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Mathematical Physics

Elliptic gamma-function and multi-spin solutions of the Yang-Baxter equation

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(Submitted on 29 Jun 2011)

We present a generalization of the master solution to the quantum Yang-Baxter equation (obtained recently in arXiv:1006.0651) to the case of multi-component continuous spin variables taking values on a circle. The Boltzmann weights are expressed in terms of the elliptic gamma-function. The associated solvable lattice model admits various equivalent descriptions, including an interaction-round-a-face formulation with positive Boltzmann weights. In the quasi-classical limit the model leads to a new series of classical discrete integrable equations on planar graphs.

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