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Radial excitation of Ω_{cc} baryon using relativistic formalism

The doubly heavy Ω_{cc} baryon represents a distinctive three quark system because they contain a strange light quark in the combination of two charm quarks. There are new decay modes and excited states seen in doubly charmed baryons by CLEO, LHCb and many other experiments and they have attempted to identify the doubly heavy baryons, but only a few states have been discovered so far.
Here, The mass spectra of radially excited states of doubly heavy baryons are calculated under a mean field confinement of Martin-like potential with a parametric centre of weight mass correction in an independent quark model with Dirac relativistic formalism. We have predicted the ground state masses as well as radial excitation of Ω_{cc} baryon using the optimized fitted potential parameters which are found to be in good agreement with other theoretical predicted data. For predicting $(\frac{3}{2}^+)$ and $(\frac{1}{2}^+)$ states, we have incorporated the $j-j$ coupling in this study.

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