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11. Mathematical Physics

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Elliptic quantum groups.

We will present two types of quasi-Hopf algebras $\mathcal{A}_{q,p}(\widehat{\mathfrak{sl}_n})$ and $\mathcal{B}_{q,\lambda}(\mathfrak{g})$ ($\mathfrak{g}$ being Kac-Moody algebra with symmetrizable GCM), which are elliptic deformations of the quantum group $U_q(\mathfrak{g})$ ($\mathfrak{g} = \widehat{\mathfrak{sl}_n}$ for the former)[1], corresponding to two types of exactly solvable lattice models, the vertex type and the face type. In addition, defining the algebra $U_{q,p}(\mathfrak{g})$ ($\mathfrak{g}$ being untwisted affine Lie algebra) as a tensor product of $\mathcal{B}_{q,\lambda}(\mathfrak{g})$ and one Heisenberg algebra, we will present its relation to the q-deformation of the W-algebra associated with $\mathfrak{g}$[1,2].

Reference:

[1] M. Jimbo, H. Konno, S. Odake and J. Shiraishi, Quasi-Hopf twistors for elliptic quantum groups, q-alg/9712029, to appear in *Transform. Groups;* Elliptic algebra $U_{q,p}(\widehat{\mathfrak{sl}_2})$: Drinfeld current and vertex operators, q-alg/9802002.

[2] H. Konno, An elliptic algebra $U_{q,p}(\widehat{\mathfrak{sl}_2})$ and the fusion RSOS model, q-alg/9709013, to appear in *Comm. Math. Phys.*