RENORMALIZED QUANTUM DIMENSION AND MULTIVARIABLE INVARIANTS FOR LINKS ABSTRACT

CRISTINA ANA-MARIA ANGHEL

The aim of this talk is to present a class of multivariable link invariants constructed from a super Lie algebra of type I and their relation with Kashaev's invariants and the Volume Conjecture. In the first part of the talk, after a short introduction concerning the classical Reshetikhin-Turaev construction [5], we will describe the multivariable link invariants introduced by Geer and Patureau in [1]. The main idea is to use the "renormalized quantum dimension" of a module instead of the usual quantum dimension to adapt the classical Reshetikhin-Turaev method in the Lie super-algebras of type I situation. The second part will be devoted to the connection between the multivariable link invariants and HOMFLY-PT and Kashaev's invariants. We will explain how the intersection between the multivariable invariants and the colored HOMFLY-PT polynomials contains the Kashaev's invariants [2].

Category: Low-dimensional geometric topology

References

[1] N. Geer, B. Patureau-Mirand, *Multivariable link invariants arising from Lie superalgebras of type I*, J. Knot Theory Ramifications 19, Issue 1 (2010) 93-115

[2] N. Geer, B. Patureau-Mirand, *On the Colored HOMFLY-PT, Multivariable and Kashaev Link Invariants*, Commun. Contemp. Math. 10 (2008), no. 1 supp, 993-1011

[3] R.M. Kashaev, *A link invariant from quantum dilogarithm*, Modern Phys. Lett. A 10 (1995), no. 19, 14091418.

[4] H. Murakami, J. Murakami, *The colored Jones polynomials and the simplicial volume of a knot*, Acta Math. 186 (2001), no. 1, 85104

[5] N. Reshetikhin, V. Turaev, *Invariants of 3-manifolds via link polynomials and quantum groups*, Invent. Math. 103 (1991), 547-598