

XYZ correlations and Painlevé VI

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Baxter solved the XYZ spin chain in the sense of computing the free energy in the infinite lattice limit. For special parameter values, the chain has an underlying supersymmetry. It is then possible to obtain exact results even for finite size systems. In the special case of the XXZ chain, this is related to very interesting combinatorics (e.g. the alternating-sign-matrix and Razumov-Stroganov ex-conjectures). For the more general XYZ spin chain, less is known. We will describe how nearest neighbour correlations for finite length supersymmetric XYZ spin chains can be computed explicitly in terms of tau functions of Painlevé VI. This is joint work with Christian Hagendorf (Louvain-la-Neuve).

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