

$\Xi_c(2645)$

$$I(J^P) = \frac{1}{2}(\frac{3}{2}^+) \text{ Status: } ***$$

A narrow peak seen in the $\Xi_c \pi$ mass spectrum. The natural assignment is that this is the $J^P = 3/2^+$ excitation of the Ξ_c in the same SU(4) multiplet as the $\Delta(1232)$, but the quantum numbers have not been measured.

$\Xi_c(2645)$ MASSES

The masses are obtained from the mass-difference measurements that follow.

$\Xi_c(2645)^+$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
2645.9^{+0.5}_{-0.6} OUR FIT		Error includes scale factor of 1.1.		
2645.6\pm0.2^{+0.6}_{-0.8}	578 \pm 32	LESLIAK	08 BELL	$e^+ e^- \approx \Upsilon(4S)$

$\Xi_c(2645)^0$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
2645.9\pm0.5 OUR FIT				
2645.7\pm0.2^{+0.6}_{-0.7}	611 \pm 32	LESLIAK	08 BELL	$e^+ e^- \approx \Upsilon(4S)$

$\Xi_c(2645) - \Xi_c$ MASS DIFFERENCES

$m_{\Xi_c(2645)^+} - m_{\Xi_c^0}$

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
175.0^{+0.8}_{-0.6} OUR FIT		Error includes scale factor of 1.2.		
175.6\pm1.4 OUR AVERAGE		Error includes scale factor of 1.7.		
177.1 \pm 0.5 \pm 1.1	47	FRABETTI	98B E687	γ Be, $\bar{E}_\gamma = 220$ GeV
174.3 \pm 0.5 \pm 1.0	34	GIBBONS	96 CLE2	$e^+ e^- \approx \Upsilon(4S)$

$m_{\Xi_c(2645)^0} - m_{\Xi_c^+}$

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
178.1\pm0.6 OUR FIT				
178.2\pm0.5\pm1.0	55	AVERY	95 CLE2	$e^+ e^- \approx \Upsilon(4S)$

$\Xi_c(2645)^+ - \Xi_c(2645)^0$ MASS DIFFERENCE

$m_{\Xi_c(2645)^+} - m_{\Xi_c(2645)^0}$

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
0.0\pm0.5 OUR FIT			
-0.1\pm0.3\pm0.6	LESLIAK	08 BELL	\approx 600 evts each

$\Xi_c(2645)$ WIDTHS

$\Xi_c(2645)^+$ WIDTH

<u>VALUE (MeV)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<3.1	90	GIBBONS	96	CLE2 $e^+e^- \approx \mathcal{T}(4S)$

$\Xi_c(2645)^0$ WIDTH

<u>VALUE (MeV)</u>	<u>CL%</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<5.5	90	55	AVERY	95	CLE2 $e^+e^- \approx \mathcal{T}(4S)$

$\Xi_c(2645)$ DECAY MODES

$\Xi_c \pi$ is the only strong decay allowed to a Ξ_c resonance having this mass.

Mode	Fraction (Γ_i/Γ)
$\Gamma_1 \quad \Xi_c^0 \pi^+$	seen
$\Gamma_2 \quad \Xi_c^+ \pi^-$	seen

$\Xi_c(2645)$ REFERENCES

LESIK	08	PL B665 9	T. Lesiak <i>et al.</i>	(BELLE Collab.)
FRABETTI	98B	PL B426 403	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)
GIBBONS	96	PRL 77 810	L.K. Gibbons <i>et al.</i>	(CLEO Collab.)
AVERY	95	PRL 75 4364	P. Avery <i>et al.</i>	(CLEO Collab.)