

$T_{cc}(3875)^+$

$$I(J^P) = ?(??)$$

OMITTED FROM SUMMARY TABLE
Observed with large significance by AAIJ 22E in the doubly-charmed
(C = 2) decay mode $D^0 D^0 \pi^+$ using inclusive pp collisions at 7, 8,
and 13 TeV.

$T_{cc}(3875)^+$ T-Matrix Pole $\sqrt{s}$

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
$(-0.360 \pm 0.040^{+0.004}_{-0.000})$ $-i(0.024 \pm 0.001^{+0.000}_{-0.007})$	117	¹ AAIJ	22Z LHCb	$pp \rightarrow D^0 D^0 \pi^+ X$

¹ Fit uses coupled channel model accounting for $D^0 D^{*+}$ threshold.

$T_{cc}(3875)^+$ MASS

OUR FIT value comes from the measurement of $m_{T_{cc}^+} - (m_{D^{*+}} + m_{D^0})$
below and $m_{D^{*+}} + m_{D^0}$ values.

VALUE (MeV)	DOCUMENT ID
3874.74 ± 0.10 OUR FIT	

$$m_{T_{cc}^+} - (m_{D^{*+}} + m_{D^0})$$

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
-0.36 ± 0.04 OUR FIT				
$-0.360 \pm 0.040^{+0.004}_{-0.000}$	117	¹ AAIJ	22Z LHCb	$pp \rightarrow D^0 D^0 \pi^+ X$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$-0.273 \pm 0.061^{+0.012}_{-0.015}$	117	² AAIJ	22E LHCb	$pp \rightarrow D^0 D^0 \pi^+ X$
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¹ Fit uses coupled channel model accounting for $D^0 D^{*+}$ threshold.
² The fit uses a relativistic P -wave Breit-Wigner function without taking into account the
 $D^0 D^{*+}$ threshold. Parameters are shown to be biased in AAIJ 22Z. The significance for
 $m_{T_{cc}^+} - (m_{D^{*+}} + m_{D^0}) < 0$ is 4.3 σ .

$T_{cc}(3875)^+$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
0.048 ± 0.002^{+0.000}_{-0.014}	117	¹ AAIJ	22Z LHCb	$pp \rightarrow D^0 D^0 \pi^+ X$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.410 \pm 0.165^{+0.047}_{-0.057}$	117	² AAIJ	22E LHCb	$pp \rightarrow D^0 D^0 \pi^+ X$

¹Fit uses coupled channel model accounting for $D^0 D^{*+}$ threshold.

²The fit uses a relativistic P -wave Breit-Wigner function without taking into account the $D^0 D^{*+}$ threshold. The fit uses a relativistic P -wave Breit-Wigner function. Parameters are shown to be biased in AAIJ 22Z.

$T_{cc}(3875)^+$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$D^0 D^0 \pi^+$	seen

$T_{cc}(3875)^+$ BRANCHING RATIOS

$\Gamma(D^0 D^0 \pi^+)/\Gamma_{\text{total}}$					Γ_1/Γ
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	
seen	117	AAIJ	22E LHCb	$pp \rightarrow D^0 D^0 \pi^+ X$	

$T_{cc}(3875)^+$ REFERENCES

AAIJ	22E	NATP 18 751	R. Aaij <i>et al.</i>	(LHCb Collab.)
AAIJ	22Z	NATC 13 3351	R. Aaij <i>et al.</i>	(LHCb Collab.)