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P-wave heavy baryons with the constituent quark model TETSUYA YOSHIDA, MAKOTO OKA, Tokyo Institute of Technology, ATSUSHI HOSAKA, Research Center for Nuclear Physics, Osaka University, EMIKO HIYAMA, Riken, KATSUNORI SADATO, G-search, Ltd — Spectroscopy of excited baryons with heavy quark is one of the major subject in the hadron experimental facilities, such as J-PARC and GSI. It is very important to give predictions and physics guidelines in advance from theory. Lattice QCD is very successful for the ground states, but it has some difficulty in predicting excited states. Therefore it is necessary to construct a reliable model for the spectroscopy for the heavy baryons. We construct a constituent quark model which is well tuned in the strangeness sector and analyze the excited states of charmed and bottomed baryons. We focus our study to the P-wave excited states and perform a precise calculation. We analyze two characteristic excitation modes, the λ -mode and the ρ -mode. From the analysis, we get information on the structure of heavy baryons, which characterizes the production and decay mechanisms and patterns. Such information should be very useful for experimental identification of these excited states.

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