

$\Lambda_c(2880)^+$

$I(J^P) = 0(\frac{5}{2}^+)$ Status: ***

A narrow peak seen in $\Lambda_c^+ \pi^+ \pi^-$ and in pD^0 . It is not seen in pD^+ , and therefore it is a Λ_c^+ and not a Σ_c .

$\Lambda_c(2880)^+$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
2881.63 ± 0.24 OUR FIT				
2881.62 ± 0.24 OUR AVERAGE				
2881.75 ± 0.29 ± 0.07 ^{+0.14} _{-0.20}		¹ AAIJ	17S	LHCB in $\Lambda_b^0 \rightarrow D^0 p \pi^-$
2881.9 ± 0.1 ± 0.5	2.8k	AUBERT	07	BABR in pD^0
2881.2 ± 0.2 ± 0.4	690	MIZUK	07	BELL in $\Sigma_c(2455)^{0,++} \pi^\pm$

¹The third AAIJ 17S uncertainty comes from modeling the resonant shape of the $\Lambda_c(2880)^+$ and the background (non-resonant) amplitudes.

$\Lambda_c(2880)^+ - \Lambda_c^+$ MASS DIFFERENCE

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
595.17 ± 0.28 OUR FIT				
596 ± 1 ± 2	350	ARTUSO	01	CLE2 in $\Lambda_c^+ \pi^+ \pi^-$

$\Lambda_c(2880)^+$ WIDTH

VALUE (MeV)	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
5.6^{+0.8}_{-0.6} OUR AVERAGE					
5.43 ^{+0.77+0.81} _{-0.71-0.29}			² AAIJ	17S	LHCB in $\Lambda_b^0 \rightarrow D^0 p \pi^-$
5.8 ± 1.5 ± 1.1		2.8k	AUBERT	07	BABR in pD^0
5.8 ± 0.7 ± 1.1		690	MIZUK	07	BELL in $\Sigma_c(2455)^{0,++} \pi^\pm$
<8	90		ARTUSO	01	CLEO in $\Lambda_c^+ \pi^+ \pi^-$

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

²AAIJ 17S reports 5.43^{+0.77}_{-0.71} ± 0.29^{+0.75}_{-0.00} MeV value where the third uncertainty comes from modeling the resonant shape of the $\Lambda_c(2880)^+$ and the background (non-resonant) amplitudes. We have combined in quadrature the systematic uncertainties.

$\Lambda_c(2880)^+$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
Γ_1 $\Lambda_c^+ \pi^+ \pi^-$	seen
Γ_2 $\Sigma_c(2455)^{0,++} \pi^\pm$	seen
Γ_3 $\Sigma_c(2520)^{0,++} \pi^\pm$	seen
Γ_4 pD^0	seen

$\Lambda_c(2880)^+$ BRANCHING RATIOS

$$\Gamma(\Sigma_c(2455)^{0,++}\pi^\pm)/\Gamma(\Lambda_c^+\pi^+\pi^-) \quad \Gamma_2/\Gamma_1$$

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.392±0.031 OUR AVERAGE		Error includes scale factor of 1.3.		
0.404±0.021±0.014		MIZUK	07	BELL in $\Sigma_c(2455)^{0,++}\pi^\pm$
0.31 ±0.06 ±0.03	96	ARTUSO	01	CLE2 $e^+e^- \approx \Upsilon(4S)$

$$\Gamma(\Sigma_c(2520)^{0,++}\pi^\pm)/\Gamma(\Lambda_c^+\pi^+\pi^-) \quad \Gamma_3/\Gamma_1$$

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.091±0.025±0.010		MIZUK	07	BELL in $\Sigma_c(2455)^{0,++}\pi^\pm$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.11	90	ARTUSO	01	CLE2 $e^+e^- \approx \Upsilon(4S)$

$$\Gamma(\Sigma_c(2520)^{0,++}\pi^\pm)/\Gamma(\Sigma_c(2455)^{0,++}\pi^\pm) \quad \Gamma_3/\Gamma_2$$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.225±0.062±0.025	³ MIZUK	07	BELL in $\Sigma_c(2455)^{0,++}\pi^\pm$
³ This MIZUK 07 ratio is redundant with MIZUK 07 ratios given above.			

$\Lambda_c(2880)^+$ REFERENCES

AAIJ	17S	JHEP 1705 030	R. Aaij <i>et al.</i>	(LHCb Collab.) JP
AUBERT	07	PRL 98 012001	B. Aubert <i>et al.</i>	(BABAR Collab.)
MIZUK	07	PRL 98 262001	R. Mizuk <i>et al.</i>	(BELLE Collab.)
ARTUSO	01	PRL 86 4479	M. Artuso <i>et al.</i>	(CLEO Collab.)