

$\Lambda_c(2880)^+$

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

A narrow peak seen in $\Lambda_c^+ \pi^+ \pi^-$ and in pD^0 . It is not seen in pD^+ , and therefore it is probably a Λ_c^+ and not a Σ_c . The evidence for spin 5/2 comes from the $\Sigma_c(2455)\pi$ decay angular distribution, and the evidence for parity + comes from agreement of the $\Sigma_c(2520)/\Sigma_c(2455)$ branching ratio with a prediction of heavy quark symmetry (see MIZUK 07).

$\Lambda_c(2880)^+$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
2881.53±0.35 OUR FIT				
2881.50±0.35 OUR AVERAGE				
2881.9 ±0.1 ±0.5	2.8k±190	AUBERT	07 BABR	in pD^0
2881.2 ±0.2 ±0.4	690 ± 50	MIZUK	07 BELL	in $\Sigma_c(2455)^{0,++} \pi^\pm$

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

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
595.1±0.4 OUR FIT				
596 ±1 ±2	350 ⁺⁵⁷ ₋₅₅	ARTUSO	01 CLE2	in $\Lambda_c^+ \pi^+ \pi^-$

$\Lambda_c(2880)^+$ WIDTH

VALUE (MeV)	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
5.8±1.1 OUR AVERAGE					
5.8±1.5±1.1		2.8k±190	AUBERT	07 BABR	in pD^0
5.8±0.7±1.1		690 ± 50	MIZUK	07 BELL	in $\Sigma_c(2455)^{0,++} \pi^\pm$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
<8	90		ARTUSO	01 CLEO	in $\Lambda_c^+ \pi^+ \pi^-$

$\Lambda_c(2880)^+$ 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

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

<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 $e^+e^- \approx \Upsilon(4S)$

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

<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 $e^+e^- \approx \Upsilon(4S)$

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

<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	¹ MIZUK	07	BELL in $\Sigma_c(2455)^{0,++}\pi^\pm$
¹ This MIZUK 07 ratio is redundant with MIZUK 07 ratios given above.			

$\Lambda_c(2880)^+$ REFERENCES

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.)