$\Sigma_c(2800)$

$I(J^P) = 1(?^?)$ Status: ✳✳✳

Seen in the $\Lambda_c^+\pi^+$, $\Lambda_c^+\pi^0$, and $\Lambda_c^+\pi^-$ mass spectra.

$\Sigma_c(2800)$ MASSES

The charged $++$ and $+$ masses are obtained from the mass-difference measurements that follow. The neutral mass is dominated by the mass-difference measurement, but is pulled up somewhat by the less well-determined but considerably higher direct-mass measurement. It is possible, in fact, that AUBERT 08BN is seeing a different Σ_c.

$\Sigma_c(2800)^{++}$ MASS

VALUE (MeV)	DOCUMENT ID
2801^{+4}_{-6} OUR FIT	

$\Sigma_c(2800)^+$ MASS

VALUE (MeV)	DOCUMENT ID
2792^{+14}_{-5} OUR FIT	

$\Sigma_c(2800)^0$ MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
2806^{+5}_{-7} OUR FIT Error includes scale factor of 1.3.			
$2846\pm8\pm10$	AUBERT 08BN	BABR	$B^- \rightarrow \overline{p}\Lambda_c^+\pi^-$

$\Sigma_c(2800)$ MASS DIFFERENCES

$m_{\Sigma_c(2800)^{++}} - m_{\Lambda_c^+}$

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
514^{+4}_{-6} OUR FIT				
$514.5^{+3.4+2.8}_{-3.1-4.9}$	2810^{+1090}_{-775}	MIZUK 05	BELL	$e^+e^- \approx \Upsilon(4S)$

$m_{\Sigma_c(2800)^+} - m_{\Lambda_c^+}$

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
505^{+14}_{-5} OUR FIT				
$505.4^{+5.8+12.4}_{-4.6-2.0}$	1540^{+1750}_{-1050}	MIZUK 05	BELL	$e^+e^- \approx \Upsilon(4S)$

$m_{\Sigma_c(2800)^0} - m_{\Lambda_c^+}$

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
519^{+5}_{-7} OUR FIT Error includes scale factor of 1.3.				
$515.4^{+3.2+2.1}_{-3.1-6.0}$	2240^{+1300}_{-740}	MIZUK 05	BELL	$e^+e^- \approx \Upsilon(4S)$

$\Sigma_c(2800)$ WIDTHS

$\Sigma_c(2800)^{++}$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
75^{+18+12}_{-13-11}	$2810^{+1090}_{-\ 775}$	MIZUK	05	BELL	$e^+e^- \approx \Upsilon(4S)$

$\Sigma_c(2800)^+$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
62^{+37+52}_{-23-38}	1540^{+1750}_{-1050}	MIZUK	05	BELL	$e^+e^- \approx \Upsilon(4S)$

$\Sigma_c(2800)^0$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
72^{+22}_{-15} OUR AVERAGE					
$86^{+33}_{-22}\pm12$		AUBERT	08BN	BABR	$B^- \to \overline{p}\Lambda_c^+\pi^-$
61^{+18+22}_{-13-13}	$2240^{+1300}_{-\ 740}$	MIZUK	05	BELL	$e^+e^- \approx \Upsilon(4S)$

$\Sigma_c(2800)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\Lambda_c^+\pi$	seen

$\Sigma_c(2800)$ REFERENCES

AUBERT   08BN PR D78 112003   B. Aubert *et al.*   (BABAR Collab.)
MIZUK   05   PRL 94 122002   R. Mizuk *et al.*   (BELLE Collab.)