

$\Xi_c(2970)$

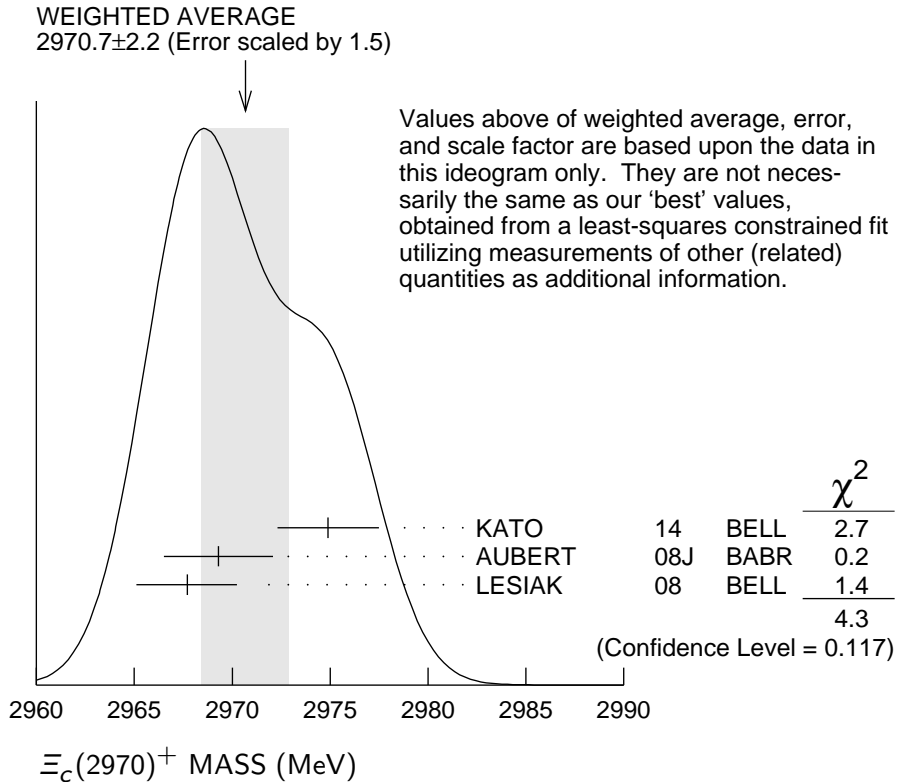
$$I(J^P) = \frac{1}{2}(??) \quad \text{Status: } ***$$

was $\Xi_c(2980)$

$\Xi_c(2970)$ MASSES

$\Xi_c(2970)^+$ MASS

| VALUE (MeV) | EVTS | DOCUMENT ID | TECN | COMMENT |
|---|---|-------------|----------|---|
| 2969.4 ± 0.8 OUR FIT | Error includes scale factor of 1.1. | | | |
| 2970.7 ± 2.2 OUR AVERAGE | Error includes scale factor of 1.5. See the ideogram below. | | | |
| 2974.9 ± 1.5 ± 2.1 | 244 ± 39 | KATO | 14 BELL | $e^+e^- \Upsilon(1S)$ to $\Upsilon(5S)$ |
| 2969.3 ± 2.2 ± 1.7 | 756 ± 206 | AUBERT | 08J BABR | $e^+e^- \approx 10.58$ GeV |
| 2967.7 ± 2.3 ^{+1.1} _{-1.2} | 78 ± 13 | LESIK | 08 BELL | $e^+e^- \approx \Upsilon(4S)$ |
| ● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ● | | | | |
| 2978.5 ± 2.1 ± 2.0 | 405 ± 51 | CHISTOV | 06 BELL | See KATO 14 |



$\Xi_c(2970)^0$ MASS

The evidence is statistically weaker for this charge state.

| VALUE (MeV) | EVTS | DOCUMENT ID | TECN | COMMENT |
|--|-------------------------------------|-------------|----------|-------------------------------|
| 2967.8 ± 0.8 OUR FIT | Error includes scale factor of 1.1. | | | |
| 2968.0 ± 2.6 OUR AVERAGE | Error includes scale factor of 1.2. | | | |
| 2972.9 ± 4.4 ± 1.6 | 67 ± 44 | AUBERT | 08J BABR | $e^+e^- \approx 10.58$ GeV |
| 2965.7 ± 2.4 ^{+1.1} _{-1.2} | 57 ± 13 | LESIK | 08 BELL | $e^+e^- \approx \Upsilon(4S)$ |
| 2977.1 ± 8.8 ± 3.5 | 42 ± 24 | CHISTOV | 06 BELL | $e^+e^- \approx \Upsilon(4S)$ |

