Relativistic Energy Analysis for Some q Deformed Shape Invariant Potentials in D Dimensions Using SUSYQM Approach

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Abstract : D-dimensional Dirac equations of q-deformed shape invariant potentials were solved using supersymmetric quantum mechanics (SUSY QM) in the case of exact spin symmetry. The D dimensional radial Dirac equation for shape invariant potential reduces to one-dimensional Schrodinger type equation by an appropriate variable and parameter change. The relativistic energy spectra were analyzed by using SUSY QM and shape invariant properties from radial D dimensional Dirac equation that have reduced to one dimensional Schrodinger type equation. The SUSY operator was used to generate the D dimensional relativistic radial wave functions, the relativistic energy equation reduced to the non-relativistic energy in the non-relativistic limit.

1

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