

$\Lambda_c(2940)^+$  $I(J^P) = 0(\frac{3}{2}^-)$  Status: \*\*\*

A narrow peak seen in  $pD^0$  and in  $\Lambda_c^+ \pi^+ \pi^-$ . It is not seen in  $pD^+$ , and therefore it is a  $\Lambda_c^+$  and not a  $\Sigma_c$ .  $J^P = 3/2^-$  is favored, but not certain.

 $\Lambda_c(2940)^+$  MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>2939.6<math>^{+1.3}_{-1.5}</math> OUR AVERAGE</b>				
2944.8 $^{+3.5}_{-2.5} \pm 0.4^{+0.1}_{-4.6}$		<sup>1</sup> AAIJ	17S	LHCB in $\Lambda_b^0 \rightarrow D^0 p \pi^-$
2939.8 $\pm 1.3 \pm 1.0$	2.2k	AUBERT	07	BABR in $pD^0$
2938.0 $\pm 1.3^{+2.0}_{-4.0}$	220	MIZUK	07	BELL in $\Sigma_c(2455)^{0,++} \pi^\pm$

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

 $\Lambda_c(2940)^+$  WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>20<math>^{+6}_{-5}</math> OUR AVERAGE</b>				
27.7 $^{+8.2}_{-6.0} \pm 0.9^{+5.2}_{-10.4}$		<sup>2</sup> AAIJ	17S	LHCB in $\Lambda_b^0 \rightarrow D^0 p \pi^-$
17.5 $\pm 5.2 \pm 5.9$	2.2k	AUBERT	07	BABR in $pD^0$
13 $^{+8}_{-5} \ ^{+27}_{-7}$	220	MIZUK	07	BELL in $\Sigma_c(2455)^{0,++} \pi^\pm$

<sup>2</sup> The third AAIJ 17S uncertainty comes from modeling the resonant shape of the nearby  $\Lambda_c(2880)^+$  and the background (non-resonant) amplitudes.

 $\Lambda_c(2940)^+$  DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $\Lambda_c \eta$	
$\Gamma_2$ $pD^0$	seen
$\Gamma_3$ $\Sigma_c(2455)^{0,++} \pi^\pm$	seen

 $\Lambda_c(2940)^+$  BRANCHING RATIOS

$\Gamma(pD^0)/\Gamma_{\text{total}}$	$\Gamma_2/\Gamma$			
$\Gamma(\Lambda_c \eta)/\Gamma(\Sigma_c(2455)^{0,++} \pi^\pm)$	$\Gamma_1/\Gamma_3$			
VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<1.11	90	LI	24C	BELL $e^+ e^-$ at $\sim \Upsilon(nS)$

$\Gamma(\rho D^0)/\Gamma(\Sigma_c(2455)^{0,++}\pi^\pm)$

$\Gamma_2/\Gamma_3$

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>3.59±0.21±0.56</b>	16k	LI	24C BELL	$e^+e^-$ at $\sim \gamma(nS)$

**$\Lambda_c(2940)^+$  REFERENCES**

LI	24C	PR D110 032021	S.X. Li <i>et al.</i>	(BELLE Collab.)
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.)