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The T_{cc} exotic state and its doubly bottom B^*B counterpart

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We have studied the exotic doubly charmed D^*D system providing a natural explanation for the peak recently observed by LHCb, in terms of $D^{*+}D^0$ and $D^{*0}D^+$ with isospin I=0. The width has been evaluated accurately based on the decay widths of the D^* states. The $D^0D^0\pi^+$ decay mode of the bound state formed is studied in detail, showing a narrow peak below the $D^{*+}D^0$ threshold and some strength above it, as observed in the experiment. The remarkable agreement of this approach and the latter experimental analysis supports strongly the molecular nature of this state, the first example of a meson with two open charmed quarks. This study can be naturally extended to the bottom sector giving interesting features for the $B^*B\,(I=0)$ counterpart found there.

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