

Hadronic wave functions in the extended harmonic oscillator model

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We extend the research task to employ the symmetries of simple harmonic oscillator in canonical (q,p) space to more than the 3 dimensions, based on the solution of Liouville equation. It is possible to obtain some operators in which their eigen values are corresponding to quark features, including isospin, electric charge, baryon number, hypercharge and ect. Since the extension involve the $SU(6)$ symmetry group, we are able to obtain all the required quantum numbers of heavy quarks. Following that, based on the extended harmonic oscillator model, we are able to get flavor wave functions to characterize and also classify all the baryons and mesons which contain light quarks as well as heavy quarks.

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