



Mathematical Physics

Generalized q -Onsager Algebras and Dynamical K -matrices

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A procedure to construct K -matrices from the generalized q -Onsager algebra $\mathcal{O}_q(\widehat{\mathfrak{g}})$ is proposed. This procedure extends the intertwiner techniques used to obtain scalar (c-number) solutions of the reflection equation to dynamical (non-c-number) solutions. It shows the relation between soliton non-preserving reflection equations or twisted reflection equations and the generalized q -Onsager algebras. These dynamical K -matrices are important to quantum integrable models with extra degrees of freedom located at the boundaries: for instance, in the quantum affine Toda field theories on the half-line they yield the boundary amplitudes. As examples, the cases of $\mathcal{O}_q(\mathfrak{a}^{(2)}_{-2})$ and $\mathcal{O}_q(\mathfrak{a}^{(1)}_{-2})$ are treated in details.

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