

On pyramids, Yangians and finite W -algebras

Elena Poletaeva

(The University of Texas Rio Grande Valley)

Abstract

A finite W -algebra is certain associative algebra attached to a pair (\mathfrak{g}, e) , where \mathfrak{g} is a complex semisimple Lie algebra and $e \in \mathfrak{g}$ is a nilpotent element. It is a generalization of the universal enveloping algebra $U(\mathfrak{g})$.

Certain combinatorial objects called pyramids encode the information needed to define finite W -algebras for $\mathfrak{gl}(n)$. These algebras were described in terms of Yangians (a class of Hopf algebras) by J. Brundan and A. Kleshchev. Then J. Brown, J. Brundan and S. Goodwin generalized this approach to the Lie superalgebras $\mathfrak{gl}(m|n)$.

We study finite W -algebras for the queer Lie superalgebra $Q(n)$ and discuss the connection between finite W -algebras and Yangians.

It is a joint work with V. Serganova.