

$\Lambda_c(2880)^+$  $I(J^P) = 0(\frac{5}{2}^+)$  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  $\Lambda_c^+$  and not a  $\Sigma_c$ . 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
<b>2881.53±0.35 OUR FIT</b>				
<b>2881.50±0.35 OUR AVERAGE</b>				
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
<b>595.1±0.4 OUR FIT</b>				
<b>596 ±1 ±2</b>	350 <sup>+57</sup> <sub>-55</sub>	ARTUSO	01 CLE2	in $\Lambda_c^+ \pi^+ \pi^-$

 $\Lambda_c(2880)^+$  WIDTH

VALUE (MeV)	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<b>5.8±1.1 OUR AVERAGE</b>					
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 ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $\Lambda_c^+ \pi^+ \pi^-$	seen
$\Gamma_2$ $\Sigma_c(2455)^{0,++} \pi^\pm$	seen
$\Gamma_3$ $\Sigma_c(2520)^{0,++} \pi^\pm$	seen
$\Gamma_4$ $pD^0$	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>
<b>0.392±0.031 OUR AVERAGE</b>				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>
<b>0.091±0.025±0.010</b>		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	<sup>1</sup> MIZUK	07	BELL in $\Sigma_c(2455)^{0,++}\pi^\pm$
<sup>1</sup> 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.)