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Towards nature of the Tcc(3875)+ state

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The recent experimental observation of the first doubly charm exotic state Tcc(3875)+ by the LHCb collaboration has triggered the enormous interest in the community. Indeed, this state has very peculiar properties, since it is located just a few hundreds keV below the $D^0 D^{*+}$ threshold and its width stems almost entirely from the only available strong decay channel $DD\pi$, as a consequence of the finite D^* life time. This state has also been recently studied on lattice.

In this talk, we discuss our recent results for the Tcc from the EFT-based analysis of the experimental line shapes. Also, we argue that the left-hand-cut branch point generated by the one-pion exchange for the larger than physical pion masses sets an upper bound on the validity of the effective-range expansion, that has been used so far for extracting pertinent information on the Tcc from lattice. We therefore conclude that for an accurate extraction of the Tcc pole from lattice, the inclusion of the one-pion exchange is necessary.

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