

**$\Xi_c(2645)$** 

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

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  $\Xi_c$  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
<b><math>2645.9^{+0.5}_{-0.6}</math> OUR FIT</b>		Error includes scale factor of 1.1.		
<b><math>2645.6 \pm 0.2^{+0.6}_{-0.8}</math></b>	$578 \pm 32$	LESIK	08	BELL $e^+ e^- \approx \Upsilon(4S)$

 **$\Xi_c(2645)^0$  MASS**

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b><math>2645.9 \pm 0.5</math> OUR FIT</b>				
<b><math>2645.7 \pm 0.2^{+0.6}_{-0.7}</math></b>	$611 \pm 32$	LESIK	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
<b><math>175.0^{+0.8}_{-0.6}</math> OUR FIT</b>		Error includes scale factor of 1.2.		
<b><math>175.6 \pm 1.4</math> OUR AVERAGE</b>		Error includes scale factor of 1.7.		
$177.1 \pm 0.5 \pm 1.1$	47	FRABETTI	98B	E687 $\gamma$ 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
<b><math>178.1 \pm 0.6</math> OUR FIT</b>				
<b><math>178.2 \pm 0.5 \pm 1.0</math></b>	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
<b><math>0.0 \pm 0.5</math> OUR FIT</b>			
<b><math>-0.1 \pm 0.3 \pm 0.6</math></b>	LESIK	08	BELL $\approx 600$ evts each

## $\Xi_c(2645)$ WIDTHS

### $\Xi_c(2645)^+$ WIDTH

VALUE (MeV)	CL%	DOCUMENT ID	TECN	COMMENT
<3.1	90	GIBBONS 96	CLE2	$e^+e^- \approx \gamma(4S)$

### $\Xi_c(2645)^0$ WIDTH

VALUE (MeV)	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<5.5	90	55	AVERY 95	CLE2	$e^+e^- \approx \gamma(4S)$

## $\Xi_c(2645)$ DECAY MODES

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

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1 \quad \Xi_c^0 \pi^+$	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.)