

$\Sigma_c(2800)$

 $I(J^P) = 1(?)$ Status: ***

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

NODE=B155

NODE=B155

NODE=B155205

NODE=B155205

$\Sigma_c(2800)$ 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

NODE=B155M++
NODE=B155M++
 2801^{+4}_{-6} OUR FIT

$\Sigma_c(2800)^+$ MASS

VALUE (MeV)

DOCUMENT ID

NODE=B155M+
NODE=B155M+
 2792^{+14}_{-5} OUR FIT

$\Sigma_c(2800)^0$ MASS

VALUE (MeV)

DOCUMENT ID

TECN

COMMENT

NODE=B155M0
NODE=B155M0
 2806^{+5}_{-7} OUR FIT Error includes scale factor of 1.3.

 $2846 \pm 8 \pm 10$

AUBERT

08BN BABR

 $B^- \rightarrow \bar{p} \Lambda_c^+ \pi^-$

$\Sigma_c(2800)$ MASS DIFFERENCES

NODE=B155210

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

VALUE (MeV)

EVTS

DOCUMENT ID

TECN

COMMENT

NODE=B155D++
NODE=B155D++
 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

NODE=B155D+
NODE=B155D+
 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

NODE=B155D0
NODE=B155D0
 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

NODE=B155215

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

VALUE (MeV)

EVTS

DOCUMENT ID

TECN

COMMENT

NODE=B155W++
NODE=B155W++
 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

NODE=B155W+
NODE=B155W+
 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
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NODE=B155W0
NODE=B155W0

72^{+22}_{-15} OUR AVERAGE

$86^{+33}_{-22} \pm 12$		AUBERT	08BN BABR	$B^- \rightarrow \bar{p} \Lambda_c^+ \pi^-$
61^{+18+22}_{-13-13}	2240^{+1300}_{-740}	MIZUK	05 BELLE	$e^+ e^- \approx \gamma(4S)$

$\Sigma_c(2800)$ DECAY MODES

NODE=B155220;NODE=B155

Mode	Fraction (Γ_i/Γ)
$\Gamma_1 \quad \Lambda_c^+ \pi$	seen

DESIG=1;OUR EST

$\Sigma_c(2800)$ REFERENCES

NODE=B155

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

REFID=52615
REFID=50708