On Set-Theoretical Solutions to Quantum Yang-Baxter Equation

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Abstract: The problem on the set-theoretical solutions to the quantum Yang-Baxter equation was presented by Drinfel'd as a main unsolved problem in quantum group theory. The set-theoretical solutions are a natural extension of the usual (linear) solutions. In this paper, we not only give a further study on some known set-theoretical solutions (the Venkov's solutions), but also find a new kind of set-theoretical solutions which have a geometric interpretation. Moreover, the new solutions lead to the metahomomorphisms in group theory.

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