$\Xi_c(2970) - \Xi_c$ MASS DIFFERENCES

$m_{\Xi_c(2970)^+} - m_{\Xi_c^0}$

| VALUE (MeV) | EVTS | DOCUMENT ID | TECN | COMMENT |
|---|-------------------------------------|-------------|------|------------------------------------|
| 498.5 ± 0.8 OUR FIT | Error includes scale factor of 1.1. | | | |
| $498.1 \pm 0.8 \pm 0.2$ | 916 | YELTON | 16 | BELL e^+e^- , Υ regions |

$m_{\Xi_c(2970)^0} - m_{\Xi_c^+}$

| VALUE (MeV) | EVTS | DOCUMENT ID | TECN | COMMENT |
|---|-------------------------------------|-------------|------|------------------------------------|
| $499.9^{+0.8}_{-0.7}$ OUR FIT | Error includes scale factor of 1.1. | | | |
| $499.9 \pm 0.7 \pm 0.2$ | 1443 | YELTON | 16 | BELL e^+e^- , Υ regions |

 $\Xi_c(2970)^+ - \Xi_c(2970)^0$ MASS DIFFERENCE

| VALUE (MeV) | DOCUMENT ID | TECN | COMMENT |
|---|-------------------------------------|------|------------------------|
| 1.6 ± 1.1 OUR FIT | Error includes scale factor of 1.1. | | |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | |
| $-4.8 \pm 0.1 \pm 0.5$ | YELTON | 16 | BELL 916 and 1443 evts |

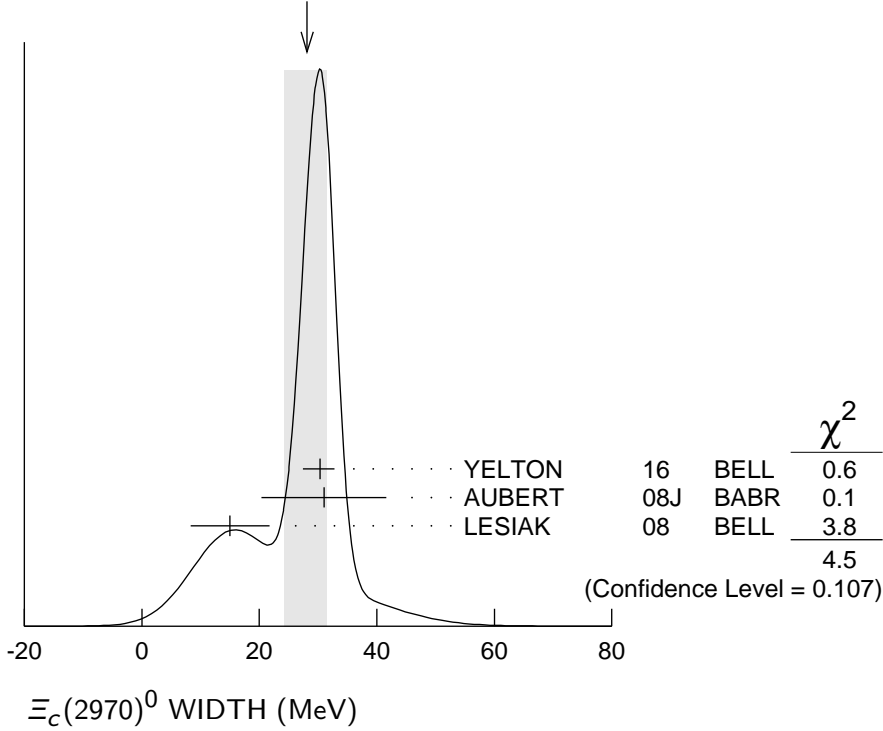
 $\Xi_c(2970)$ WIDTHS $\Xi_c(2970)^+$ WIDTH

