

Diagonalization of four-fermionic interaction Hamiltonian on a sphere with magnetic monopole

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In this thesis we have discussed many-electron system on Lowest Landau Level (LLL) on a sphere with magnetic monopole and derived four-fermionic interaction Hamiltonian using spherical coordinates. For the fixed magnetic charge ($s = \frac{5}{2}$) we have constructed the 2-particle Fock states and have shown that Hamiltonian can be diagonalized in terms of certain operators which are bilinear with respect to the fermion annihilators ($K \sim c_m c_n$). In order to achieve this goal we have done analytical calculations using MAPLE.

References

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