



Universidad de Valladolid



Solutions of Schrödinger Equation with Generalized Cornell Potential and its Applications to Diatomic Molecular Systems in D-Dimensions using Extended Nikiforov Uvarov formalism

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Abstract: The D-dimensional Schrödinger equation with generalized Cornell potential is transformed into a form that is compatible with extended Nikiforov-Uvarov method, and its approximate solutions are obtained using this formalism. The energy spectrum for the generalized Cornell potential is obtained in closed form, and the wave function is determined using the biconfluent Heun differential equation. Some numerical results are shown to illustrate the behaviour of the bound state energies at different quantum states for various dimensions and selected diatomic molecular systems. In addition, the thermodynamic properties expressions for the system are also discussed.



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