| VALUE (MeV) | EVTS | DOCUMENT ID | TECN | COMMENT |
|---|-------------------------------------|-------------|------|--|
| $20.9^{+2.4}_{-3.5}$ OUR AVERAGE | Error includes scale factor of 1.2. | | | |
| $28.1 \pm 2.4^{+1.0}_{-5.0}$ | 916 | YELTON | 16 | BELL e^+e^- , Υ regions |
| $14.8 \pm 2.5 \pm 4.1$ | 244 ± 39 | KATO | 14 | BELL $e^+e^- \Upsilon(1S)$ to $\Upsilon(5S)$ |
| $27 \pm 8 \pm 2$ | 756 ± 206 | AUBERT | 08J | BABR $e^+e^- \approx 10.58$ GeV |
| $18 \pm 6 \pm 3$ | 78 ± 13 | LESIK | 08 | BELL $e^+e^- \approx \Upsilon(4S)$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| $43.5 \pm 7.5 \pm 7.0$ | 405 ± 51 | CHISTOV | 06 | BELL See KATO 14 |

 $\Xi_c(2970)^0$ WIDTH

| VALUE (MeV) | EVTS | DOCUMENT ID | TECN | COMMENT |
|--|---|-------------|------|------------------------------------|
| $28.1^{+3.4}_{-4.0}$ OUR AVERAGE | Error includes scale factor of 1.5. See the ideogram below. | | | |
| $30.3 \pm 2.3^{+1.0}_{-1.8}$ | 1443 | YELTON | 16 | BELL e^+e^- , Υ regions |
| $31 \pm 7 \pm 8$ | 67 ± 44 | AUBERT | 08J | BABR $e^+e^- \approx 10.58$ GeV |
| $15 \pm 6 \pm 3$ | 57 ± 13 | LESIK | 08 | BELL $e^+e^- \approx \Upsilon(4S)$ |

WEIGHTED AVERAGE
 28.1+3.4-4.0 (Error scaled by 1.5)



$\Xi_c(2970)$ DECAY MODES

| Mode | Fraction (Γ_i/Γ) |
|------------------------------------|--------------------------------|
| $\Gamma_1 \Lambda_c^+ \bar{K} \pi$ | seen |
| $\Gamma_2 \Sigma_c(2455) \bar{K}$ | seen |
| $\Gamma_3 \Lambda_c^+ \bar{K}$ | not seen |
| $\Gamma_4 \Xi_c 2\pi$ | seen |
| $\Gamma_5 \Xi_c(2645) \pi$ | seen |

$\Xi_c(2970)$ BRANCHING RATIOS

| $\Gamma(\Lambda_c^+ \bar{K} \pi)/\Gamma_{\text{total}}$ | VALUE | DOCUMENT ID | TECN | COMMENT | Γ_1/Γ |
|--|-------|-------------|------|-------------------------------------|---------------------|
| seen | | AUBERT | 08J | BABR $e^+ e^- \approx \Upsilon(4S)$ | |
| seen | | CHISTOV | 06 | BELL $e^+ e^- \approx \Upsilon(4S)$ | |
| $\Gamma(\Sigma_c(2455) \bar{K})/\Gamma(\Lambda_c^+ \bar{K} \pi)$ | VALUE | DOCUMENT ID | TECN | COMMENT | Γ_2/Γ_1 |
| 0.55 ± 0.07 ± 0.13 | | AUBERT | 08J | BABR $e^+ e^- \approx \Upsilon(4S)$ | |
| $\Gamma(\Xi_c(2645) \pi)/\Gamma_{\text{total}}$ | VALUE | DOCUMENT ID | TECN | COMMENT | Γ_5/Γ |
| seen | | LESIK | 08 | BELL $e^+ e^- \approx \Upsilon(4S)$ | |

$\Xi_c(2970)$ 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.) |
| AUBERT | 08J | PR D77 012002 | B. Aubert <i>et al.</i> | (BABAR Collab.) |
| LESIK | 08 | PL B665 9 | T. Lesiak <i>et al.</i> | (BELLE Collab.) |
| CHISTOV | 06 | PRL 97 162001 | R. Chistov <i>et al.</i> | (BELLE Collab.) |
