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Spectra of Triply Heavy Baryons

Wednesday 7 September 2022 18:55 (25 minutes)

Masses of triply charm-bottom baryons are calculated using the hypercentral Constituent Quark Model (hCQM) [1], a basic non-relativistic framework. Constituent Quark Models (CQMs) are widely used to describe the interaction of quarks inside the baryon. Hence, it is preferable to perform within a general framework like hCQM to understand internal quark dynamics. The hCQM is based on the idea of Constituent Quarks and it converts the three body interaction problem to one body interaction by using hypercentral co-ordinates. In the case of triply heavy baryons, it would be very interesting to observe the behavior of heavy quarks with each other inside the baryonic system. The model consists of the hyper Coulomb plus screening potential as confining potential to elaborate hypercentral quark interaction between the constituent quarks. Our predicted masses of radial states 1S - 4S of Ωccb++ and Ωcbb- baryons have been presented, compared with other references [2,3]. Radiative decay calculation is also performed in this work.
References:

[1] A. Kakadiya, Z. Shah, K. Gandhi and A. K. Rai, Few-Body Syst. 63, 29 (2022).

[2] R. N. Faustov and V. O. Galkin, Phys. Rev. D 105, 014013 (2022).

[3] G. Yang et. al., Chin. Phys. C 44 023102 (2020).

Is this abstract from experiment?

No

Name of experiment and experimental site

N/A

Is the speaker for that presentation defined?

Yes

Details

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Internet talk

Yes

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