Mathematical Physics

T-system and thermodynamic Bethe ansatz equations for solvable lattice models associated with superalgebras

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An analytic Bethe ansatz is carried out related to the Lie superalgebra osp(1|2s). We present an eigenvalue formula of a transfer matrix in dressed vacuum form (DVF) labeled by a Young (super) diagram. Remarkable duality among DVFs is found. A complete set of transfer matrix functional relations (T-system) is proposed as a reduction of a Hirota-Miwa equation. We also derive a thermodynamic Bethe ansatz (TBA) equation from this T-system and the quantum transfer matrix method. This TBA equation is identical to the one from the string hypothesis.

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