

**Delvaux, L.; Van Daele, A.; Wang, S. H.**

**Bicrossproducts of algebraic quantum groups.** (English) Zbl 1271.16032  
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Let  $A$  and  $B$  be two regular multiplier Hopf algebras,  $A$  acting on  $B$ ,  $B$  coacting on  $A$ , making them a matched pair. Several properties of the Hopf algebra  $A\#B$  are studied. If  $A$  has left and right integrals, there exists a distinguished multiplier  $y \in M(B)$ , satisfying a compatibility with the integrals of  $A$ . Integrals, modular elements, scaling constant on  $A\#B$  are given when  $A$  and  $B$  are algebraic quantum groups. It is shown that the dual of  $A\#B$  is the smash product of the duals of  $A$  and  $B$ . Complementary results are given for  $*$ -Hopf algebras. Several examples are studied throughout the paper: the case of a matched pair of groups, the case  $B = A^{cop}$ , the case where the action or the coaction is trivial . . .

Reviewer: Loïc Foissy (Calais)

**MSC:**

- 16T05 Hopf algebras and their applications
- 16T20 Ring-theoretic aspects of quantum groups
- 17B37 Quantum groups (quantized enveloping algebras) and related deformations

Cited in 1 Document

**Keywords:**

multiplier Hopf algebras; integrals; algebraic quantum groups; bicrossproducts; smash products

**Full Text:** [DOI](#)

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