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Bound State Solutions of the Schrodinger Equation with Frost-Musulin Potential Using the Nikiforov-Uvarov-Functional Analysis (NUFA) Method

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Abstract

The Schrodinger equation under the Frost-Musulin potential (FMP) energy function is solved using the Nikiforov-Uvarov-Functional Analysis (NUFA) method. We obtained the analytic solutions of the energy equation and the wave function in closed form with Greene-Aldrich approximation. The energy equation was used to obtain bound states energy eigenvalues of FMP for H2, I2 and N2 diatomic molecules for various quantum states. To test the accuracy of our results, we computed the bound states energy eigenvalues of FMP which are in excellent agreement with the reports of other researchers.

Author Keywords

Schrodinger equation, Nikiforov-Uvarov-Functional Analysis (NUFA) method, Frost-Musulin potential, Diatomic molecule

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