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Fabio GAVARINI

"Quantization of Poisson groups"

ABSTRACT

Let G^τ be a connected simply connected semisimple algebraic group, endowed with generalized Sklyanin-Drinfel'd structure of Poisson group; let H^τ be its dual Poisson group. By means of quantum double construction and dualization via formal Hopf algebras, we construct new quantum groups $U_{q,\varphi}^M(\mathfrak{h})$ — dual of the *multiparameter* quantum group $U_{q,\varphi}^{M'}(\mathfrak{g})$ built upon $\mathfrak{g}^\tau$, with $\mathfrak{g} = Lie(G)$ — which yield infinitesimal quantization of H^τ and G^τ ; we study their specializations at roots of 1 (in particular, their classical limits), thus discovering new quantum Frobenius morphisms. The whole description dualize for H^τ what was known for G^τ, completing the quantization of the pair (G^τ, H^τ).

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