

$\Xi(2500)$

$I(J^P) = \frac{1}{2}(??)$ Status: *
J, P need confirmation.

OMITTED FROM SUMMARY TABLE

The ALITTI 69 peak might be instead the $\Xi(2370)$ or might be neither the $\Xi(2370)$ nor the $\Xi(2500)$.

$\Xi(2500)$ MASS

| <u>VALUE (MeV)</u> | <u>EVTS</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>CHG</u> | <u>COMMENT</u> |
|----------------------------|-------------|--------------------|-------------|------------|---------------------------------|
| ≈ 2500 OUR ESTIMATE | | | | | |
| 2505 ± 10 | | JENKINS | 83 | MPS | — $K^- p \rightarrow K^+$ MM |
| 2430 ± 20 | 30 | ALITTI | 69 | HBC | — $K^- p$ 4.6–5 GeV/c |
| 2500 ± 10 | 45 | BARTSCH | 69 | HBC | —0 $K^- p$ 10 GeV/c |

$\Xi(2500)$ WIDTH

| <u>VALUE (MeV)</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>CHG</u> |
|-----------------------------------|--------------------|-------------|------------|
| 150 ⁺⁶⁰ _{−40} | ALITTI | 69 | HBC |
| 59 ± 27 | BARTSCH | 69 | HBC |

$\Xi(2500)$ DECAY MODES

| Mode | Fraction (Γ_i/Γ) |
|---|--------------------------------|
| $\Gamma_1 \quad \Xi \pi$ | |
| $\Gamma_2 \quad \Lambda \bar{K}$ | |
| $\Gamma_3 \quad \Sigma \bar{K}$ | |
| $\Gamma_4 \quad \Xi \pi \pi$ | seen |
| $\Gamma_5 \quad \Xi(1530) \pi$ | |
| $\Gamma_6 \quad \Lambda \bar{K} \pi + \Sigma \bar{K} \pi$ | seen |

$\Xi(2500)$ BRANCHING RATIOS

| | | | |
|--|--------------------|--|-----------------------|
| $\Gamma(\Xi \pi) / [\Gamma(\Xi \pi) + \Gamma(\Lambda \bar{K}) + \Gamma(\Sigma \bar{K}) + \Gamma(\Xi(1530) \pi)]$ | | $\Gamma_1 / (\Gamma_1 + \Gamma_2 + \Gamma_3 + \Gamma_5)$ | |
| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> |
| <0.5 | ALITTI | 69 | HBC |
| | | | 1 standard dev. limit |
| $\Gamma(\Lambda \bar{K}) / [\Gamma(\Xi \pi) + \Gamma(\Lambda \bar{K}) + \Gamma(\Sigma \bar{K}) + \Gamma(\Xi(1530) \pi)]$ | | $\Gamma_2 / (\Gamma_1 + \Gamma_2 + \Gamma_3 + \Gamma_5)$ | |
| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>CHG</u> |
| 0.5 ± 0.2 | ALITTI | 69 | HBC |
| | | | — |
| $\Gamma(\Sigma \bar{K}) / [\Gamma(\Xi \pi) + \Gamma(\Lambda \bar{K}) + \Gamma(\Sigma \bar{K}) + \Gamma(\Xi(1530) \pi)]$ | | $\Gamma_3 / (\Gamma_1 + \Gamma_2 + \Gamma_3 + \Gamma_5)$ | |
| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>CHG</u> |
| 0.5 ± 0.2 | ALITTI | 69 | HBC |
| | | | — |

$$\frac{\Gamma(\Xi(1530)\pi)}{[\Gamma(\Xi\pi) + \Gamma(\Lambda\bar{K}) + \Gamma(\Sigma\bar{K}) + \Gamma(\Xi(1530)\pi)]} \quad \Gamma_5/(\Gamma_1+\Gamma_2+\Gamma_3+\Gamma_5)$$

| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> |
|--------------|--------------------|-------------|---------------------------|
| <0.2 | ALITTI | 69 | HBC 1 standard dev. limit |

$$\Gamma(\Xi\pi\pi)/\Gamma_{\text{total}} \quad \Gamma_4/\Gamma$$

| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>CHG</u> |
|--------------|--------------------|-------------|------------|
| seen | BARTSCH | 69 | HBC -0 |

$$[\Gamma(\Lambda\bar{K}\pi) + \Gamma(\Sigma\bar{K}\pi)]/\Gamma_{\text{total}} \quad \Gamma_6/\Gamma$$

| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>CHG</u> |
|--------------|--------------------|-------------|------------|
| seen | BARTSCH | 69 | HBC -0 |

$\Xi(2500)$ REFERENCES

| | | | | |
|---------|----|------------|----------------------------|---------------------|
| JENKINS | 83 | PRL 51 951 | C.M. Jenkins <i>et al.</i> | (FSU, BRAN, LBL+) |
| ALITTI | 69 | PRL 22 79 | J. Alitti <i>et al.</i> | (BNL, SYRA) I |
| BARTSCH | 69 | PL 28B 439 | J. Bartsch <i>et al.</i> | (AACH, BERL, CERN+) |