

Algebraic Bethe ansatz approach and form factors of quantum integrable systems

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Abstract: In these lectures I give a brief introduction to the computation of matrix elements of local fields (form factors) in the framework of the Algebraic Bethe Ansatz (ABA) approach. The main example will be the Heisenberg spin $1/2$ chain. I'll show how the ABA permits to construct explicitly the eigenstates of this system, then I'll introduce the solution of the quantum inverse problem for the spin chains and finally I'll give the basic ideas of the proof of the Slavnov formula for the scalar products of Bethe states. I will show that this approach leads to determinant representations for the matrix elements of local spin operators and discuss some further implications of this result.