Contribution ID: 16

Type: not specified

## Study of $P_{cs}(4459)$ state

The LHCb collaboration has reported recently the charm-strange pentaquark states found in the  $J/\psi\Lambda$  mass distribution, called as the  $P_{cs}(4459)$  state. Based on the constraints of the heavy quark spin symmetry combined with the local hidden gauge symmetry, we investigate the  $\bar{D}^{(*)} \Xi_c^{(*,')}$  interactions, together with  $J/\psi\Lambda$  and other coupled channels, using a coupled channel approach. With this approach, before the experimental findings, we had made some predictions for them. Using the experimental results, one can determine the free parameters,  $a_{\mu}$  in the loop functions. From the poles found in the second Riemann sheets, we dynamically reproduce the  $P_{cs}(4459)$  state in the coupled channel interactions, which may be a degenerate state, analogous to the one of  $P_c(4450)$  before. Furthermore, our results also made some more predictions for further experimental studies.

## **Presentation type**

Oral

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