

$\Xi_c(2645)$

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

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

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 OUR FIT	Error includes scale factor of 1.1.			
2645.6 ± 0.2^{+0.6}_{-0.8}	578 ± 32	LESLIAK	08	BELL $e^+e^- \approx \Upsilon(4S)$

$\Xi_c(2645)^0$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
2645.9 ± 0.5 OUR FIT				
2645.7 ± 0.2^{+0.6}_{-0.7}	611 ± 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 ± 0.6 OUR FIT	Error includes scale factor of 1.1.			
175.6 ± 1.4 OUR AVERAGE	Error includes scale factor of 1.7.			
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
178.0 ± 0.6 OUR FIT				
178.2 ± 0.5 ± 1.0	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 ± 0.5 OUR FIT			
-0.1 ± 0.3 ± 0.6	LESLIAK	08	BELL ≈ 600 evts each

$\Xi_c(2645)$ WIDTHS

$\Xi_c(2645)^+$ WIDTH

VALUE (MeV)	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$2.6 \pm 0.2 \pm 0.4$		3.7k	KATO	14	BELL $e^+e^- \Upsilon(1S)$ to $\Upsilon(5S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

<3.1	90		GIBBONS	96	CLE2 $e^+e^- \approx \Upsilon(4S)$
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$\Xi_c(2645)^0$ WIDTH

VALUE (MeV)	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<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)
Γ_1 $\Xi_c^0 \pi^+$	seen
Γ_2 $\Xi_c^+ \pi^-$	seen

$\Xi_c(2645)$ REFERENCES

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.)