

The study of P-wave strange mesons in coupled channel framework

In this talk, I will discuss a novel framework to extract resonant states from finite-volume energy levels of lattice QCD and apply it to elucidate structures of the positive parity D_s resonant states nearby the DK and D^*K thresholds. In the framework, the Hamiltonian effective field theory is extended by combining it with the quark model. The Hamiltonian contains the bare mesons from the quark model, its coupling with the threshold channels described by quark-pair-creation (QPC) model, and the channel-channel interactions induced by exchanging light mesons. A successful fit of the finite-volume energy levels of lattice QCD with the Hamiltonian model is made. The extracted masses and the predication for an additional state, $D_s(2573)$, are well consistent with experimental measurements. The same framework has also be extended to the P-wave B_s states.

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