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High Energy Physics - Theory

Baxter operators for arbitrary spin II

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This paper presents the second part of our study devoted to the construction of Baxter operators for the homogeneous closed XXX spin chain with the quantum space carrying infinite or finite-dimensional $s\ell_2$ representations. We consider the Baxter operators used in \cite {BLZ,Shortcut}, formulate their construction uniformly with the construction of our previous paper. The building blocks of all global chain operators are derived from the general Yang-Baxter operators and all operator relations are derived from general Yang-Baxter relations. This leads naturally to the comparison of both constructions and allows to connect closely the treatment of the cases of infinite-dimensional representation of generic spin and finite-dimensional representations of integer or half-integer spin. We proof not only the relations between the operators but present also their explicit forms and expressions for their action on polynomials representing the quantum states.

Submission history

Which authors of this paper are endorsers?