloping algebra of $sl(2)$ (again q is different from a root of 1) are determined.

Reviewer: [N.Andruskiewitsch \(Bonn\)](#)

MSC:

- [17B37](#) Quantum groups (quantized enveloping algebras) and related deformations
- [17B40](#) Automorphisms, derivations, other operators for Lie algebras and super algebras
- [16W30](#) Hopf algebras (associative rings and algebras) (MSC2000)
- [16W20](#) Automorphisms and endomorphisms
- [16W25](#) Derivations, actions of Lie algebras

Cited in **2** Reviews
Cited in **39** Documents

Keywords:

automorphisms; derivations; quantum algebras; multiparametric quantum affine algebra; algebra of 2×2 quantum matrices; quantum enveloping algebra of $sl(2)$

Full Text: [DOI](#)

References:

- [1] Jacobson N., Lectures in Abstract Algebra III · [Zbl 0124.27002](#)
- [2] DOI: 10.1017/S030500410005266X · [Zbl 0362.17008](#) · doi:10.1017/S030500410005266X
- [3] Manin Y.I., Quantum groups and non commutative geometry (1988) · [Zbl 0724.17006](#)
- [4] Rentschler R., C.R.A.S 267 pp 384– (1968)
- [5] Smith S.P., An introduction and survey for ring theorists · [Zbl 0744.16023](#)
- [6] Van Der Kulk W., Nieuw Arch.Wisk 1 pp 33– (1953)

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