

The $T_{c\bar{s}}(2900)$ as a threshold effect from the interaction of the D^*K^* , $D_s^*\rho$ channels

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We look at the mass distribution of the $D_s^+\pi^-$ in the $B^0 \rightarrow \bar{D}^0 D_s^+ \pi^-$ decay, where a peak has been observed in the region of the $D_s^*\rho$, D^*K^* thresholds. By creating these two channels together with a \bar{D}^0 in B^0 decay and letting them interact as coupled channels, we obtain a structure around their thresholds, short of producing a bound state, which leads to a peak in the $D_s^+\pi^-$ mass distribution in the $B^0 \rightarrow \bar{D}^0 D_s^+ \pi^-$ decay. We conclude that the interaction between the D^*K^* and $D_s^*\rho$ is essential to produce the cusp structure that we associate to the recently seen $T_{c\bar{s}}(2900)$, and that its experimental width is mainly due to the decay width of the ρ meson. The peak obtained together with a smooth background reproduces fairly well the experimental mass distribution observed in the $B_0 \rightarrow \bar{D}^0 D_s^+ \pi^-$ decay.

Collaboration

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