BETHE ANSATZ AND GEOMETRY OF CLASSICAL CONFIGURATION SPACE

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We demonstrate that the seminal one-dim model of the Heisenberg magnet, consisting of N spins 1/2 with the nearest neighbour isotropic interaction, solved exactly by Bethe Ansatz, admits an interpretation of a system of $r = N/2 - M$ pseudoparticles (spin deviations) which are indistinguishable, have hard cores, and move on the chain by local hoppings. Such an approach allows us to construct a manifold with some boundaries, which is genericly r-dimensional, and whose F-dimensional regions, $0 < F < N$, point out all l-strings. The latter classify, in terms of rigged string configurations of Kerov, Kirillov and Reshetikhin, all exact Bethe eigenfunctions. In this way, we interpret these eigenfunctions in terms of the classical configuration space, in particular on the structure of islands of adjacent spin deviations, in a way independent on the size N.