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Goloubeva, Valentina, VINITI, Moscow, Russian Federation

On algebraic similarity of Calogero and Sutherland models

For a given root system R on Bethe–Dunkl subvarieties of $\mathbb{C}^N$, $N = \#R$, the spin operators of Calogero and Sutherland type $H_{C,S} = -\Delta + V$ are considered where Δ are the corresponding Laplace operators and V are the potentials. The Fock algebras $A_{S,C}$ and corresponding Weyl–Heisenberg spaces $\mathcal{F}_{S,C}$ as 1-dimensional modules over these algebras are constructed and the homomorphisms $\rho_A : A_S \to A_C$ and $\rho_C : \mathcal{F}_S \to \mathcal{F}_C$ are defined such that H_S is transformed into $\hat{H}_C = H_C + Q$, $Q = \sum_{\alpha,\beta} F(\alpha,\beta) u_\alpha u_\beta$. $F(\alpha,\beta)$ is a bilinear form associated to a given root system, $u_\alpha \in \mathbb{C}^N$.

The eigenfunctions of conjugate to H_S (so called Jack polynomials) under homomorphism ρ correspond to the eigenfunctions of $\hat{H}_C$ (so called Hidden Jack polynomials).