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Decay properties of bottom and doubly charmed baryons in light-cone sum rules

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In this talk, I would like to report our recent study on decay properties of a few heavy favor baryons, including the excited bottom baryons, $\Sigma_b(6097)^\pm$, $\Xi_b(6227)^-$ and the doubly charmed baryons Ξ_{cc}^{*++} . We utilize the method of light-cone sum rules, which is widely used to study the hadron decays in recent years. Our estimations suggest that the bottom baryons $\Sigma_b(6097)^\pm$ and $\Xi_b(6227)^-$ both belong to the P-wave bottom baryon doublet $[\mathbf{6}_F, 2, 1, \lambda]$, whose color is symmetric $\mathbf{6}_F$, the total angular momentum of light system is 2, the spin of light system is 1 and it is λ -type excitation. We also calculate the electromagnetic transition widths of the doubly heavy baryon Ξ_{cc}^{*++} , Ξ_{cc}^{*+} , Ω_{cc}^{*+} , Ξ_{bb}^{*0} , Ξ_{bb}^{*-} and Ω_{bb}^{*-} . The decay width of the process $\Xi_{cc}^{*++} \rightarrow \Xi_{cc}^{++} \gamma$ is estimated to be $13.7_{-7.9}^{+17.7}$ keV, which is large enough to be measured in future LHCb and BelleII experiments.

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