

FRT presentation of the loop algebra and applications

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I review different results I obtained recently concerning the loop algebra of $sl(N)$. Firstly, I start by recalling its FRT presentation and provide such a presentation for the Onsager and the classical Askey-Wilson algebras. It allows me to define natural generalisations of these algebras. Secondly, I explain the construction of the Gaudin models from the loop algebras and give an overview on the its resolution for the case of non-diagonal boundary by using the modified Algebraic Bethe ansatz. Finally, a generalisation of the classical reflection equation, called N -reflection equation, is introduced allowing me to define subalgebras of the loop algebra.

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