

SYMMETRIC LIFTINGS OF QUANTUM LINEAR SPACES

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Abstract. We determine all liftings of quantum linear spaces over the group Hopf algebra of an abelian group that are symmetric as coalgebras. In particular we discuss classes of pointed Hopf algebras that appear in several classification theorems.

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Key words. Hopf algebra, quantum linear space, pointed Hopf algebra, symmetric coalgebra.

REFERENCES

- [1] ANDRUSKIEWITSCH, N. and SCHNEIDER, H.J., *Liftings of quantum linear spaces and pointed Hopf algebras of order p^3* , J. Algebra, **209** (1998), 658–691.
- [2] BEATTIE, M., DĂSCĂLESCU, S. and GRÜNENFELDER, L., *Constructing pointed Hopf algebras by Ore extensions*, J. Algebra, **225** (2000), 743–770.
- [3] CAENEPEEL, S. and DĂSCĂLESCU, S., *Pointed Hopf algebras of dimension p^3* , J. Algebra, **209** (1998), 622–634.
- [4] CAENEPEEL, S. and DĂSCĂLESCU, S., *On pointed Hopf algebras of dimension 2^n* , Bull. London Math. Soc., **31** (1999), 17–24.
- [5] CAENEPEEL, S., DĂSCĂLESCU, S. and RAIANU, Ș., *Classifying pointed Hopf algebras of dimension 16*, Comm. Algebra, **28** (2000), 541–568.
- [6] CASTAÑO IGLESIAS, F., DĂSCĂLESCU, S. and NĂSTĂSESCU, C., *Symmetric coalgebras*, preprint.
- [7] DĂSCĂLESCU, S., NĂSTĂSESCU, C. and RAIANU, Ș., *Hopf algebras: An introduction*, Pure and Applied Math., **235**, Marcel Dekker, 2000.
- [8] NICHOLS, W.D., *Bialgebras of type one*, Comm. Algebra, **6** (1978), 1521–1552.
- [9] ȘTEFAN, D. and VAN OYSTAEYEN, F., *Hochschild cohomology and the coradical filtration of pointed coalgebras: applications*, J. Algebra, **210** (1998), 535–556.

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