$T_{cc}(3875)^+$

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

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	$pp \to D^0 D^0 \pi^+ X$

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

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

OUR FIT value comes from the measuremet 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	$pp \to D^0 D^0 \pi^+ X$
• • • 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	$pp \to D^0 D^0 \pi^+ X$

[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
$0.048 \pm 0.002^{+0.000}_{-0.014}$	117	[1] AAIJ	22Z	LHCB	$pp \to D^0 D^0 \pi^+ X$
• • • 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	$pp \to D^0 D^0 \pi^+ X$

[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. 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

$\Gamma(D^0 D^0 \pi^+)/\Gamma_{total}$ **Γ_1/Γ**

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
seen	117	AAIJ	22E	LHCB	$pp \to D^0 D^0 \pi^+ X$

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

AAIJ	22E	NATP 18 751	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	22Z	NATC 13 3351	R. Aaij *et al.*	(LHCb Collab.)