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Heavy Baryons and Heavy Quark Symmetry

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In this work, we study the charm and bottom lowest-lying $\frac{1}{2}^-$ and $\frac{3}{2}^-$ Λ_Q resonances using a model which considers the interplay between the nearest baryon-meson and bare constituent quark model (CQM) degrees of freedom. For the former ones, we only consider the scattering of pions off $\Sigma_Q^{(*)}$ baryons. In addition, we constrain the couplings between CQM and meson-baryon states using HQSS.

We show that the $\Lambda(1405)$ chiral two-pole pattern does not have analog in the $\frac{1}{2}^-$ charmed and bottom sectors, because i) the $ND^{(*)}$ and $N\bar{B}^{(*)}$ channels do not play for heavy quarks the decisive role that the $N\bar{K}$ does in the strange sector, and ii) because the notable influence of the bare CQM states for the charm and bottom resonances. Moreover, we will also discuss the great importance of taking into account the chiral $\pi\Sigma_{c,b}^{(*)}$ channels and their interplay with the CQM degrees of freedom.

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