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Report PhD thesis
Candidate: Ilya Vilkoviskiy

The objective of Ilya Vilkoviskiy's thesis is the study of the integrable structures of conformal field theories (CFTs) and their connection with Yangian symmetries and the Bethe ansatz.

Chapter 1 concerns the study of integrable structures of CFTs using the reflection operator R. The link between the RLL relation, and the affine Yangian of gl(1) is discussed in detail. A family of commutating transfer matrices related to the "Intermediate Long Wave" hierarchy and the corresponding Bethe ansatz equations for the spectra are also derived.

Chapter 2 concerns the study of the integrable structures of CFTs with B, C and D symmetry. These integrable structures are realized as "spin chains" with boundaries, with affine gl(1) Yangian symmetry. Solutions of the Sklyanin KRKR equation and the corresponding Bethe ansatz equations are derived.

Finally, in chapter 3, the deformed W algebras associated with Lie algebras of type B, C, D, are studied. The local integrals of motion are constructed, and explicit formulas are proposed for the deformed R-matrix and the Sklyanin reflection operators.

Each chapter of the thesis contains a first descriptive, detailed, and complete introductory part, with an exhaustive list of references.

The thesis contains a small number of very minor typos; however, the research results are remarkable, and I would like to congratulate Ilya Vilkoviskiy for the considerable number of results obtained and for the exceptional quality of his research work.

In conclusion, without any doubt, Ilya Vilkoviskiy deserves the PhD degree.

Yours Sincerely

Prof. Roberto Tateo