$\Xi_c(2645)$

$I(J^P) = \frac{1}{2}(\frac{3}{2}^+)$ 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.				
$2645.6 \pm 0.2^{+0.6}_{-0.8}$	578 ± 32	LESIAK	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					
$2645.7 \pm 0.2^{+0.6}_{-0.7}$	611 ± 32	LESIAK	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, $\overline{E}_\gamma = 220$ 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	LESIAK	08	BELL	≈ 600 evts each

$\Xi_c(2645)$ WIDTHS

$\Xi_c(2645)^+$ WIDTH

VALUE (MeV)	*CL%*	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
2.6±0.2±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	$e^+e^- \approx \Upsilon(4S)$

$\Xi_c(2645)^0$ 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 *et al.*	(BELLE Collab.)
LESIAK	08	PL B665 9	T. Lesiak *et al.*	(BELLE Collab.)
FRABETTI	98B	PL B426 403	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
GIBBONS	96	PRL 77 810	L.K. Gibbons *et al.*	(CLEO Collab.)
AVERY	95	PRL 75 4364	P. Avery *et al.*	(CLEO Collab.)