NODE=B151

$\Lambda_c(2880)^+$

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

NODE=B151

A narrow peak seen in $\Lambda_c^+ \pi^+ \pi^-$ and in $p D^0$. It is not seen in $p D^+$, 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

NODE=B151205

NODE=B151M

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 $p D^0$
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

NODE=B151210

NODE=B151D

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

NODE=B151215

NODE=B151W

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 $p D^0$
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

NODE=B151220;NODE=B151

	Mode	Fraction (Γ_i/Γ)	
Γ_1	$\Lambda_c^+ \pi^+ \pi^-$	seen	DESIG=1;OUR EST
Γ_2	$\Sigma_c(2455)^{0,++} \pi^\pm$	seen	DESIG=2;OUR EST
Γ_3	$\Sigma_c(2520)^{0,++} \pi^\pm$	seen	DESIG=3;OUR EST
Γ_4	$p D^0$	seen	DESIG=4;OUR EST

$\Lambda_c(2880)^+$ BRANCHING RATIOS

NODE=B151225

$\Gamma(\Sigma_c(2455)^{0,++}\pi^\pm)/\Gamma(\Lambda_c^+\pi^+\pi^-)$ Γ_2/Γ_1

NODE=B151R1
NODE=B151R1

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
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	$e^+ e^- \approx \Upsilon(4S)$

$\Gamma(\Sigma_c(2520)^{0,++}\pi^\pm)/\Gamma(\Lambda_c^+\pi^+\pi^-)$ Γ_3/Γ_1

NODE=B151R2
NODE=B151R2

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
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	$e^+ e^- \approx \Upsilon(4S)$

$\Gamma(\Sigma_c(2520)^{0,++}\pi^\pm)/\Gamma(\Sigma_c(2455)^{0,++}\pi^\pm)$ Γ_3/Γ_2

NODE=B151R3
NODE=B151R3

VALUE	DOCUMENT ID		TECN	COMMENT
• • • 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.

NODE=B151R3;LINKAGE=MI

$\Lambda_c(2880)^+$ REFERENCES

NODE=B151

AUBERT	07	PRL 98 012001	B. Aubert *et al.*	(BABAR Collab.)	REFID=51585
MIZUK	07	PRL 98 262001	R. Mizuk *et al.*	(BELLE Collab.)	REFID=51816
ARTUSO	01	PRL 86 4479	M. Artuso *et al.*	(CLEO Collab.)	REFID=48126