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## Mass Spectra and decay properties of **Ξ\_bb** baryon using hCQM

In this study, we investigate the properties of the doubly heavy baryon  $\Xi_b$  using the Hyper Central Constituent Quark Model (hCQM). Our calculations yield the masses of both ground and excited states of  $\Xi_b$ b, incorporating higher-order corrections, including second-order mass corrections within spin-dependent terms. This approach enables precise determination of spin splitting. We determine the spin-parity J<sup>°</sup>p for ground and excited states, shedding light on the quantum nature of  $\Xi_b$ b. Our predicted resonance masses are compared with other theoretical approaches, providing a comprehensive understanding of it's decay properties.

## **Field of contribution**

Phenomenology

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