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Hidden fermionic structure in integrable models

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Abstract

I shall discuss a new structure in the space of operators of the XXZ chain. For each *alpha* consider the space $\mathcal{W}_\alpha$ of all quasi-local operators, which are products of the disorder field $q^\alpha \sum_{j=-\infty}^{0} \sigma_j^3$ with arbitrary local operators. In analogy with CFT the disorder operator itself is considered as primary field. We introduce fermionic creation-annhilation operators which mutually anti-commute. The annihilation operators kill the "primary field" while the creation operators create the space W_α from the primary field. All these operators commute with adjoint action of local integrals of motion. We show that the ground state averages of quasi-local operators created in this way are given by determinants.