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Abstract

The supersymmetric approach is employed to calculate any -state solutions of the Klein–Gordon equation in the non-relativistic limit of potential V with a combined potential by using a proper approximation scheme to the centrifugal term. The energy equation and the corresponding unnormalized wave function are obtained analytically. The non-relativistic limit is obtained and numerical results are computed for some values of n and with σ = 0.1, 0.2, 0.3 and 0.4 using MATLAB 7.5.0.342 programing. In a more interesting form, we studied some special cases and compared our results with the previous once.

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