

Coherent States of the Morse Oscillator with Applications to Molecules

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In the last 28 years a significant effort has been made to construct coherent states of general anharmonic potentials [1, 2, 3]. From one side the interest is generated by the increasing importance of applications of coherent states to studying and description of physical systems and quantum computation, such as molecular vibrations and quantum control respectively. From another side the anharmonic potentials, and in particular the Morse potential, represent well the anharmonic vibrations in diatomic and complex molecules [2, 4, 5]. In this paper we consider the generalised and gaussian coherent states of the one-dimensional Morse oscillator, which describes anharmonic vibrations of diatomic molecules, and apply the results to sodium chloride $^1\text{H}^{35}\text{Cl}$.

References

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