

$\Xi_c(2645)$

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

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 | LESLIAK | 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 | 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 |
|---|------|-------------|------|--|
| 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 | LESLIAK | 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 $e^+e^- \Upsilon(1S)-\Upsilon(5S)$ |
| ● ● ● 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.) |