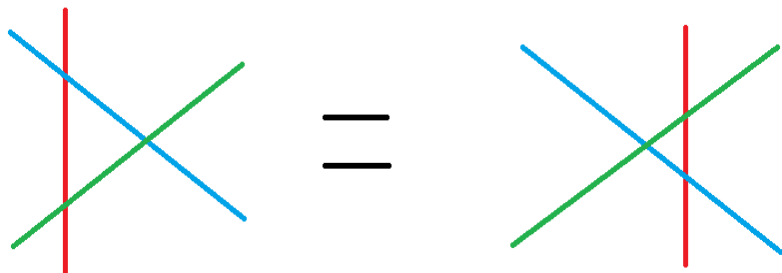


# Study on Exactly Solvable Model by Infinite Dimensional Algebra

Professor Takeo Kojima



$$R_{12}R_{13}R_{23}=R_{23}R_{13}R_{12}$$

Yang-Baxter equation

Contents:

I'm interested in exactly solvable models and try to get exact formulae of correlation functions. Especially I'm interested in interplay between exactly solvable model in field theory or statistical mechanics, and representation theory of infinite dimensional algebra. I study the exactly solvable models, which are described by elliptic functions. The symmetry of these model is the elliptic quantum group  $U_{q,p}$ . The elliptic quantum group  $U_{q,p}$  is both one parameter deformation of quantum group  $U_q$  and two parameter deformation of Lie algebra.

I construct free field realization of vertex operators and boundary state of the elliptic quantum group, and write down exact formulae of correlation functions. When we take the degeneration limit of models associated with the elliptic quantum group, we get conformal field theory and models associated with quantum group. Hence the elliptic quantum group is important symmetry.

Yamagata University Graduate School of Science and Engineering  
Research Interest : Infinite Analysis, Mathematical Physics

E-mail: [kojima@yz.yamagata-u.ac.jp](mailto:kojima@yz.yamagata-u.ac.jp)

Tel&Fax : 0238-26-3376