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“Quantum function algebras as quantum enveloping algebras”

ABSTRACT

Inspired by a result in [Ga], we locate three integer forms of \( F_q[SL(n+1)] \) over \( k[q, q^{-1}] \), with a presentation by generators and relations, which for \( q = 1 \) specialize to \( U(\mathfrak{h}) \), where \( \mathfrak{h} \) is the Lie bialgebra of the Poisson Lie group dual to \( SL(n+1) \).

In sight of this, we prove also two PBW-like theorems for \( F_q[SL(n+1)] \), both related to the classical PBW theorem for \( U(\mathfrak{h}) \).

References

[Ko] H. T. Koelink, On \( \ast \)-representations of the Hopf \( \ast \)-algebra associated with the quantum group \( U_q(n) \), Compositio Mathematicae 177 (1992), 199–231.