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"Exploring the Mass Spectra of Heavy Pentaquarks with Enhanced Hyperfine Interactions"

In this study, we analyse the mass spectra of all heavy pentaquarks using the Hyper-central Constituent Quark Model (hCQM) within a non-relativistic framework. Our focus is on computing the ground-state masses of pentaquarks that contain charm and beauty quarks, examining various spin-parity configurations J^P. This analysis employs two different confining potentials, complemented by an enhanced hyperfine interaction. By evaluating the spectra across a range of states with their associated spin-parity, we gain insights into the behavior of these masses. Our calculated masses are then compared with both experimental data and theoretical predictions to evaluate accuracy and consistency.

Field of contribution

Phenomenology

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