

$\Xi_c(2645)$

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

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 $\Xi_c(2645)^+$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
2645.10 ± 0.30 OUR FIT		Error includes scale factor of 1.2.		
2645.6 ± 0.2 $\begin{smallmatrix} +0.6 \\ -0.8 \end{smallmatrix}$	578 ± 32	LESIKAK	08	BELL $e^+e^- \approx \Upsilon(4S)$

 $\Xi_c(2645)^0$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
2646.16 ± 0.25 OUR FIT		Error includes scale factor of 1.3.		
2645.7 ± 0.2 $\begin{smallmatrix} +0.6 \\ -0.7 \end{smallmatrix}$	611 ± 32	LESIKAK	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
174.67 ± 0.09 OUR FIT				
174.66 ± 0.06 ± 0.07	1260	YELTON	16	BELL e^+e^- in Υ regions
• • • We do not use the following data for averages, fits, limits, etc. • • •				
177.1 ± 0.5 ± 1.1	47	FRABETTI	98B	E687 γ Be, $\bar{E}_\gamma = 220$ GeV
174.3 ± 0.5 ± 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
178.45 ± 0.10 OUR FIT				
178.46 ± 0.07 ± 0.07	975	YELTON	16	BELL e^+e^- in Υ regions
• • • We do not use the following data for averages, fits, limits, etc. • • •				
178.2 ± 0.5 ± 1.0	55	AVERY	95	CLE2 $e^+e^- \approx \Upsilon(4S)$

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

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
-1.06 ± 0.27 OUR FIT			Error includes scale factor of 1.1.
• • • We do not use the following data for averages, fits, limits, etc. • • •			
-0.85 ± 0.09 ± 0.49	YELTON	16	BELL 1260 and 975 evts
-0.1 ± 0.3 ± 0.6	LESIKAK	08	BELL ≈ 600 evts each

$\Xi_c(2645)$ WIDTHS

$\Xi_c(2645)^+$ WIDTH

VALUE (MeV)	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
2.14 ± 0.19					OUR AVERAGE Error includes scale factor of 1.1.
$2.06 \pm 0.13 \pm 0.13$		1260	YELTON	16	BELL e^+e^- in Υ regions
$2.6 \pm 0.2 \pm 0.4$		3.7k	KATO	14	BELL $e^+e^- \Upsilon(1S)\text{-}\Upsilon(5S)$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
<3.1	90		GIBBONS	96	CLE2 $e^+e^- \approx \Upsilon(4S)$

$\Xi_c(2645)^0$ WIDTH

VALUE (MeV)	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$2.35 \pm 0.18 \pm 0.13$		975	YELTON	16	BELL e^+e^- in Υ regions
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
<5.5	90	55	AVERY	95	CLE2 $e^+e^- \approx \Upsilon(4S)$

$\Xi_c(2645)$ 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

YELTON	16	PR D94 052011	J. Yelton <i>et al.</i>	(BELLE Collab.)
KATO	14	PR D89 052003	Y. Kato <i>et al.</i>	(BELLE Collab.)
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.)